

ΑΚΑΔΗΜΙΑ ΕΜΠΟΡΙΚΟΥ ΝΑΥΤΙΚΟΥ ΜΑΚΕΔΟΝΙΑΣ

ΣΧΟΛΗ ΠΛΟΙΑΡΧΩΝ

ΠΤΥΧΙΑΚΗ ΕΡΓΑΣΙΑ

Θέμα : Top 20 ship flag states

ΣΠΟΥΔΑΣΤΗΣ : ΠΑΠΟΥΝΙΔΗΣ ΜΑΡΚΟΣ

ΕΠΙΒΛΕΠΩΝ ΚΑΘΗΓΗΤΗΣ : ΠΑΝΑΓΟΠΟΥΛΟΥ ΜΑΡΙΑ



ΝΕΑ ΜΗΧΑΝΙΩΝΑ 2016

**A.E.N ΜΑΚΕΔΟΝΙΑΣ
ΠΤΥΧΙΑΚΗ ΕΡΓΑΣΙΑ**

ΤΟΥ ΣΠΟΥΔΑΣΤΗ : ΠΑΠΟΥΝΙΔΗ ΜΑΡΚΟΥ , Α.Γ.Μ: 3291

ΕΠΙΒΛΕΠΩΝ ΚΑΘΗΓΗΤΗΣ: ΠΑΝΑΓΟΠΟΥΛΟΥ ΜΑΡΙΑ

ΘΕΜΑ: Top 20 ship flag states

Ημερομηνία ανάληψης της εργασίας: 24/04/2015

Ημερομηνία παράδοσης της εργασίας: 03/06/2016

| A/A | Όνοματεπώνυμο | Ειδικότης | Αξιολόγηση | Υπογραφή |
|--------------------------|----------------------|------------------|-------------------|-----------------|
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |
| ΤΕΛΙΚΗ ΑΞΙΟΛΟΓΗΣΗ | | | | |

Ο ΔΙΕΥΘΥΝΤΗΣ ΣΧΟΛΗΣ : ΤΣΟΥΛΗΣ ΝΙΚΟΛΑΟΣ

Abstract

The shipping industry could lay claim to being the world's first truly global industry. Likewise it could claim to be the industry which, more than any other makes it possible for a truly global economy to work. It connects countries, markets, businesses and people, allowing them to buy and sell goods on a scale not previously possible. And as consumers, we have become used to seeing goods from all parts of the globe readily available in the stores we visit.

The needs of a rapidly growing world population can only be met by transporting goods and resources between countries. The liner shipping industry has made this process more efficient and changed the shape of the world economy. This benefits consumers by creating choice, boosting economies and creating employment. Costs for the consumer are kept down and efficiencies are improved and this in turn minimizes impact on the environment as well

The import and export of goods on the scale necessary for the modern world would not be possible, without shipping. Nowadays, around 90% of world trade is carried by the international shipping industry. Increasing industrialization and the liberalization of national economies have fuelled free trade and a growing demand for consumer products. Advances in technology have also made shipping an increasingly efficient and swift method of transport.

In this report the author addresses the issue of top 20 ship flag states as the main subject. After the references to the historical background of shipping industry and the chapter of world trading fleet, the report discusses the top 20 ship flag states, with many information and statistics of the shipping industries of these 20 countries flag of registration. As well as, the report deals with the largest ship owning countries. Here the author wants to mention that Greece is the largest ship owning country, but the sixth flag of registration. Furthermore, the last chapter of the main objective, addresses the issue of 10 biggest shipping companies in the world.

Table of Contents

| | |
|---|----|
| Chapter 1: Introduction | 5 |
| Chapter 2: History of shipping industry..... | 7 |
| 2.A) Globalization and International trade..... | 10 |
| 2. B) Shipping and the global economy | 12 |
| Chapter 3: World Trading Fleet..... | 17 |
| 3. A) The world fleet and modern ships..... | 17 |
| 3. B) The overview of ship types | 22 |
| Chapter 4: Top 20 ship flag states..... | 28 |
| Chapter 5: The Biggest Shipping Companies in the World..... | 65 |
| Chapter 6: Conclusion..... | 72 |
| Chapter 7: Bibliography..... | 75 |

Chapter 1: Introduction

We live in a global society which is supported by a global economy – and that economy simply could not function if it were not for ships and the shipping industry. Shipping is truly the lynchpin of the global economy: without shipping, intercontinental trade, the bulk transport of raw materials and the import/export of affordable food and manufactured goods would simply not be possible.

Shipping is perhaps the most international of all the world's great industries and one of the most dangerous. It has always been recognized that the best way of improving safety at sea is by developing international regulations that are followed by all shipping nations. Regulating the maritime industry to promote safety and security and prevention of pollution from ships worldwide has been the function of the International Maritime Organization since its inception in 1959. The work of IMO is well documented through its numerous conventions and codes and on the Organization's website.

Of all the sectors that make up the global transport infrastructure, shipping probably has the lowest public profile and the least representative public image. Its importance is not well known although not a single area of our life remains unaffected by it. The IMO Council at its 93rd session in November 2004 endorsed the proposal that the theme for World Maritime Day 2005 would be "**International Shipping - Carrier of World Trade**". The theme was chosen to provide an ideal opportunity to draw attention to the vital role that shipping plays in underpinning the international economy and its significant contribution to international trade and the world economy as the most efficient, safe and environmentally friendly method of transporting goods around the globe.

Liner shipping is the service of transporting goods by means of high-capacity, ocean-going ships that transit regular routes on fixed schedules. There are approximately 400 liner services, most sailing weekly, in operation today. Liner vessels, primarily in the form of containerships and roll-on/roll-off ships, carry about 60 percent of the goods by value moved internationally by sea each year.

Most liner ships are containerships, capable of moving thousands of truckloads of cargo on a single voyage. Additionally, roll-on/roll-off vessels, known as RoRo ships, (so named because you can literally drive on and off of them - much like a ferry), provide liner service to vehicles and certain machinery. Finally, some liner ships are a combination of container and RoRo.

Most liner ships are containerships, capable of moving thousands of truckloads of cargo on a single voyage. Additionally, roll-on/roll-off vessels, known as RoRo ships, (so named because you can literally drive on and off of them - much like a ferry), provide liner service to vehicles and certain machinery. Finally, some liner ships are a combination of container and RoRo.

Container shipping is different from conventional shipping because it uses standard "containers" of various sizes - 20 foot (6.09 m), 40 foot (12.18 m), 45 foot (13.7 m), 48 foot (14.6 m), and 53 foot (16.15 m) - to load, transport, and unload goods. The standard measure of containers is a twenty-foot equivalent unit or TEU so a twenty-foot container equals one TEU, a forty-foot container equals two TEU and so on. The containers are all built to an international standard so they are interchangeable between container shipping companies, and with rail and trucking companies.

Container shipping could lay claim to being the world's first truly global industry. Likewise it could claim to be the industry which, more than any other makes it possible for a truly global economy to work. It connects countries, markets, businesses and people, allowing them to buy and sell goods on a scale not previously possible.



Although the world economy is highly dependent today on the efficiencies brought about by modern containerization, this method of transporting goods internationally is just decades old.

Around 90% of world trade is carried by the international shipping industry.

Without shipping the import and export of goods on the scale necessary for the modern world would not be possible.

Seaborne trade continues to expand, bringing benefits for consumers across the world through competitive freight costs. Thanks to the growing efficiency of shipping as a mode of transport and increased economic liberalisation, the prospects for the industry's further growth continue to be strong.

There are over 50,000 merchant ships trading internationally, transporting every kind of cargo. The world fleet is registered in over 150 nations, and manned by over a million seafarers of virtually every nationality.

Chapter 2: History of shipping industry

Modern container shipping celebrated its 50th anniversary in 2006. Almost from the first voyage, use of this method of transport for goods grew steadily and in just five decades, containerships would carry about 60% of the value of goods shipped via sea.

The idea of using some type of shipping container was not completely novel. Boxes similar to modern containers had been used for combined rail- and horse-drawn transport in England as early as 1792. The US government used small standard-sized containers during the Second World War, which proved a means of quickly and efficiently unloading and distributing supplies. However, in 1955, Malcom P. McLean, a trucking entrepreneur from North Carolina, USA, bought a steamship company with the idea of transporting entire truck trailers with their cargo still inside. He realized it would be much simpler and quicker to have one container that could be lifted from a vehicle directly on to a ship without first having to unload its contents.



His ideas were based on the theory that efficiency could be vastly improved through a system of "intermodalism", in which the same container, with the same cargo, can be

transported with minimum interruption via different transport modes during its journey. Containers could be moved seamlessly between ships, trucks and trains. This would simplify the whole logistical process and, eventually, implementing this idea led to a revolution in cargo transportation and international trade over the next 50 year



People have been trading with each other, even between nations and across oceans, for thousands of years - long before containerization.

Intermodalism is a system that is based on the theory that efficiency will be vastly improved when the same container, with the same cargo, can be transported with minimum interruption via different transport modes from an initial place of receipt to a final delivery point many kilometers or miles away. That means the containers would move seamlessly between ships, trucks and trains

Buyers and sellers of goods recognized the potential of container shipping very early on, and the international standards for container size agreed to in 1961 paved the way for containerships to be used to transport goods between countries.

Until the 19th century, ships were owned by the merchant or by the trading company; common-carrier service did not exist.

On January 5, 1818, the full-rigged American ship *James Monroe*, of the Black Ball Line, sailed from New York City for Liverpool, inaugurating common-carrier line service on a dependable schedule. A policy of sailing regularly and accepting cargo in less-than-shipload lots enabled the Black Ball Line to revolutionize shipping.



Two technological developments furthered progress toward present-day shipping practices: the use of steam propulsion and the use of iron in shipbuilding. In 1819 the American sailing ship *Savannah* crossed the Atlantic under steam propulsion for part of the voyage, pioneering the way for the British ship *Sirius*, which crossed the Atlantic entirely under steam in 1838. Iron was first used in the sailing vessel *Ironsides*, which was launched in Liverpool in 1838.

The opening of the Suez Canal in 1869 was of great economic importance to shipping. Coinciding with the perfection of the triple-expansion reciprocating engine, which was both dependable and economical in comparison with the machinery of the pioneer vessels, the completion of the canal made possible rapid service between western Europe and Asia. The first steam-propelled ship designed as an oceangoing tanker was the *Glückauf*, built in Britain in 1886. It had 3,020 deadweight tons (dwt; the weight of a ship's cargo, stores, fuel, passengers, and crew when the ship is fully loaded) and a speed of 11 knots.



Among the technological advances at the turn of the century was the development by the British inventor Charles A. Parsons of the compound steam turbine, adapted to maritime use in 1897. In 1903 the *Wandal*, a steamer on the Volga River, was powered by the first diesel engine used for ship propulsion. The Danish vessel *Selandia* was commissioned as the first seagoing motor ship in 1912.

After World War I significant progress was made especially in the perfection of the turboelectric drive. During World War II, welding in ship construction supplanted the use of rivets.

The keel of the first nuclear-powered passenger-cargo ship, the *Savannah*, was laid in Camden, New Jersey, on May 22, 1958, and the ship was launched in 1960. In 1962 it was chartered to a private company, but it did not prove financially successful.

2.A) Globalization and International trade

It may seem obvious to say that, today, we live in a global world, and it is certainly true that international trade among all the nations and regions of the world is nothing new. From the Phoenicians, through the Egyptians, the Greeks and the Carthaginians, the Chinese, the Vikings, the Omanis, the Spaniards, the Portuguese, the Italians, the British, the French, the Dutch, the Polynesians and Celts, the history of the world is a history of exploration, conquest and trade by sea.

But there is no doubt that we have now entered a new era of global interdependence from which there can be no turning back. In today's world, national boundaries offer little impediment to multi-national corporations: cars with far-eastern brands are not only sold but also assembled in Europe, while European brands are assembled and sold in North America; —western energy companies invest millions of dollars in Asia and the Far-East and the strategy and investment decisions they make can affect millions of people all over the world.

The high-flyers of the business world can cross oceans in just hours, communicating by e-mail and mobile phones as they go. In the financial markets, brokers and traders have thrown off the constraints of time zones and distance and now access the world markets via computer. In the 21st century, industries such as computer software, media and fashion have no obvious geographical dimension and recognise no physical boundaries. In today's consumer world, the same brands are recognised, understood and valued all over the world.

Looking back into history, we can trace the stages through which we have progressed to arrive at this new world order. There was a time when, for any given community, the most important raw materials, the most important products and the most important markets were essentially local. But, as interaction between communities grew, trade developed and regional specialities, often founded on the availability of particular raw materials or on saleable skill-sets that had been developed over time, began to emerge.

As the world became more developed, proximity to raw materials and to markets became the factors that, above all others, shaped the world's economy and, in particular, the major trade patterns and shipping routes. Eventually, the great seaborne trades became established: coal from Australia, Southern Africa and North America to Europe and the Far East; grain from North and South America to Asia, Africa and the Far East; iron ore from South America and Australia to Europe and the Far East; oil from the Middle East, West Africa, South America and the Caribbean to Europe, North America and Asia; and now we must add to this list containerized goods from the People's Republic of China, Japan and South-east Asia to the consumer markets of the western world. Global trade has permitted an enormous variety of resources to be widely accessible and thus facilitated the widespread distribution of our planet's common wealth.

Today, international trade has evolved to the point where almost no nation can be fully self-sufficient. Every country is involved, at one level or another, in the process of selling what it produces and acquiring what it lacks: none can be dependent only on its domestic resources. Global trade has fostered an interdependency and inter-connectivity between peoples who would previously have considered themselves completely unconnected. The potential benefits are clear: growth can be accelerated and prosperity more widespread; skills and technology can be more evenly dispersed, and both individuals and countries can take advantage of previously unimagined economic opportunities.

Shipping has always provided the only really cost-effective method of bulk transport over any great distance, and the development of shipping and the establishment of a global system of trade have moved forward together, hand-in-

hand. Those with access to natural resources; those with the ability to convert those resources into useful products for the good of mankind; and those with a requirement and the wherewithal to utilize and consume those end products are all joined by the common thread of shipping. The eternal triangle of producers, manufacturers and markets are brought together through shipping. This has always been the case and will remain so for the foreseeable future.

2. B) Shipping and the global economy

It is generally accepted that more than 90 per cent of global trade is carried by sea. Throughout the last century the shipping industry has seen a general trend of increases in total trade volume. Increasing industrialization and the liberalization of national economies have fuelled free trade and a growing demand for consumer products. Advances in technology have also made shipping an increasingly efficient and swift method of transport.

World seaborne trade figures i.e. the amount of goods actually loaded aboard ships have increased considerably since the 70's and in 2008, reached 8.2 billion tons of goods loaded. As with all industrial sectors, however, shipping is not immune to economic downturns and 2009 *witnessed the worst global recession in over seven decades and the sharpest decline in the volume of global merchandise trade*. In tandem with the collapse in economic growth and trade, international seaborne trade volumes contracted by 4.5 per cent and total goods loaded went down to 7.8 billion tons in 2009. However seaborne trade bounced back in 2010 and grew by an estimated 7 % taking the total of goods loaded to 8.4 billion tons.

Developing countries continued to account for the largest share of global seaborne trade (60% of all goods loaded and 56 % of all goods unloaded), reflecting their growing resilience to economic setbacks and an increasingly leading role in driving global trade. Developed economies' shares of global goods loaded and unloaded were 34 % and 43 % respectively. Transition economies accounted for 6 % of goods loaded and 1 % of goods unloaded.

—Developing countries are expanding their participation in a range of different maritime businesses. They already hold strong positions in ship scrapping, ship registration and the supply of seafarers, and they have growing market shares in more capital-intensive or technologically advanced maritime sectors such as ship construction and ship owning. China and the Republic of Korea between them built 72.4 per cent of world ship capacity (dwt) in 2010, and 9 of the 20 largest countries in ship owning in January 2011 are developing countries.

| Year | Oil | Main bulks* | Other dry cargo | Total (all cargoes) |
|-------|-------|-------------|-----------------|---------------------|
| 1970 | 1 442 | 448 | 676 | 2 566 |
| 1980 | 1 871 | 796 | 1 037 | 3 704 |
| 1990 | 1 755 | 968 | 1 285 | 4 008 |
| 2000 | 2 163 | 1 288 | 2 533 | 5 984 |
| 2006 | 2 698 | 1 836 | 3 166 | 7 700 |
| 2007 | 2 747 | 1 957 | 3 330 | 8 034 |
| 2008 | 2 742 | 2 059 | 3 428 | 8 229 |
| 2009 | 2 642 | 2 094 | 3 122 | 7 858 |
| 2010* | 2 752 | 2 333 | 3 323 | 8 408 |

In his recent speech at Nor-Shipping in June 2011, the IMO Secretary-General offered his views on the current economic outlook. Container trades, he said, are facing their shortest ever cycle, with freight rates plummeting again after the crash of 2009 and the relative boom of 2010; similarly, in the dry bulk markets, freight rates remain far from the partial recovery of 2010. And, although one should differentiate among rates for VLCCs, Aframaxes and product carriers, one cannot ignore the sluggish tanker market that has seen rates fall dramatically and earnings struggle to rise above operating costs – except, of course, for the short-term charter rates for LNG carriers that rose spectacularly recently.

Owners, who placed orders for new tonnage in the euphoria of 2004 to 2007, may live to regret their decisions, as growth in the supply side of shipping is seemingly set to outpace growth in short-term demand and fleet utilization to drop below the levels usually regarded as comfortable.

To make crystal-ball gazing even more difficult, completely unpredictable events have recently served to make an already opaque picture even more disjointed. Floods in Australia, the earthquake and tsunami in Japan, and unrest in North Africa and the Middle East, for example, have all had a detrimental effect on certain trades, and it is still not known what the full consequences of the situations they created will be.

Against this gloomy background, there are indications that long-term demand continues to grow. Both India and China, for example, where even modest per capita growth in consumption is expected to generate strong demand in the corresponding trades, are now embarked on huge power-generation projects. The coal and iron ore sectors are expected to be the major beneficiaries, with Australia and Brazil leading the group of exporters – the latter having already embarked on an ambitious project comprising 6 ultra large ore carriers, of the Chinamax type, of 400,000 dw tons each; not to mention the massive 600,000-dwt very large ore carrier currently on the drawing board of a Chinese shipyard.

To sum up Clarksons' Stopford's assessment of the outlook for shipping

- Effective cost management will be the central challenge confronting shipowners and operators in the decade ahead;
- Three themes will dominate the decade: shipyard overcapacity; energy costs; and the environment;
- The main worry facing shipowners is overcapacity in building;
- Industry must go back to basics, to become more cost effective;
- There are no magic solutions, but embracing new technologies, such as dual-fuel engines, might be a starting point;
- Rising energy costs are another factor that will have a knock-on effect on shipping, as oil and energy become more expensive;
- Cutting energy costs involves difficult choices but can be done by lowering speed, modifying design and using multiple fuel systems

Global GDP increased by 2.5 per cent in 2014, up from 2.4 per cent in 2013 (see table 1.1). Although positive, this growth remains below the pre-crisis levels with almost all economies having shifted to a lower growth path. Growth in the advanced economies accelerated to 1.6 per cent, while GDP in both the developing economies and the economies in transition expanded at the slower rates of 4.5 per cent and 0.9 per cent, respectively. The emerging recovery in the advanced economies was uneven, led by accelerated growth in the United States (2.4 per cent) and the United Kingdom of Great Britain and Northern Ireland (3.0 per cent) and a fragile recovery in the European Union (1.3 per cent). Meanwhile, GDP growth in Japan came to a standstill due, among other factors, to the 2014 consumption tax increase and the fading away of the effect of the fiscal and monetary stimulus introduced in 2013.

Gross domestic product growth in the transition economies was constrained by weak exports and external financing constraints as well as the uncertainty caused by the geopolitical conflicts in the region. Although developing countries remained the engine of growth, contributing three quarters of global expansion in 2014 (International Monetary Fund, 2015), slower GDP growth reflects, in particular, weaker expansion in developing America and a slowdown in China. Elsewhere, the economies of the least developed countries (LDCs) continued to expand at a rapid rate (5.3 per cent).

China continued to grow at the relatively robust rate of 7.4 per cent. However, this rate is much below the average growth of 10.0 per cent achieved years earlier and reflects, to a large extent, the slowdown in the industrial production. Growth in industrial production averaged 8.0 per cent in 2014, down from 14.0 per cent in 2011 and 10 per cent in 2012 and 2013 (Dry Bulk Trade Outlook, 2015a). Meanwhile, GDP in India expanded by 7.1 per cent and is expected to grow at a faster rate in 2015. The slowdown in China entails some important implications for seaborne trade, shipping investors, service providers and users in view of the country's major role in supporting growth in Asia as well as in other developing regions. On the import side, dry bulk shipping and crude oil tankers have benefited the most from China's robust demand while, on the export side, container shipping, especially on the intra-Asian routes and westbound to Europe and North America, was the main beneficiary. The impact of a further slowdown in China will extend beyond the Chinese and Asian borders.

World economic growth 2012-2015 (annual percentage change)

| <i>Region/country</i> | 2012 | 2013 | 2014 | 2015^a |
|----------------------------------|-------------|-------------|-------------|-------------------------|
| WORLD | 2.2 | 2.4 | 2.5 | 2.5 |
| Developed economies | 1.1 | 1 | 1 | 1 |
| of which: | | | | |
| European Union | -0.5 | 0 | 1 | 1 |
| 28 of which: | | | | |
| France | 0.2 | 1 | 3 | 7 |
| Germany | 0.4 | 0.7 0.1 | 0.2 1.6 | 1.2 1 |
| Italy | -2.8 | -1.7 | -0.4 | 0 |
| United Kingdom | 0.7 | 1.7 | 3.0 | 2 |
| Japan | 1 | 1 | -0.1 | 0 |
| United States | 2 | 2 | 2.4 | 2.3 |
| Developing economies | 4.7 | 4.8 | 4.5 | 4.1 |
| of which: | | | | |
| Africa | 5.1 | 3.8 | 3.4 | 3.2 |
| South Africa | 2.2 | 2.2 | 1.5 | 1.9 |
| Asia | 5.1 | 5.6 | 5.5 | 5.2 |
| China | 7.7 | 7.7 | 7.4 | 6.9 |
| India | 4.4 | 6.4 | 7.1 | 7.5 |
| Western Asia | 4.0 | 4.1 | 3.3 | 2.5 |
| Developing America | 3.2 | 2.8 | 1.4 | 0.8 |
| Brazil | 1.8 | 2.7 | 0.1 | -1.5 |
| Least developed countries | 4.3 | 5.3 | 5.3 | 3.5 |
| Transition economies | 3.3 | 2.0 | 0.9 | -2.6 |
| of which: | | | | |
| Russian Federation | 3.4 | 1.3 | 0.6 | -3.5 |

Looking forward, global economic growth is projected to moderate in 2015 supported mainly by growth in the advanced economies and relatively strong growth in Asia. Growth in developing countries as a group is expected to decelerate due to factors such as the low oil price levels and their impact on oil exporting countries, persistent political uncertainties, concerns about developments involving the European Union and Greece, and a continued rebalancing of China's economy.

The precise impact of lower oil prices will depend largely on their duration. The broad effects of a drop are generally positive as it stimulates global demand. However, this also implies an income shift from oil producers to consumers. Lower oil price levels will support the purchasing power of consumers in importing countries. For example, a sustained \$30 decline in oil prices is expected to result in over \$200 billion per year of savings for consumers in the United States through lower prices for gasoline, diesel, jet fuel and home heating oil (Politico Magazine,

2014). Conversely, demand from oil exporting countries will be constrained, including as a result of fiscal adjustments (for example, cuts of subsidies), unfavourable terms of trade and loss of revenue. It is estimated that each one-dollar fall in oil prices will result in a \$2 billion loss in revenue for the Russian Federation (Johnson, 2015). Meanwhile, the oil and gas export earnings of the Gulf Cooperation Council countries are expected to decline by around \$300 billion (International Monetary Fund, 2015). Other potential impacts of persistent lower oil prices relate to the delays, postponements or cancellations of oil and gas investment projects that may only have been feasible in a higher energy price- setting. Reduced energy sector investments will, in the medium or long term, likely dampen production as well as growth in oil and gas trades.

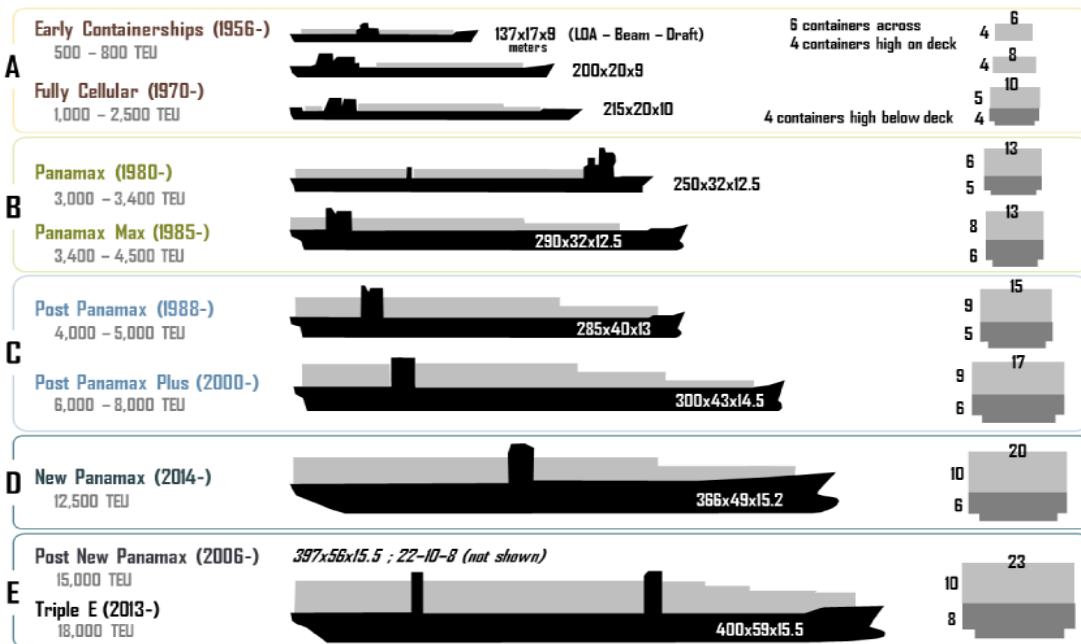
In sum, the world economy has embarked on a slow moving global recovery. On balance, GDP growth is expected to continue to moderate in 2015 with the outlook remaining subject to many downside risks, including a global demand and merchandise trade that undershoot expectations, the different economic outlooks for net oil consumers and producers, political shocks and geopolitical tensions, a potential faster slowdown in large developing economies, as well as uncertainty about the pace of the slowdown in China and related implications for the world economy, trade and seaborne shipments.

Chapter 3: World Trading Fleet

3. A) The world fleet and modern ships

There is no doubt that the magnificent square riggers of the era of sail or the early 20th century's prestigious ocean liners could stir the hearts of all those that beheld them. But the ships of today are just as worthy of our admiration, for shipping today is in another truly golden age. Ships have never been so technically advanced, never been so sophisticated, never been more immense, never carried so much cargo, never been safer and never been so environmentally-friendly as they are today.

Mammoth containerships nudging the 18 000 TEU barrier yet still capable of 25 knot operating speeds; huge oil tankers and bulk carriers that carry vast quantities of fuel, minerals, and grain and other commodities around our planet economically, safely and cleanly; the complex and highly specialized workhorses of the offshore industry; and the wonderful giants of the passenger ship world are all worthy of our greatest admiration.



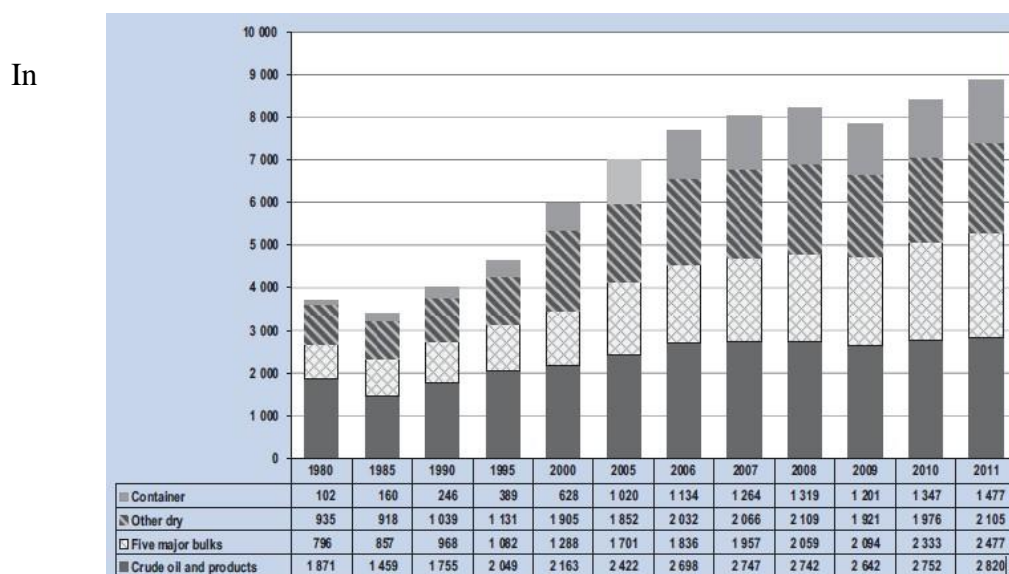
In shipping today we can see many marvels of state-of-the-art engineering and technology that deserve to be ranked alongside the very finest achievements of our global infrastructure. We all marvel at the wonders of the modern world – skyscrapers, bridges, dams, ship canals, tunnels and so on. Although they all deserve our admiration, there should be no question that today’s finest ships are also worthy of the sort of recognition usually reserved for the great icons of land-based civil engineering – with one substantial difference in favour of the former: while skyscrapers, bridges, dams *et al* are static structures designed to withstand the elements coming to them, the very essence of vessels sends them out to sea to face the elements at full force, alone in the vastness of the ocean. They should, therefore, be robust when built and maintained as such throughout their entire lifetime.

Ships are high value assets, with the larger of them costing over US \$100 million to build. They are also technically sophisticated: you are more likely to find one of today's modern vessels being controlled by a single joystick and a mouse-ball in the arm of the helmsman's seat than by a horny-handed bosun grappling with a spoked wheel; the chief engineer will probably have clean hands and the calluses on his or her fingers will be from tapping a keyboard rather than wielding a spanner. The crew accommodation will be clean, light and airy with modern recreation facilities; the food will be good; and you may well find the first officer exchanging emails with his family at home via the satellite communication system. Ships today are modern, technologically advanced workplaces and the work of the **International Maritime Organization (IMO)** has played, and continues to play, an important part in shaping that environment.

As at December 2010, today's world fleet of propelled sea-going merchant ships of no less than 100 GT comprises 104,304 ships of 1,043,081,509 million GT with an average age of 22 years; they are registered in over 150 nations and manned by 1.5 million seafarers of virtually every nationality.

The world's cargo carrying fleet in 2011 is 55,138 ships of 991,173,697 GT and 1,483,121,493 dwt and the average age is 19 years.

Development of world fleet by millions of dwt



Source: *Review of Maritime Transport*, various issues. For 2006–2010, the breakdown by dry cargo type is based on Clarksons Research Services, *Shipping Review and Outlook*, various issues. Data for 2011 are based on a forecast by Clarksons Research in *Shipping Review and Outlook*, Spring 2011.

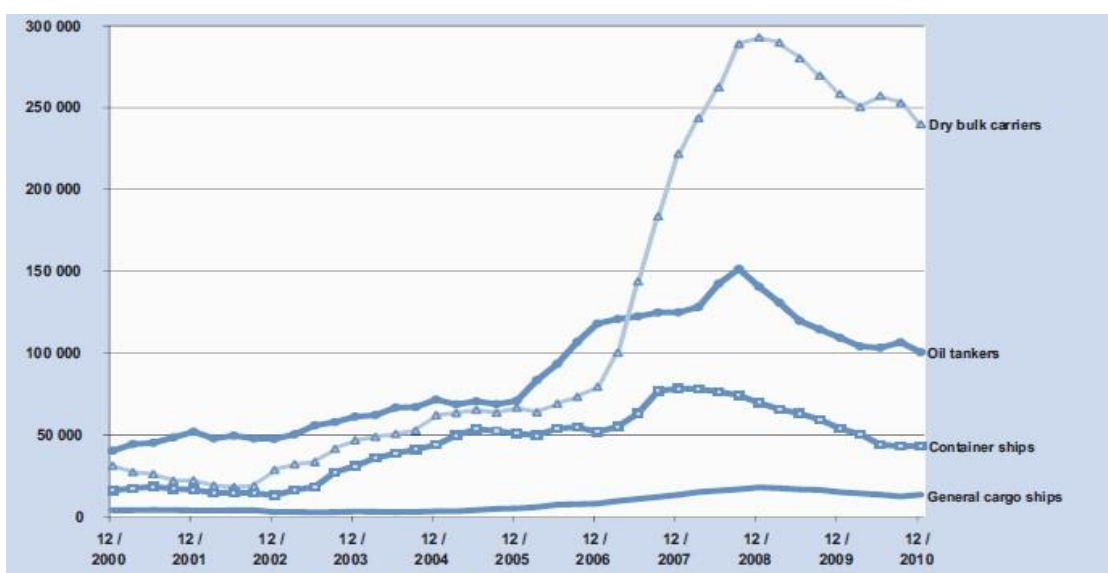
January 2011, there were 103,392 commercial ships in service with a combined tonnage of 1,396 million dwt. Looking at individual sectors, oil tankers accounted for 475 million dwt and dry bulk carriers for 532 million dwt, representing an annual increase of 5.5 % and 16.5 % respectively; the containership fleet reached 184 million dwt in January 2011(8.7% over 2010). The fleet of general cargo ships stabilised at 109 million dwt. The tonnage of liquefied gas carriers continued to grow, reaching 43 million dwt (an increase of 6.6%). (Source: *UNCTAD Review of Maritime Transport 2011, p. 36*)

The average age of the world fleet of propelled sea-going merchant ships of no less than 100 GT is 22 years and the average age of the world cargo-carrying ships 19 years.

As a result of orders placed prior to the 2008 crisis, new building deliveries reached a new record in the history of shipbuilding. There were 3,748 newbuildings with a gross tonnage of 96,433,000 GT.

In terms of gross tonnage, 45.2 % of deliveries were of dry bulk carriers and 27.7 % were of tankers. New containerships accounted for 15.2%.

World Tonnage on order



Source: Compiled by the UNCTAD secretariat on the basis of data supplied by IHS Fairplay.

* Seagoing propelled merchant ships of 100 gross tons and above..

Representative new-building prices (millions of dollars, annual averages)

| Type and size of vessel | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | Percentage change 2010/2009 |
|--------------------------------------|------|------|------|------|------|------|------|------|-----------------------------|
| Oil tanker – Handy, 50 000 dwt | 28 | 35 | 42 | 47 | 50 | 52 | 40 | 36 | -10.0 |
| Oil tanker – Suezmax, 160 000 dwt | 47 | 60 | 73 | 76 | 85 | 94 | 70 | 66 | -5.7 |
| Oil tanker – VLCC, 300 000 dwt | 67 | 91 | 119 | 125 | 136 | 153 | 116 | 103 | -11.2 |
| Chemical tanker – 12 000 dwt | 12 | 16 | 18 | 21 | 33 | 34 | 33 | 28 | -15.2 |
| LPG carrier – 15 000 m ³ | 28 | 36 | 45 | 49 | 51 | 52 | 46 | 41 | -10.9 |
| LNG carrier – 160 000 m ³ | 153 | 173 | 205 | 217 | 237 | 222 | 226 | 208 | -8.0 |
| Dry bulk – Handysize, 30 000 dwt | 16 | 19 | 21 | 22 | 33 | 38 | 29 | 25 | -13.8 |
| Dry bulk – Panamax, 75 000 dwt | 23 | 32 | 35 | 36 | 47 | 54 | 39 | 35 | -10.3 |
| Dry bulk – Capesize, 170 000 dwt | 38 | 55 | 62 | 62 | 84 | 97 | 69 | 58 | -15.9 |
| Container – geared, 500 TEUs | 13 | 18 | 18 | 16 | 16 | 21 | 14 | 10 | -28.6 |
| Container – gearless, 6 500 TEUs | 67 | 86 | 101 | 98 | 97 | 108 | 87 | 75 | -13.8 |
| Container – gearless, 12 000 TEUs | n.a. | n.a. | n.a. | n.a. | 154 | 164 | 114 | 107 | -6.1 |

Source: Compiled by the UNCTAD secretariat on the basis of data derived from *Drewry Shipping Insight*.

Responding to the growth in demand, the world fleet grew by 3.5 per cent during the 12 months to 1 January 2015, the lowest annual growth rate in over a decade.¹ In total, at the beginning of the year, the world's commercial fleet consisted of 89,464 vessels, with a total tonnage of 1.75 billion dwt. The new tonnage added to the global fleet continued to decline in comparison with previous years in absolute terms. At the same time, the overall growth rate of tonnage was still above that of global GDP and trade growth, and even slightly higher than that of the growth of seaborne trade.

The greatest and expanding share in the global fleet are dry bulk carriers, which by the beginning of 2015 had reached a share of 43.5 per cent of total capacity; the result of a 4.4 per cent growth rate between 2014 and 2015 and even higher expansion in the years 2010–2013.

Despite the continued economic crisis, the container ship fleet increased by 5.2 per cent in the same period and thus stands in contrast to the slowdown in global economic growth. A further increase in the rate of containerization may to some extent lead to growing demand for container-carrying capacity, yet overall during recent years demand has grown less than supply, leading to a situation of continued oversupply in the container shipping market, resulting in continued downward pressure on container freight rates.

The growth in the offshore and gas tanker segment surpassed all other vessel types and reflects the expansion of trade in gas and new offshore exploration projects. This development contrasts the slow growth in oil carriers (1.4 per cent). The ferries and passenger vessels fleet expanded by 4.8 per cent, indicating positive expectations about demand in the cruise industry. The overall positive development in the market segment of other types also indicates the further specialization of the global fleet.

The cyclical nature of shipbuilding, which illustrates the year the vessels built in 2014 were contracted. The total tonnage delivered in 2014 was only slightly more than half the tonnage delivered in 2011, the peak year of the historically largest ever shipbuilding cycle. Several years pass between the placement of an order for a new ship and the moment the new ship is delivered to the market. Ships are often ordered when the market is perceived as strong, only to be delivered years later, when the market may have become weaker.

Most tonnage delivered in 2014 had been contracted during the previous four years, as well as to some extent in 2008 and 2007. Relatively fewer new orders were placed in 2009, after the economic slump. Thus most current deliveries result from decisions made after the economic crisis. The continued high level of growth of container vessels indicates the industry's persistent strategy to realize economies of scale as well as cost savings, for example through increased energy efficiency.

The resulting oversupply of tonnage may not be good news for shipowners. However, it is a positive development from the perspective of those who aim at reviving global trade; there is no shortage of carrying capacity, and as a result trade costs continue to decline in the long term.

3. B) The overview of ship types

Although general cargo ships are still the largest single category in terms of number of vessels, the trend among new ships is more and more in favour of specialization, although it could be argued that handy-sized, geared bulk carriers and versatile medium-sized containerships, of which some have the ability to accommodate several different box sizes as well as palletised cargo are the natural successors of the old general cargo vessels.

Tankers make up the second largest category. There are many different types of tanker, ranging from those carrying crude oil, through those built to transport various refined hydrocarbon products, to highly specialized ships that carry liquefied petroleum gas and natural gas. There are even tankers designed to carry cargoes such as fresh water, wine or orange juice. The first purpose built tanker was the *Gluckauf*, a 3,000 dwt vessel built in 1886. It had a steam engine and two masts. In size terms, the heyday of the tanker was the early 1970s, when the so-called Ultra-Large Crude Carriers (ULCCs), capable of lifting more than half a million tonnes of cargo, sailed the oceans. After the oil crisis of the 70s, tanker owners became a little more modest in their ambitions and, since then, most large modern tankers are in the 200-300,000 tonnage range. These are still massive vessels and enormously expensive to build, but today's high price of oil means they can pay for themselves in a relatively short period of time.

Classes and sizes

Panamax : The largest size crude oil tanker that can travel through the Panama Canal: up to 70,000 DWT.

Aframax: Size of crude oil tanker which uses the Average Freight Rate Assessment (AFRA) method to calculate the cost of transportation: 70,000 to 120,000 DWT.

Suezmax: largest size crude oil tanker that can travel through the Suez Canal while Loaded: 120,000 – 200,000 DWT

Very Large Crude Carrier (VLCC): Size of a large crude oil carrier (200,000-325,000DWT)

The world's largest ship was a 564,765 dwt tanker with a length overall of 458.45m (1,504ft); She was longer than many of the world's tallest buildings with an interesting and varied history. Built in 1976 and having undergone some work to increase her load-carrying capacity, she was finally floated two years later and named *Seawise Giant*. At first, she operated in the Gulf of Mexico and the Caribbean Sea, but was then used for exporting oil from Iran during the Iran-Iraq War. In 1986, she was attacked but not sunk in the Strait of Hormuz and at the end of the war in 1989 she was repaired and renamed *Happy Giant*. In 1991, she was

renamed again, this time to *Jahre Viking*.

In March 2004, the ship was sold and sent by its new owner to be refitted as a floating storage and offloading unit. There, she was renamed *Knock Nevis* and she operated in the Al Shaheen oilfield in the waters of Qatar until 2010 when, renamed *Mont*, she was delivered for breaking up at Gujarat's Alang- Sosiya shipyard in India.

Bulk carriers

Bulk carriers are often called the workhorses of the international shipping fleet. They can be thought of as simple, relatively unsophisticated but nevertheless highly efficient vessels that typically transport commodities such as grain, coal and mineral ores. If tankers provide the fuel that powers the modern economy, bulk carriers are responsible for moving the raw materials that are its lifeblood. The first modern bulk carrier was the *John Bowes* 650 dwt built in 1852.



In terms of size, the world's bulk carrier fleet has three categories; ships of up to 50,000 dwt are known as —handy-sized; ships of 50,000 to 80,000 dwt are known as —Panamax (being the largest ships able to transit the Panama Canal) and ships of more than 80,000 dwt are known as —capesize. Bulk carriers embrace a number of variations – single or double hull, with or without their own cargo-handling equipment – but all are characterized by the huge hatch covers that can be rolled or lifted away to reveal to cavernous holds beneath.

| | Size (deadweight tonnes) | No. in World fleet |
|----------|---------------------------------|---------------------------|
| Handies | 10 - 49,999 dwt | 3212 |
| Panamax | 50 - 79,999 dwt | 1453 |
| Capesize | 80,000+ dwt | 796 |



Because of the nature of the cargoes they carry – often heavy, high-density commodities – accidents involving bulk carriers have sometimes resulted in considerable loss of life. For this reason IMO has, over a long period of time, undertaken a great deal of work to improve the safety of this type of vessel. There is, for example, a special chapter on bulk carrier safety in *the Safety of Life at Sea Convention (SOLAS)*, covering such topics as damage stability, structural strength, surveys and loading.

Passenger ships

Passenger ships come next in the world fleet league table. There are two basic categories – which can be summed up as —fun or —function. In the latter category are those which are designed to move people and, often, vehicles on regular itineraries from one place to another as quickly and cheaply as possible (ie ferries) and, in the former, those which the passengers see as a leisure destination in their own right (ie cruise ships).



Ferries range from small passenger ferries crossing rivers such as the River Hudson or Norwegian fjords, to big Ro-Ro (Roll-on Roll-off) ferries with a capacity to carry 3000 passengers and 650 cars such as those operating across the English Channel.

In both categories, the size, sophistication and the sheer number of passengers that can be carried have reached mind-boggling proportions. Because of their individuality, as well as their resonance with the great ocean liners of a bygone era, these ships tend to be the best known and most recognized among the general public at large.

One of the finest examples is the world's largest cruiseship *Oasis of the Seas* delivered by STX Europe's Turku shipyard in Finland for Royal Caribbean International in 2009. A true maritime giant, her capacity of 6,360 passengers plus some 2,100 crew is quite astonishing, and, with a gross tonnage of 225,000 tons, makes her the largest passenger ship afloat. It is difficult to find the words to aptly describe such a feat of naval architecture, shipbuilding and marine engineering; but —monumental and —awesome spring to mind. She incorporates all the very latest international standards with regard to safety, security and environmental protection, offering her passengers an unparalleled opportunity to experience the wonders of ocean travel in the finest style. Her sistership, the *Allure of the Sea* was delivered at the end of 2010.

Despite the economic downturn, which has clearly had a negative impact on revenues throughout the leisure market, the Cruise Lines Industry Association (CLIA) reports that —the 13.44 million people, who cruised in 2009, represented a 4.8 per cent increase on 2008, a strong sign of continuing consumer interest and demand.

According to the European Cruise Council, cruise lines have over the past two decades maintained the best safety record in the travel industry. There were no fatalities in either 2008 or 2009 and just five in 2010. At the same time, the number of cruise passengers has grown dramatically over the past few years, from 14.3m worldwide in 2005 to 18.8m in 2010. North America remains the biggest region for cruises, but passenger numbers in Europe have grown from 3.1m to 5.5m over the same period.

Containerships

But the one sector which can be said to have transformed the face of shipping, certainly in the latter half of the 20th century, is that of container shipping. Unheard of before the 1960s, the container is now ubiquitous and is the standard unit of cargo for just about every form of manufactured item on the planet (there are



exceptions: cars, for example, are transported in special ships designed solely for the purpose).

Today's giant containerships typically operate between purpose-built ports served by massive cranes that can load and unload containers at astonishing rates. Containership operators can offer fixed sailing schedules with tight delivery margins and these ships are now an integral part of the modern, multi-modal transport and logistics industry.

The *M/S Emma Maersk*, built by Odense Steel Shipyard was delivered to Maersk in 2006; it measures 397x56m and is able to carry 11,000 20-ft. containers. The *MSC Daniela* built in 2008 by Samsung

Shipbuilding & Heavy Industries Co. Ltd for the Mediterranean Shipping Company is the size of an aircraft carrier; Daniela completed its maiden run packed with 13,800 containers each big enough to contain the contents of a three-bedroom house.

On 21 February 2011, Maersk placed an order worth \$1.9 billion for 10 even larger container ships from Daewoo shipbuilding & Marine Engineering, the Triple E class. Scheduled for delivery between 2013 and 2015, they will entirely change the shipping industry's understanding of size and efficiency. Called the Triple-E' class for the three main purposes behind their creation — Economy of scale, Energy efficient and Environmentally improved — these new container vessels do not just set a new benchmark for size: they will surpass the current industry records for fuel efficiency and CO2 emissions per container moved held by the *Emma Maersk* class vessels:

Four-hundred metres long, 59 metres wide and 73 metres high, the Triple-E is the largest vessel of any type on the water today. Its 18,000 TEU (twenty-foot container) capacity is 16 percent greater (2,500 containers) than today's largest container vessel, *Emma Mærsk*. It will produce 20 percent less CO2 per container moved compared to *Emma Mærsk* and 50 percent less than the industry average on the Asia- Europe trade lane. In addition, it will consume approximately 35 percent less fuel per container than the 13,100 TEU vessels being delivered to other container shipping lines in the next few years, also for Asia- Europe service.

Fishing vessels

The world totals- for fish catching vessels amounts to 21,589 ships with a GT of 9,438,394 and an average age of 28 years. Other fishing vessels (fish carriers, support vessels etc.) amount to 1,242 with a GT of 1,232,856 and an average of 25 years. (Source: *Lloyds Register/Fairplay. World Fleet Statistics 2010, Table 2K*)



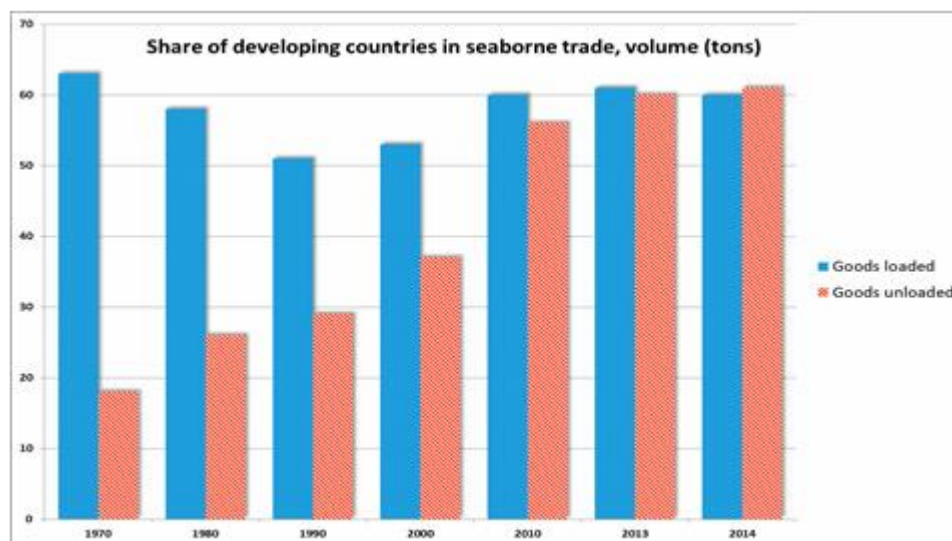
Chapter 4: Top 20 ship flag states

The year 2015 is a milestone for sustainable development. The international community has a unique opportunity to strengthen its commitment to sustainable development and consider how best to mainstream sustainability principles across all economic activities and sectors, including maritime transport. In this context, this project highlights some issues that are at the interface of maritime transport and sustainability and underscore the role of maritime transport in helping implement a workable international sustainable development agenda.

Greece continues to be the largest ship-owning country, accounting for more than 16 per cent of the world total, followed by Japan, China, Germany and Singapore. Together, the top five ship-owning countries control more than half of the world tonnage (dwt) (table 2.3). Five of the top ten ship-owning countries are from Asia, four are European, and one (the United States) is from the Americas.

Over the last decade, China, Hong Kong (China), the Republic of Korea and Singapore have moved up in the ranking of largest ship-owning countries, while Germany, Norway and the United States have a lower market share today than in 2005.

In South America, the largest ship-owning country (in dwt) continues to be Brazil, followed by Mexico, Chile and Argentina. The African country with the largest fleet ownership is Angola, followed by Nigeria and Egypt (see also the extended data available online for all ship-owning countries under UNCTAD stat fleet ownership database – <http://stats.unctad.org/fleetownership>).



China, Indonesia and the Russian Federation have a large number of nationally flagged and owned ships, which are largely employed in coastal or inter-island shipping. These markets tend to be protected from foreign competition and do not necessarily fall under global IMO regulations. Ships deployed on these services tend to be smaller and older than the fleet deployed on international routes.

Today most ships fly a flag that is different from that of the owner's nationality, owners are increasingly locating their companies in third countries/economies, adding

a possible third dimension to the nationality of a ship and its owner. A ship's nationality is defined by the nation whose flag it flies, while the owner may have a different nationality, and the owner's company that controls the vessel may be based in a third country/ economy. These different dimensions render the historical concept of "national fleets" more blurred and less meaningful.

| Rank (dwt) | Country/territory of ownership | Number of vessels | | | Dead-weight tonnage | | | | |
|------------------------------------|--------------------------------|-------------------|--------------|--------|---------------------|---------------|---------------|------------------------------|-----------------------|
| | | National flag | Foreign flag | Total | National flag | Foreign flag | Total | Foreign flag as a % of total | Total as a % of world |
| 1 | Greece | 796 | 3 221 | 4 017 | 70 425 265 | 209 004 526 | 279 429 790 | 74.80% | 16.11% |
| 2 | Japan | 769 | 3 217 | 3 986 | 19 497 605 | 211 177 574 | 230 675 179 | 91.55% | 13.30% |
| 3 | China | 2 970 | 1 996 | 4 966 | 73 810 769 | 83 746 441 | 157 557 210 | 53.15% | 9.08% |
| 4 | Germany | 283 | 3 249 | 3 532 | 12 543 258 | 109 492 374 | 122 035 632 | 89.72% | 7.04% |
| 5 | Singapore | 1 336 | 1 020 | 2 356 | 48 983 688 | 35 038 564 | 84 022 252 | 41.70% | 4.84% |
| 6 | Republic of Korea | 775 | 843 | 1 618 | 16 032 807 | 64 148 678 | 80 181 485 | 80.00% | 4.62% |
| 7 | Hong Kong, China | 727 | 531 | 1 258 | 56 122 972 | 19 198 299 | 75 321 271 | 25.49% | 4.34% |
| 8 | United States | 789 | 1 183 | 1 972 | 8 731 781 | 51 531 743 | 60 263 524 | 85.51% | 3.47% |
| 9 | United Kingdom | 477 | 750 | 1 227 | 12 477 513 | 35 904 386 | 48 381 899 | 74.21% | 2.79% |
| 10 | Norway | 848 | 1 009 | 1 857 | 17 066 669 | 29 303 873 | 46 370 542 | 63.20% | 2.67% |
| 11 | Taiwan Province of China | 117 | 752 | 869 | 4 681 240 | 40 833 077 | 45 514 317 | 89.71% | 2.62% |
| 12 | Bermuda | 5 | 317 | 322 | 289 818 | 41 932 611 | 42 222 429 | 99.31% | 2.43% |
| 13 | Denmark | 392 | 538 | 930 | 15 286 153 | 20 893 511 | 36 179 664 | 57.75% | 2.09% |
| 14 | Turkey | 576 | 954 | 1 530 | 8 321 506 | 19 366 264 | 27 687 770 | 69.95% | 1.60% |
| 15 | Monaco | | 260 | 260 | | 23 929 323 | 23 929 323 | 100.00% | 1.38% |
| 16 | Italy | 596 | 207 | 803 | 15 961 983 | 6 040 199 | 22 002 182 | 27.45% | 1.27% |
| 17 | India | 697 | 147 | 844 | 14 546 706 | 7 268 449 | 21 815 155 | 33.32% | 1.26% |
| 18 | Brazil | 228 | 163 | 391 | 3 150 493 | 17 308 798 | 20 459 291 | 84.60% | 1.18% |
| 19 | Belgium | 87 | 156 | 243 | 7 302 545 | 12 787 196 | 20 089 741 | 63.65% | 1.16% |
| 20 | Russian Federation | 1 291 | 448 | 1 739 | 5 920 435 | 12 403 644 | 18 324 079 | 67.69% | 1.06% |
| 21 | Islamic Republic of Iran | 157 | 70 | 227 | 3 986 804 | 14 093 340 | 18 080 144 | 77.95% | 1.04% |
| 22 | Switzerland | 47 | 291 | 338 | 1 403 668 | 16 492 768 | 17 896 436 | 92.16% | 1.03% |
| 23 | Indonesia | 1 504 | 153 | 1 657 | 12 908 577 | 4 120 935 | 17 029 512 | 24.20% | 0.98% |
| 24 | Netherlands | 775 | 445 | 1 220 | 6 589 901 | 10 415 708 | 17 005 609 | 61.25% | 0.98% |
| 25 | Malaysia | 466 | 142 | 608 | 8 430 359 | 7 707 526 | 16 137 885 | 47.76% | 0.93% |
| 26 | United Arab Emirates | 95 | 684 | 779 | 472 967 | 14 845 550 | 15 318 518 | 96.91% | 0.88% |
| 27 | Saudi Arabia | 86 | 155 | 241 | 2 004 631 | 11 358 349 | 13 362 980 | 85.00% | 0.77% |
| 28 | France | 180 | 277 | 457 | 3 517 344 | 7 636 312 | 11 153 656 | 68.46% | 0.64% |
| 29 | Cyprus | 141 | 179 | 320 | 3 811 947 | 6 858 661 | 10 670 608 | 64.28% | 0.62% |
| 30 | Viet Nam | 786 | 92 | 878 | 6 527 639 | 1 510 645 | 8 038 284 | 18.79% | 0.46% |
| 31 | Kuwait | 42 | 27 | 69 | 5 293 213 | 2 462 656 | 7 755 869 | 31.75% | 0.45% |
| 32 | Canada | 209 | 139 | 348 | 2 743 006 | 5 004 054 | 7 747 060 | 64.59% | 0.45% |
| 33 | Oman | 6 | 31 | 37 | 5 842 | 7 008 489 | 7 014 331 | 99.92% | 0.40% |
| 34 | Sweden | 101 | 234 | 335 | 1 248 460 | 5 194 955 | 6 443 415 | 80.62% | 0.37% |
| 35 | Qatar | 56 | 70 | 126 | 888 093 | 5 471 554 | 6 359 647 | 86.04% | 0.37% |
| Total top 35 ship-owning countries | | 18 410 | 23 950 | 42 360 | 470 985 656 | 1 171 491 033 | 1 642 476 689 | 71.32% | 94.69% |
| All others | | 2 962 | 2 486 | 5 448 | 35 004 138 | 51 845 622 | 86 849 760 | 59.70% | 5.01% |
| Unknown country of ownership | | | | 717 | | | 5 234 918 | | 0.30% |
| WORLD TOTAL | | | | 48 525 | | | 1 734 561 367 | | 100.00% |

Ownership of the world fleet, as of 1 January 2015 (dwt)

The ultimate owner's nationality reflects the nationality of the controlling interests of the beneficial owner company. A typical example may be a Greek national (the ultimate owner's nationality is Greece) whose shipowning company is based in the United Kingdom (the beneficial ownership location is the United Kingdom).

For 11.8 per cent of the world fleet (dwt), the ultimate owner's nationality is different from the beneficial ownership location, while for 88.2 per cent of the fleet, the owner's nationality and the location of the beneficial owner are one and the same. The top five shipowning countries are the same under both criteria, notably Greece, followed by Japan, China, Germany and the Republic of Korea.

The analysis of UNCTAD looks predominantly at the beneficial ownership location, as it is mostly the country/economy of domicile whose laws apply to the land-based operations, which benefits from local taxes, and where land-based employment is generated. Nevertheless, it should be pointed out that the distinction between the two criteria is not always clear-cut; on occasions the company group headquarters in the country/economy of "real ownership" also retains economic activities in the home country/economy, while on other occasions a third and fourth country/economy might be involved where companies provide services as ship managers, or where ships are chartered out to operators, especially in the case of container shipping lines.

The largest shipowning country, under both criteria, is Greece. Nevertheless, a large number of Greek nationals are shipowners whose company or residence is abroad, for example in the United Kingdom. Accordingly, Greece has a larger share of the world fleet when considering its nationality of ultimate owner (16.9 per cent of the world fleet are owned by Greek nationals) than when considering the beneficial ownership location (Greece's market share under this criteria is only 15.4 per cent). For the United Kingdom the opposite is observed: only 1.5 per cent of the world fleet owners have the nationality of the United Kingdom, while the share of the beneficial ownership location of companies located in the United Kingdom amounts to 3.2 per cent – including many Greek-owned companies. In total, there are 112 vessels with Greek owners that are operated by United Kingdom-based companies (beneficial ownership location). A typical example could be a dry-bulk carrier owned by a London-based company whose owners are Greek nationals; the vessel may have been

built in the Republic of Korea, be classed by Det Norske Veritas from Norway, employ seafarers from the Philippines, and fly the flag of Cyprus.

Another example of a country whose nationals own many ships but have their companies based abroad is Norway. In terms of beneficial ownership location, Norway has a market share of only 2.6 per cent, while Norwegian nationals are the ultimate owners of 3.7 per cent of the world fleet.

Bermuda, Cyprus, Luxembourg, Monaco, Singapore, Switzerland, the United Arab Emirates and the United Kingdom are major shipowning countries/economies that have gained a higher market share in beneficial ownership location than their “ultimate owner’s nationality” fleet would suggest. These countries are often also home to the corporate headquarters of a wide range of companies, not only in the shipping business. Shipping may be part of a broader cluster of financial or logistics services.

Belgium, Canada, Greece, Hong Kong (China), Italy, Norway and Saudi Arabia, on the other hand, are more important “real” shipowners as compared to their market share under beneficial ownership location. These economies have often been historically the home of important shipowning interests, yet owners have found it at times in their interest to move their operations abroad.

As mentioned above, for the majority of vessels, the ultimate owner’s nationality and the beneficial ownership location are still the same – but the trend appears to be towards a more frequent distinction between the two. A similar situation existed 40 years ago as regards the national flag and the ownership of ships. Historically, a vessel would fly the same flag as the nationality of its owner. Today, however, almost 73 per cent of the world fleet are foreign flagged (see also section D: Registration of ships). The tonnage owned by the 20 largest shipowning countries/economies and the share that is foreign flagged. With the exception of Singapore, Hong Kong (China), Italy and India, all the top 20 shipowning countries/economies have far more than half of their fleet registered abroad, that is, most of the nationally owned tonnage is flagged out.

In future, a similar trend may continue to develop as regards the location of “foreign-owned” shipping companies. Individual shipowners and investors could

increasingly move to those countries that provide an attractive local market, a competitive tax and employment regime, and a modern legal and regulatory framework, as well as possibly a cluster of relevant maritime, logistics, insurance and financial services. The difference between ultimate owner's nationality and beneficial ownership location could thus increase further, rendering less meaningful the concept of a nationally controlled fleet.

To date (January 2014), Brazil is the largest shipowning country in Latin America and the Caribbean in terms of beneficial ownership location, followed by the Bolivarian Republic of Venezuela and Chile. The largest African shipowning countries are Angola, Nigeria and Egypt. In South Asia, India, followed by Bangladesh and Pakistan control the largest fleets. The largest shipowning country in South-East Asia is Singapore, followed by Malaysia and Indonesia. Among the main shipowning developing economies, those showing the fastest growth in 2013 were Angola (+10.8 per cent), Ethiopia (+94.4 per cent), Hong Kong (China) (+16.9 per cent), Lebanon (+26.5 per cent), Nigeria (+13.2 per cent), Oman (+12.8 per cent), Singapore (+12.1 per cent), Thailand (+10.9 per cent) and the United Arab Emirates (+12.7 per cent).

As already discussed above, for the majority of the world fleet the ship's flag of registration is of a different country/economy than that of its owner. The flags of registration for the largest fleets (dwt) as of 1 January 2014 are those of Panama (21.21 per cent of the world fleet), followed by Liberia (12.24 per cent), the Marshall Islands (9.08 per cent), Hong Kong (China) (8.24 per cent) and Singapore (6.17 per cent). Together, these top five registries account for almost 57 per cent of the world tonnage (table 2.5).²

In terms of nationally flagged vessel numbers, Indonesia and Japan take second and third place, respectively, after Panama. Indonesia (7,019 ships of 100 GT and above) and Japan (5,249 ships of 100 GT and above) both have important national fleets that cater for coastal and inter-island cabotage traffic.

Double-digit tonnage growth rates of registration were achieved by the Islamic Republic of Iran (+59.6 per cent), the United Republic of Tanzania (+27.3 per cent), Thailand (+15.4 per cent) and Singapore (+13.2 per cent). The flag of Singapore is predominantly used by owners from Singapore and Denmark. The United Republic of Tanzania has

established itself as an open registry; among its main clients are owners from the Islamic Republic of Iran, the Syrian Arab Republic, Turkey, and the United Arab Emirates. Thailand has enlarged its nationally flagged fleet largely through the re-flagging of Thailand-owned ships back to the national flag. Similarly, most of the Iranian-flagged ships are owned by companies from the Islamic Republic of Iran, many of which had in previous years been registered abroad.

The regional shares by vessel type and flag of registration are provided in table Developing countries account for more than three quarters of the world's fleet registration, increasing their share by a further 0.44 percentage points during the 12 months to 1 January 2014. In particular, more than 81 per cent of the global dry-bulk fleet are registered in developing countries.

The 20 flags of registration with the largest fleets

| Flag of registration | Number of ships | Dead-weight tonnage (thousand dwt) | Per cent of world total (dwt) | Accumulated total | National owner, dead-weight tonnage (thousand dwt) | Foreign owner, dead-weight tonnage (thousand dwt) | Foreign owner as % of total dwt |
|----------------------|-----------------|------------------------------------|-------------------------------|-------------------|--|---|---------------------------------|
| Panama | 7 068 | 355 700 | 21.21 | 21.21 | 589 | 355 111 | 99.83 |
| Liberia | 3 126 | 205 206 | 12.24 | 33.45 | 10 | 205 195 | 99.99 |
| Marshall Islands | 2 207 | 152 339 | 9.08 | 42.53 | 457 | 151 882 | 99.70 |
| China, Hong Kong SAR | 2 065 | 138 134 | 8.24 | 50.77 | 18 637 | 119 497 | 86.51 |
| Singapore | 2 318 | 103 467 | 6.17 | 56.94 | 41 080 | 62 387 | 60.30 |
| Greece | 883 | 77 078 | 4.60 | 61.54 | 70 499 | 6 579 | 8.54 |
| Bahamas | 1 327 | 74 874 | 4.47 | 66.00 | 1 104 | 73 770 | 98.53 |
| China | 2 802 | 73 522 | 4.38 | 70.39 | 73 252 | 270 | 0.37 |
| Malta | 1 698 | 72 935 | 4.35 | 74.74 | 446 | 72 489 | 99.39 |
| Cyprus | 937 | 32 594 | 1.94 | 76.68 | 6 131 | 26 462 | 81.19 |
| Isle of Man | 409 | 23 711 | 1.41 | 78.10 | 0 | 23 711 | 100.00 |
| Italy | 719 | 20 022 | 1.19 | 79.29 | 18 790 | 1 232 | 6.15 |
| United Kingdom | 658 | 18 805 | 1.12 | 80.41 | 8 264 | 10 541 | 56.06 |
| Norway (NIS)* | 531 | 18 221 | 1.09 | 81.50 | 15 035 | 3 187 | 17.49 |
| Japan | 766 | 17 915 | 1.07 | 82.57 | 17 871 | 44 | 0.24 |
| Republic of Korea | 777 | 16 881 | 1.01 | 83.57 | 16 266 | 615 | 3.64 |
| Germany | 381 | 16 380 | 0.98 | 84.55 | 15 987 | 393 | 2.40 |
| India | 702 | 15 245 | 0.91 | 85.46 | 14 636 | 608 | 3.99 |
| Denmark (DIS)* | 381 | 14 371 | 0.86 | 86.32 | 13 276 | 1 095 | 7.62 |

| | | | | | | | |
|-----------|-------|--------|------|-------|--------|-------|------|
| Indonesia | 1 609 | 13 846 | 0.83 | 87.14 | 12 519 | 1 327 | 9.58 |
|-----------|-------|--------|------|-------|--------|-------|------|

Panama



The Panama Canal’s \$5.25 billion expansion, scheduled to open in April 2016, is expected to have a major impact on the global trade and shipping industry, specifically in the way in which cargo is handled and transported throughout North America. The expansion is set to accommodate a new generation of larger cargo ships, with America’s ports pouring billions into upgrades in anticipation of their arrival.

The larger canal will accommodate a new line of Post-Panamax vessels — supertankers, container and passenger ships. According to the Washington Post, this new generation of vessels — which can hold upwards of 18,000 20-foot-equivalent units (TEUs), considerably more than the Panamax vessels of old — already carries 45% of the world’s cargo while only making up 16% of the world’s container fleet. By 2030, Post-Panamax vessels could represent 62% of the total container ship capacity.

East Coast ports are spending billions to deepen their harbors, increase their bridge heights and transform their infrastructure to accommodate larger vessels that bring with them more cargo and potentially more business. For example, as cited in an article by Inbound Logistics, the Port Authority of New York and New Jersey is in the middle of a \$1-billion project to raise the Bayonne Bridge so it can accommodate the larger, new Panamax vessels. In Savannah, the Georgia Ports Authority and the Army Corps of Engineers have commenced dredging the port channel to 47 feet. PortMiami has completed a \$1 billion tunnel beneath Biscayne Bay that connects the port to the Interstate designed to circumvent downtown congestion. The Port of Baltimore is already deep enough to handle new Panamax vessels. It is currently focused on improving terminal velocity—increasing gate truck lanes, creating a “back gate” to handle empty containers, expanding its fleet of RTG cranes, and investing \$10 million to improve the terminal’s main access road.

With all of this investment and construction going on at various ports south to north, the effect of the Panama Canal in terms of infrastructure is apparent. According to the American Association of Port Authorities, East and Gulf Coast ports, and their private sector partners, are expected to invest nearly \$30 billion between 2012 and 2016. Moreover, West Coast ports will contribute another \$15 billion.

How immediately this influx of new business will materialize due to easier access to East Coast ports from Asia by way of the new Panama Canal is yet to be determined. “It’s not like you’re going to have this huge wave of large ships that on day one will start flowing through the canal,” says Mike Kilgore, president and CEO of Chainalytics, a global supply chain consulting firm, in an article published in Blueprint by CBRE. “Shippers often design their supply chain around having multiple ports to avoid placing all their risk in one port,” says Kilgore.

But some already see a shift with East Coast ports taking market share from those on the West Coast. Recent slowdowns during the International Longshore & Warehouse Union’s (ILWU) contract negotiations helped many shippers to lose faith in West Coast ports and move shipments to the East Coast, increasing that market share shift. The Panama Canal expansion could make it even easier for shippers to move their imports and exports from West Coast ports to East Coast ones. According to World Maritime News, up to 10% of container traffic to the U.S. from East Asia could shift from West Coast ports to the East Coast by 2020. In 2014, about 35% of container traffic from East Asia to the U.S. arrived at East Coast ports. According to the report, current growth trends would push that share to 40% by 2020 without the canal’s expansion. But with the canal expansion in place, the East Coast’s share could reach 50% — a 10% increase in market share.

Liberia



The Liberian Registry – the second largest in the world – includes over 3900 ships of more than 131 million gross tons, which represents 11 percent of the world’s ocean going fleet. As the world’s premier open ship registry, the Liberian Maritime Program

is renowned for quality, efficiency, safety and service. Likewise, the Liberian Registry is recognized at the top of every industry “white-list” including the International Maritime Organization and the major Port State Control authorities such as the US Coast Guard as well as the Paris and Tokyo MOU regimes. Furthermore, according to the U.S. Maritime Administration, Liberian flagged vessels carry more than one-third of the oil imported into the United States.

The Liberian Registry, is administered by the Liberian International Ship & Corporate Registry (LISCR, LLC), a wholly U.S. owned and operated company that provides the day-to-day management for the Republic of Liberia's (ROL) ship and corporate registry. LISCR is recognized globally for its professionalism and commitment to safe and secure shipping as well as its proficient administration of one of the most convenient, efficient, and tax effective offshore corporate registries in the world.

The Registry’s personnel have strong commitment to operating a quality registry with first-class customer service. Significant investments in new computer and communication technologies have been made to meet the demands of today’s shipping industry.

The Liberian Registry, headquartered in Vienna, Virginia (outside Washington, D.C.) maintains offices around the world, which can be contacted via this website.

Marshall Islands



The Marshall Islands ship registry (RMI) is now the third largest in the shipping business, having grown by 17% during 2014, of the end of February 2015, the Registry stood at nearly 118 million GT and over 3,400 vessels.

At the same time, a paper published by the Greek Shipping Cooperation Committee (GSCC) in April 2014 with data provided by Lloyd’s Register of Shipping-Fairplay, notes the RMI Registry is reaching the top position in the Greek market, gaining more than 43% of the gross tonnage and nearly 55% of the total number of vessels gained overall.

Irrespective of the growing challenges faced by the maritime industry, the Republic of the Marshall Islands (RMI) Registry has had a particularly successful year, having grown by over 320 vessels and 16 million gross tons (GT), which is a 17% increase in GT from the previous year. The RMI Registry is the third largest registry in the world, and closed 2014 with over 114 million GT and 3,345 vessels. As of the end of February 2015, the Registry stood at nearly 118 million GT and over 3,400 vessels. The January 2015 issue of the World Fleet Monitor, as published by Clarkson Research Services, showed a 14.4% increase in the RMI fleet in 2014, the largest increase of any of the world's top ten flags during that time (excludes offshore vessels such as mobile offshore units).

The RMI Registry's success in enhancing its fleet and reputation in the international maritime community in 2014 is largely attributed to its Greek clients, as the largest percentage of the RMI Registry's fleet derives from the Greek shipping community. Nearly 40% of the bulk carriers in the RMI fleet are Greek owned vessels. As of February 2015, according to the Shipping & Finance February 2015 issue, the Greek owned fleet consists of 793 RMI flagged vessels and 60,455,495 deadweight tons. The RMI Registry prides itself on achieving its status as the number one foreign flag in the Greek market, second only to the Greek flag in terms of tonnage capacity.

China



China's marine equipment industry currently lags behind the shipbuilding industry. Equipment that is in high demand includes machinery, key electric-mechanical equipment, communications systems, diesel engine crank-shafts and components, high-powered diesel engines, ship superstructures, deep-sea exploration ship products, high-grade steel plates and section bars, and environmentally friendly paint.

This section covers the use and development of sea-related industries including shipbuilding, ports, pleasure boats, sea communications and transportation, offshore oil and gas, sea-related chemicals, and sea fisheries.

As the world's largest exporter, China has become a center of maritime activity, and China's major state-owned shipping and shipbuilding companies are among the world's largest. According to the Ministry of Land and Resources of the People's Republic of China, the marine industry will gradually become one of the pillars of China's economy.

According to the Global Trade Atlas statistics, China's total value of sea-based imports and exports reached \$41 billion in 2012, of which ship imports accounted for \$1.8 billion. Trade volume reached a historic high of approximately \$45 billion in 2011. However, oceanic pollution, a 43% tax rate on imported yachts, underdeveloped ports, and cost increases continue to present challenges for the development of the marine industry.

In the last two decades, with China's emerging as a global giant on exporting, a vital foundation has been provided to its maritime development. The rapid development and expanding of maritime industry in China has significantly contributed to the country's GDP growth. According to the latest government report, the maritime industry has employed more than 34 million workers, and reported a total production value of 5 trillion yuan (about USD 810 billion) in 2012, which contributed almost 10% of the country's GDP and is thus seen as "a new engine for growth." Furthermore, this report has predicted that the total production value of China's maritime industry would exceed 20 trillion yuan (over USD 3 trillion) by 2030, accounting for over 15% of the country's GDP.

As an open and highly competitive market, the global shipbuilding used to be dominated by European, Japanese and South Korean shipbuilders from the mid-19th century to the early stage of the new millennium. By 2010, China had gained nearly 44% of the global ship market surpassing other major competitors, and has been ranked as the largest shipbuilding country in terms of order book volumes since then. In 2012, the completion volume of China's shipbuilding industry was 60.2 DWT and new order quantity was 20.4 million DWT.

Shipbuilding industry in China has transformed from defense-focused into a commercial enterprise since 1982, and it has been expanding considerably with China's accelerated economic growth. Nowadays, the primary focus of this rapidly growing industry is on commercial vessels, and most of the production is 6,000-and-

under TEU container ships, bulk cargo carriers, crude oil tankers, and high value and sophisticated vessels. Though the primary aim of increasing shipbuilding capacity in China has been to maintain self-sufficiency in sea transport and satisfy domestic use, ships and boats are also exported to 169 countries and regions, mainly to Asia and Europe. As the world's biggest ship manufacturer, 80% of the gross output of Chinese shipyards is devoted to export customers.

Based on statistics in 2005, the number of shipbuilding companies in China exceeded 2 000, employing approximately 400 000 workers. Currently there are four types of firms in China's shipbuilding industry: large state-owned enterprises (SOEs), joint ventures, small private-owned enterprises, and military shipyards. The first three types are discussed more often in terms sales comes from SOEs, over 16% comes from joint ventures, and over 5% is contributed by the small private-owned enterprises.

The SOEs, as the key players, refer to the two massive state-owned conglomerates: the China State Shipbuilding Corporation (CSSC) that handles shipbuilding activities in the east and the south of China, and the China Shipbuilding Industry Corporation (CSIC) that deals with those in the north and the west of the country.

With China's ever-increasing trade and its flourishing shipbuilding business, China's total demand for maritime shipping is the largest among all countries. As the biggest iron ore importer, the second biggest crude oil importer, and the biggest exporter of manganese, copper and chrome ore in the world, over 90% of China's foreign trade cargo delivery (including nearly 95% of imported crude oil and 99% of imported iron ore) are carried by sea. Therefore, China's shipping industry has become a vital industry, which is highly related to the rapid development of the economy, foreign trade, and national security.

By the end of 2012, China owned 2 486 oceangoing vessels (on average 27 932 DWT per vessel) and 10 947 coastal trading vessels (on average 5 959 DWT per vessel), and the dimension of China's shipping fleet ranks 3rd in the world. The volume of trade from sea shipping service exceeded EUR 37,5 billion in 2011. Moreover, this increasing demand of shipping will keep stimulating the development of China's shipping industry – according to Qinetiq, Lloyd's Register and University of Strathclyde's united report of "Global Marine Trends 2030", by growing from 15% in

2010 to 24% in 2030, China will have the largest growth in fleet ownership among all countries and regions by then.

As the country increasingly gains ascendance in global trade, China has been experiencing a boom also in harbor construction. Maritime infrastructure in China continues to be developed at an extremely fast pace. Currently there are over 150 seaports in China, providing an overall port throughput of over 100 million TEU annually that tops the world list. In the meantime, China's port handling efficiency also set world record. Among the world's top 20 sea ports in terms of total throughput capacity and container handling capacity, China has 12 and 8 ports in the lists respectively. Moreover, in the past decade, Chinese ports have continuously been the world leaders in terms of the total throughput capacity and container handling capacity. China has become a significant sea-nation after the 60 years of development.

Besides productivity, China has also been promoting technological innovation and R&D capability of its shipbuilding industry. China will invest more in high-tech and high value-added technologies, for example in environmental-friendly and energy-saving shipbuilding like those utilizing wind and sea water, maritime equipment projects, and critical internal equipment within ships. In addition, offshore drilling rig industry has been developing as a future alternative to China's traditional shipbuilding. The ongoing changes, which are all with military implications, are increasing emphasis on hull-block construction, investing in major new "greenfield" shipyards, and increasing Chinese firms' ability to produce marine diesels and gas turbines. In the meantime, the shipping industry also works effectively on strengthening design and R&D competitiveness in volume ship types, for instance, tankers, bulk carriers and container vessels. For the long-term development of the industry, China has been increasing its focus on human capital such as skilled workforce and high-level technological human resources, which refers to the investment on Chinese universities and maritime academies that produce marine engineers and naval architects of exporting: more than 78% of the export.

Singapore



The offshore and marine sector has been going through rough times in recent months with oil prices near multi-year lows and slowing production demand. According to the Singapore Maritime Foundation, rig builders have not received any orders for drilling rigs since the start of the year.

Among the companies affected is Ezra Holdings, which reported a 79 per cent drop in its quarterly earnings for three months ended in February, attributed to lower contributions from its subsea, as well as offshore support and production divisions.

With slowing demand and weak oil prices hurting the company's bottomline, Ezra said the Group plans to streamline core operations, which will involve cutting costs and manpower.

According to Moody's Investors Service, the continued fall in oil prices in the first quarter of this year has hit upstream exploration and production companies globally.

However KrisEnergy, an upstream oil and gas company, is keeping positive. It said its diversified portfolio and assets have provided a level of cushioning against the oil price volatility.

A big part of Singapore portfolio is long-term natural gas contracts, and the natural gas contracts in South East Asia in particular do not really vary on a day-to-day basis, they are fixed contracts.

"The rest of it is just making sure we are smart about operating, cutting costs, deferring some exploration licences that are not firmed, but at the same time, we are putting our focus on getting out to offshore developments, producing as fast as possible."

Some industry analysts added that due to strong demand in the past few years, some firms have a full backlog of orders, which will help see them through the next couple of years.

There are companies like Ezion with their long-term asset chartering contracts, and companies with very large and very strong orderbooks that should see them with decent operations for the next couple of years, like Keppel, Sembmarine and Triyards.

On the downstream segment, Moody's expects regional refiners to have benefited from improving margins and refined product spreads in the first quarter of this year.

However, it expects refining margins to remain weak in 2015, as supply continues to outpace demand growth.

Greece



The Greeks, more than any other people in the world, have remained, during their entire, very long history, mariners without interruption, they have loved the sea, they have thought of it as a beautiful element, and they believed it had godlike powers; whilst the others, such as the Phoenicians and the Romans, used it to conquer other people. The Greeks considered the sea a friendly environment and they were happy with the sea's caprices. Very quickly they came to realize that the sea could offer them a way of life, together with the joy of freedom and an increasing freedom of spirit. Seamanship came naturally to the Greeks, and this had to do with the landscape of their surroundings, the geographical position of Greece, her climate and her endless coastline. The landscape is mountainous and the farming area only comprises one-fifth of the entire nation and hence it can only offer a poor harvest. Thus, the sea was a way out. The endless coastline which covers 92 percent of Greece's orders, forms closed inlets, natural harbors, deep bays, golden beaches and hundreds of picturesque islands. It was natural, that such beautiful surroundings would inspire the Greeks and would also instill in them a love for the sea. The geographical position of Greece was an advantage because she was approximately in the middle of the Ancient Mediterranean, between Asia and Italy, near Egypt and Libya to the South, and next to the other Balkan countries to the North: she was at the crossroads of the most ancient shipping lanes. The distances were not great and for thousands of years our seamen were navigating under clear skies, almost always in sight of land.

The Greek climate, although it had great variety, rarely endured typhoons or very strong gales. The temperature was always pleasant, blue skies, clear atmosphere, and the sun almost a permanent source of light. Such an environment does make for a freer spirit, strengthens the imagination and makes people optimistic, liberal and daring. In other words, it created the necessary conditions for the Greeks to become very good shipping men.

Greece is a maritime nation by tradition, as shipping is arguably the oldest form of occupation of the Greeks and has been a key element of Greek economic activity since ancient times.[1] Today, shipping is the country's most important industry (worth €251.1 billion in 2015). It accounts for 6.5% of GDP, employs about 290,000 people (7% of the workforce), and represents 1,6/3 of the country's trade deficit.[2] In 2015, the Greek Merchant Navy controlled the world's largest merchant fleet in terms of tonnage with a total DWT of 334,649,089 tons and a fleet of 5,226 Greek owned vessels, according to Lloyd's List.[3] Greece is also ranked in the top for all kinds of ships, including first for tankers and bulk carriers. Greek traditional shipping families are notable for their great wealth and influence in the industry such as the Vardinoyannis, Latsis, Livanos, Niarchos, Angelopoulos and Goulandris.

After the end of World War II the Greek-run fleets were able to re-establish themselves under their national flag. The changing dynamics saw them more closely aligned to their own national state, and the establishment of a Greek Merchant Marine service.

During 2010-2011, in terms of ship categories, Greek companies had 32.5% of the world's tankers and 23.8% of the world's bulk carriers (in dwt). An additional equivalent of 20.05% of the world's tanker dwt was on order, with another 14.1% of bulk carriers also on order. Shipping is one of the country's most important industries. In 2010-2011, it accounted for 8% of GDP, employed about 290,000 people (8% of the workforce), and represented 1/3 of the country's trade deficit. Earnings from shipping amounted to €35.4 billion in 2014, while between 2000 and 2010 Greek shipping contributed a total of €280 billion (almost the country's public debt in 2014 and 4.5 times the receipts from the European Union in the period 2000-2013). A European Community Shipowners' Association report for 2013–2014 reveals that the Greek flag is the first-most-used internationally for shipping, while it ranks first in the

EU; the same ECSA report showed that there are approximately 950 Greek shipping companies in operation.

Counting shipping as quasi-exports and in terms of monetary value, Greece has ranked 4th globally in 2011 having "exported" shipping services worth \$37,704,132; only Denmark, Germany and South Korea have ranked higher during that year.

The world's commercial fleet grew by 3.5 per cent during the 12 months to January 1, 2015, the lowest annual growth rate in over a decade, the United Nations Conference on Trade and Development (UNCTAD) Review of Maritime Transport 2015 reveals. At the beginning of the year, the fleet totalled 89,464 vessels, with overall 1.75 million in deadweight tonnage.

Despite its economic troubles, Greece remained the leading shipowning country, with Greek companies accounting for more than 16 per cent of the world industry, followed by companies from Japan, China, Germany and Singapore. Together, the top five shipowning countries control more than half of the world deadweight tonnage. Five of the top 10 ship-owning countries are from Asia, four from Europe and one – the United States of America – from continental America.

| Year | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 - 2008 | 2009 | 2010 | 2011 |
|---------------------------------------|-----------|-----------|-----------|------------|------------|------------|-------------------|------------|------------|------------|
| Global ranking | 5th | 5th | 5th | 4th | 3rd | 5th | - ^b | 5th | 6th | 4th |
| "Exports" (US\$ million) | 7,558.995 | 7,560.559 | 7,527.175 | 10,114.736 | 15,402.209 | 16,127.623 | - ^b | 17,033.714 | 18,559.292 | 17,704.132 |
| "Exports" (€ million) ¹ | 8,172.559 | 8,432.670 | 7,957.654 | 8,934.660 | 12,382.636 | 12,949.869 | - ^b | 12,213.786 | 13,976.558 | 12,710.859 |

| | | | | | | | | | | |
|-------------------|---------------|---------------|---------------|---------------|---------------|----------------------------|-----|----------------------------|----------------------------|----------------------------|
| GDP (€ million) | 137,9 30.1 | 146,427 .6 | 156,614 .3 | 172,431. 8 | 185,265. 7 | 193,049. 7 ^b | n/a | 231,081. 2 ^p | 222,151. 5 ^p | 208,531. 7 ^p |
| "Exports" as %GDP | 5.93 | 5.76 | 5.08 | 5.18 | 6.68 | 6.71 | n/a | 5.29 | 6.29 | 6.10 |

Bahamas



In the early 1990s the Bahamas-registered fleet was growing rapidly so that by 1994 total tonnage had passed the 20 million mark. The Register was working well but it was clear that to manage an international fleet of this size and one that was continuing to expand, a new type of organisation was necessary. The Bahamas Maritime Authority has come a long way since then and has made a massive contribution to today's Register - which is still growing and now has a strong brand and an impressive reputation in the market place for quality and reliability. Last year the fleet expanded by 6.9% and we now have 1600 ships at 42 million gross tonnes, an increase of 11 million gross tonnes since 2000. But however much this growth is gratifying, it is not our top priority. The BMA's firm policy is to attract quality rather than quantity and where necessary we turn away unsuitable vessels.

Having said that, growth is inevitable because from oil tankers to LNGs, from container ships to dry cargo vessels, the global economy could not operate without shipping. More than 90% of world trade is now transported by sea and arguably, with air travel and climate change now dominating the environmental debate, this is set to rise, not least because shipping is the world's most environmentally friendly mode of transportation. In addition, sea transport remains by far the most cost-effective way to move goods and raw materials around the world. So above all, it is essential that shipping is safe. The BMA already has an excellent reputation in the shipping world for very high safety standards throughout its fleet. And we make it our business to listen to and act on our owners' concerns. This kind of dialogue builds trust,

understanding and loyalty and, together with our absolute emphasis on quality, goes some way to explain why The Bahamas continues to be the Flag of choice for the very best of the world's shipping fleet.

Much of the world's shipping business is conducted in London. The city's position as a major maritime centre with associated professional services such as shipping law, finance and maritime insurance makes it an essential location for the BMA's head office which handles around 95% of the Authority's workload. Indeed, a large part of the Register's success is down to the close relationships it has forged with its shipowners and their lawyers as well as the provision of a quality service. The Authority's influence spans the globe, from the major shipping and shipbuilding nations to the International Maritime Organisation, also based in London, where The Bahamas is one of the largest financial contributors as well as being at the forefront of major developments in global shipping policies.

And, as well as our London base and our offices in The Bahamas and the USA, we also have representation in Japan, Germany and Greece where maritime experts with a wealth of knowledge support all our shipowners.

Well to start with, The Bahamas is a maritime nation and as such readily understands the needs of shipowners. But in return, the BMA demands quality and excellence not only from its ships but also from their owners and crew. The fleet is young and we will continue to actively discourage older vessels from joining the Register. That way we will play our part in creating a modern safety-conscious international industry as well as helping to maintain a clean maritime environment.

Because of our insistence on the very highest of standards throughout our operations, the fleet has one of the world's finest reputations for port state inspections. So shipowners are confident that their vessels will not be targeted excessively by inspectors.

Another of the Register's strengths is the fact that The Bahamas is a member of the IMO council and an active participant in its work. As such, it has a powerful voice in world shipping and is a major influence in the development of world shipping policies as well as national legislation.

Furthermore, the BMA listens to its shipowners and reflects their interests, needs and concerns through the work of the Bahamas Shipowners Association.

The Flag offers a quality service but not at a premium price.

These and many other factors have attracted a cross section of ship types and nations to the Bahamas Register and have contributed to its success today.

The Bahamas is a proud, island nation steeped in the history and traditions of the sea. It is not surprising therefore that today it is a major hub for the shipping industry. But the country has a lot more to offer. As well as its undoubtedly successful commercial environment and its well-established legal system based on English law, The Bahamas does not have a direct taxation system. There is no income tax, capital gains tax or inheritance tax and as a result the financial services sector has enjoyed considerable and sustained growth over the years. The challenge now is to ensure that the shipping community is as well served as other more traditional customers. The BMA is working closely with the BFSB to assess what shipowners want and to make sure that the country's financial services are better tailored to owners needs, especially those who have Nassau registered vessels.

Bahamian expertise in the maritime and financial services sectors together with a comprehensive range of docking and wet-berth services as well as workshop and repair facilities make a very attractive combination – a “one-stop” maritime cluster of services for shipowners which the BMA actively supports. That was my message.

It is not by accident that the Bahamas Register is the third largest in the world and continues to be the Flag of choice for quality shipowners. But market growth takes time, persistence and professionalism. And above all we must maintain our reputation and brand so that we are always in a premier position when ship registration is being decided. I intend to play a full part in this continued growth.

But it is also important for the BMA to support the Government of The Bahamas in its drive to change the nation's perception of shipping and to provide more job opportunities in the industry. As in much of the world, the shipping industry and related businesses do not have a particularly dynamic or positive image. And yet shipping is The Bahamas' third largest industry after tourism and financial services. So raising its profile is quite a challenge. There have been several Government-led

initiatives to raise awareness among school children and students about the career choices available. The BMA plays its part. For top-performing school leavers there are two scholarships a year to the California Maritime Academy, sponsored by the BMA and the Bahamas Shipowners Association. Other sponsorships are provided by local companies such as Dockendale and Teekay Shipping with graduates gaining practical experience on Bahamas-registered vessels. It would be immensely fulfilling to see Bahamian cadets coming through the system and going on to take senior positions with the BMA and ultimately for a Bahamian to succeed me as BMA's Director of Maritime Affairs.

Malta



The Malta Maritime Forum was officially set up last October through the registration of the forum as a NGO and a legal personality. This development was a logical next step in the history of the local maritime industry, which is entwined with Malta's history.

Coming to the more recent history of the local maritime industry, an enormous debt is owed to our predecessors, who had the foresight to lay down sound foundations for this industry to grow and develop in a robust and solid manner. In claiming that today Malta is a maritime centre of international repute does little justice if not put within the perspective of the overall historical development of the industry.

The Merchant Shipping Act of Malta, enacted in 1973, owes its origins to the professional legal minds and policymakers who have been a permanent feature of this industry. Singling out individuals to be named risks doing injustice to those not named and hence suffice to say that Maltese legal personalities and policymakers are up to the present time enhancing the maritime industry not only locally but even at international levels.

The Merchant Shipping Act of Malta permitted the development of the Malta flag as one of the leading international flags and which today stands as the sixth largest worldwide and the first ranking flag on a European level.

Moving on chronologically, one can mention the setting up of the Malta Freeport Corporation and Malta Freeport Terminals in 1988, the establishment of the International Maritime Law Institute and the Malta Maritime Authority, which was unfortunately absorbed within Transport Malta in later years and still cries out for its proper unique identity.

Coming to even more recent years, the maritime industry underwent a process of privatisation, which saw the public authorities assume more of a regulatory role while giving scope to private enterprise and initiative. Indeed, it was this very spirit of private enterprise which created the local maritime society.

The setting up of Viset in 2010 brought into play a new dimension, namely that of attracting to Malta the cruise line services that today account for over half a million cruise passengers visiting Malta every year. When talking of figures, it is also pertinent to point out that today:

- 6,667 vessels are registered under the Malta flag;
- three million containers were handled at MFT in 2015;
- An average of one million tons of cargo are handled through the port of Valletta annually;
- Over 11,000 ships called at Maltese ports in 2015;
- Over 1.5 million tons of bunker oils were sold last year;
- 770 participants from 135 states have graduated through IMLI since its setting up.

On an international level, Malta has its representatives on the executive council of the IMO, which is the highest international maritime organisation, as well as on the executive council of the Comité Maritime International, a leading world authority on maritime law.

This is the heritage that the Malta Maritime Forum has inherited and which places a responsibility of debt owed to our predecessors as well as to our future generations, who deserve an even stronger and prosperous industry.

The Maritime Forum, chaired by former European commissioner Joe Borg, is made up of a very linear structure, whereby the prime seat is the general assembly. That is where all members meet to discuss matters of main concern and to elect a board of directors, which is today made up of 12 people. The membership of the Maritime Forum is a reflection of the local industry and comprises representatives from the terminals, ship repair yard, ship owners, unions (GRTU and Malta Dockers Union), shipping agents, port service providers and legal professionals. It is a mixture of interests, views and aspirations but above all it is a common platform intended to represent the local maritime industry.

In response to the challenges and prospects that the industry has to address, the forum has set up a number of sub-committees, each entrusted with specific areas of focus such as training and education, quality and standards, marketing and internationalisation, ports services and sea management, marine resources, culture and heritage and the promotion for membership.

It has also embarked on an extensive agenda, with introductory meetings held with the Minister for Transport, the Minister for the Economy, Investment and Small Business and the Parliamentary Secretary for Competitiveness and Economic Growth, as well as meetings with Trade Malta, where discussions are in hand to ensure that the industry is included in the agendas of trade missions and ministerial missions overseas.

Regular meetings are held with Transport Malta, who have been very supportive of the forum's initiatives. These meetings address issues the various maritime sectors put forward.

In line with this direction, the Malta Maritime Forum was invited by Transport Minister Joe Mizzi to form part of the Joint Maritime Commission the government has set up between Malta and Turkey and a representative of the MMF has been invited to sit on the board of directors of the recently launched Malta Marittima.

The objects of the forum are very clear, namely:

- To promote the interests of the Maltese maritime industry;
- To assist in the development of new maritime activities;

To promote research, education and training within the Maltese maritime industry;

- To act as a constituted body so as to consult and be consulted by the government in the development of public policies that can have a bearing on the Maltese maritime industry.

The road ahead is long and not without its challenges. However, the stakeholders within our maritime industry have realised that having a common platform promoting the interest of the industry is a guarantee for future development. The interplay and relationship building between the public sector and the maritime industry is of essence for shared objectives and successes.

Cyprus



The history of the Sea and Shipping in Cyprus traces back hundreds of years. The island's expert knowledge of sailing and trading was acquired through the many civilisations that conquered Cyprus in the ancient years, such as the Egyptians, Greeks, Romans, French, Venetians and British. Cyprus's constant striving for perfection in the field of merchant shipping has also been naturally facilitated by its almost ideal geographic location, which is at the crossroads of three continents, Europe, Asia and Africa.

The extension and diversification of all possible avenues of shipping activity in Cyprus is to a large extent attributed to the country's excellent shipping infrastructure, which was developed through the years by the Maritime

Administration (the Ministry of Communications and Works, the Department of Merchant Shipping and the Ports Authority), the responsible government body for shipping in Cyprus, and the Cyprus Shipping Industry, which is represented by the Cyprus Shipping Chamber. All services, both public and private required by ship-owners and investors are not only well represented and organised, but also to the highest quality standards.

The Cyprus registry today, ranking tenth among international fleets - with 1,857 ocean going vessels of a gross tonnage exceeding 21 million- is continuously upgrading its services in order to offer a high standard of support to international shipping and a reputation of a “Flag of Progress”. Cyprus is a major shipmanagement centre worldwide with a total of around 60 shipmanagement companies operating in its territory. Several of these companies rank among the largest of their kind in the world. Cyprus appears to be among the top five countries and territories in the world with the largest number of third party shipmanagement companies on its territory.

Cyprus participates actively in the different shipping related international fora such as The International Maritime Organization (IMO), the International Labour Organization (ILO) and the European Maritime Safety Agency (EMSA). Cyprus has been a member of the International Maritime Organisation since 1978 and a member of its Council since 1987. In addition, Cyprus participates actively in all Committees and Subcommittees of the Organisation, either through its High Commission in London or through well organised expert Delegations from Cyprus, mainly from the Department of Merchant Shipping which is the competent Department of the Ministry of Communications and

Works on matters pertaining to ship safety, security and prevention of pollution from ships.

Cyprus through its very attractive legislative and operational shipping infrastructure has the advantages to develop into an even greater pole of attraction for first-rate shipping companies, both from countries within and outside the EU. In addition, the Cyprus flag, being in effect one of the only two “Open Registries” within the EU, attracts a large number of quality tonnage to Cyprus.

Italy



The Italian maritime industries and the location by the Mediterranean coast have been key players in the economic development of the country. The process of globalisation

has further increased the importance of the maritime sector to the economy and the development of sea highways and short-sea shipping have the potential to increase in the competitiveness of Italy as a maritime nation both in the Mediterranean region and globally.

Employment in the sea related sectors, as defined as a part of this study, amounted to 179,000 in 2004^{VI}. This is however a substantial under-estimation of employment in the Italian sea related cluster as no figures were obtained on coastal tourism employment, which is an important sector in Italy, both in national and European terms. Furthermore, data on maritime works and maritime service sector is likely to constitute only a fraction of real employment in these sectors.

Italian shipbuilding has been said to rank among the most advanced shipbuilding industries in Europe. This is as a result of the efforts to improve plants, production and operational processes together with high levels of activity in research and innovation which is in part supported by taking advantage of the dual technological synergies with naval shipbuilding. But the high degree of competition, accentuated by competition from Asia, pushed Italy to reposition the production towards special market niches, such as cruise ships, fast ferries and cruise ferries.

The leading company in the shipbuilding sector is the Fincantieri group. It has eight shipyards in Italy handling around 80% of the shipbuilding related production in Italy. In 2004 the Fincantieri Group was responsible for 56% of global production in the cruise ship sector – together with its key suppliers.

The ship repair sector in Italy is limited as the ship repair yards in countries nearby (such as Croatia, Montenegro and Turkey) tend to be more competitive in terms of price and therefore in a better position to secure work.

In Italy, the core maritime cluster has consisted of following industries^I: maritime transport, support services for maritime transport sector (including, agency and brokerage, goods handling, towage, pilotage, insuring, certification), merchant shipbuilding, recreational boating (including the tourism branch), fishing and institutional activities such as port navy, coast guards and port authorities. A study carried out by CENSIS on the Italian maritime cluster estimates that the Italian maritime sectors (as defined above) produce goods and services equal to €26million annually (2.3% of GDP)

FIGURES just released confirm Italy's marine business cluster as one of the country's most dynamic economic sectors, contributing €32.6 billion to Italy's GDP (2.03%) and employing around 2% of the country's workforce (471,000 direct and ancillary workers). These are just some of the data to emerge from the fifth Economy of the Sea Report, put together by CENSIS and the Federation of the Sea, which was recently made public at Milan's Chamber of Commerce, Palazzo Turati. Today, Italy's fleet is one of the largest in the world (ranking third among G20 countries) with a capacity surpassing 17 million dwt and is an important player in

technologically advanced sectors (Ro-Ro, cruise ships, ships used for the transport of chemicals). Italy maintains its leadership in Europe for cruise traffic (with 6.2 million passengers and 4,600 cruise stops), and for construction of passenger ships and luxury yachts.

United Kingdom



Although very few people are aware of it, over 90% of the UK's visible trade moves by sea. Worldwide, the shipping industry continues to expand to meet the demands of globalization – in the last 40 years the world's population has doubled yet maritime trade has quadrupled. Ships carry 77% of world trade and seaborne trade is forecast to almost double over the next 15 years. With increasing world trade and growing maritime leisure interests, the range of supporting maritime activities is always growing.

Most people are surprised about the scale and diversity of the UK Maritime Industry. In fact the maritime sector covers everything from shipping to sub-sea technology, ports to aquaculture, maritime legal and financial services to leisure, and from the Royal Navy to commercial fishing.

The UK has a great maritime history and today boasts the largest maritime sector in Europe. With a turnover of over £56 billion – bigger than automotive and more than double the size of aerospace and agriculture combined – and directly employing approximately 410,000 people, the sector makes a massive contribution to its economy. UK has technological leaders in offshore oil and gas extraction, and strong in marine manufacturing; we are world-beaters in yacht design, building and racing; we have some of the most prestigious cruise companies in the world; and London is the world centre for maritime financial and legal services.

The maritime industry is one that combines travel, technology, good pay, safe working conditions, and real opportunities to reach full potential.

Norway



Norway has been a major player in shipping for more than 150 years. This small country on the fringe of Europe, which has less than a thousandth of the world's population, controls one of the world's largest merchant fleets.

What's more, the numerous and varied maritime activities that have grown up around traditional shipping operations enjoy strong and often leading positions in the international market. The Norwegian Government's vision is for Norway to be among the world's leading maritime nations and a supplier of the most innovative and environmentally friendly solutions for the future.

Since the 1970s, when petroleum operations first began on the Norwegian continental shelf, Norwegian maritime companies have targeted the offshore sector. Advanced assignments in tough weather and under difficult working conditions have led to the development of what is now the world's most technologically advanced offshore fleet. A strong domestic market has also laid the foundation for companies to take their expertise abroad. Today, more than half the revenue of Norwegian maritime offshore companies is generated from operations outside the Norwegian continental shelf. The Norwegian maritime industry will have a central role to play when resources in deeper and even more challenging waters are to be explored in a sustainable manner.

The Norwegian maritime industry is a complete cluster comprising leading shipping companies, shipbuilding yards, equipment manufacturers, designers, service providers, universities, research and development centres and regulatory bodies. The Norwegian maritime industry accounted for 5.5% of Norway's GDP in 2009. The Norwegian maritime industry is Norway's second largest export industry, after the oil and gas sector.

Sea transport is a cost-effective, reliable and environmentally friendly mode of transport. Some 90% of world trade is transported by sea, and shipping accounts for 2.7% of global CO₂ emissions. Only 40 % of trade between European countries is transported by sea. However, a single vessel has the capacity to replace several hundred trucks, thus reducing congestion and the risk of accident and pollution, as well as being a more cost effective mode of transport. It is a common goal of the European Union and the Norwegian authorities to ensure that a greater proportion of goods are transported by sea.

The Norwegian fleet is one of the most modern in the world. Norwegian shipping companies are engaged in all shipping segments, and have a particularly strong position in specialised shipping such as transport of petroleum products, chemicals, gas, paper, vehicles and rolling stock (ro-ro) and offshore shipping.

The Norwegian maritime cluster is at the forefront of efforts to develop new, innovative solutions. Norwegian shipowners, for example, are spearheading the development of gas-powered ships and the use of fuel cells as an alternative energy source on board. Continuous efforts are being made throughout the industry to further improve engines, hulls and propellers with a view to increasing energy efficiency and thereby reducing greenhouse gas emissions from ships.

Japan



To Japan, shipping is a “national strategic industry”, not least because of the country’s geography and dependence upon trade. The Japanese Shipowners’ Association has recently set out its views on the industry’s condition and underlined the strategic position of its industry as it seeks to remain competitive in the world.

While Japanese owners do have a tonnage tax system, the association points out that the arrangements are less favourable than that enjoyed by many other maritime nations and that the government needs to consider the importance of the “level playing field” in this respect. It emphasises the importance of the sector as it seeks to hold its own in a growth industry, and suggests that there needs to be greater awareness of what shipping brings to the general benefit of the nation. It looks to the government to address this inequality of treatment.

The submission points out the reliance of Japan on sea trade and marine transport, noting that some 99.7% of the country’s trade by weight is carried by sea, and also the extraordinary value added provided by the fleet. It notes the integrated nature of the Japanese maritime industry in its widest context and the “economic ripple” effect of the whole sector working together as a cluster. It also suggests that there is a need for high quality Japanese and foreign seafarers to keep the fleet operating efficiently and to provide sea expertise in the maritime infrastructure ashore. The association also spells out the potential of the shipping industry as a vital emergency arm, in a country where natural disasters are not unknown.

Maritime industry in Japan has had a significant influence on the country's history and economic development. Japanese maritime cluster is internationally significant even though it is losing its market share to China and South-Korea. Being an island nation with few natural resources, Japan is very dependent on seaborne trade and has established secure sources of raw materials. Habara states in his report Maritime policy in Japan (2011) that 96% of the supplies entering and leaving the country are carried by maritime transport. According to the same report, the value of the Japanese international shipping industry was around five trillion yen in 2011. The country's access to reliable and cost-effective shipping has helped it in becoming a major industrial power.

Japanese maritime business structure has a close relationship with other industries in Japan. The maritime cluster in the country is composed of three major groups – shipping companies, together with ship owners, shipbuilding companies and shippers/manufacturers. The fact that these three industries have been set up independently and upheld effectively is a unique feature of the Japanese maritime industry. The close cooperation of these groups and the financial support provided by the Zaibatsu, (Japanese financial combines) has led to successful results for the Japanese maritime cluster. There are several different organizations to enhance the cooperation among the country's maritime industry, e.g. the Shipbuilders' Association of Japan (SAJ), Japan Ship Technology Research Association (JSTRA), and Japan Ship Machinery & Equipment Association (JSMEA).

Japan is trying to increase its maritime industry's international cooperation. For instance, Japan and Norway organized a seminar in June 2013 to help companies find global business partners and share the latest innovations in products and services. The aim is to create green growth in the maritime sector. Possibilities for collaboration between countries were presented in the areas of LNG, innovations for oil and gas exploitations, offshore wind, the Arctic, and fuel efficient designs and operations.

The Japanese shipbuilding industry is trying to overcome its competitiveness issues. One way of coping with this is through shifting the focus of construction from one ship type to another. For example MHI's Kobe shipyard ceased to manufacture merchant vessels and is now constructing offshore units and research vessels, while also focusing on a cruise ship construction. Others are focusing more on shipbuilding

services like providing design, technology support, or training of engineers. According to the

Council Working Party on Shipbuilding's report (2013), both of these strategies require increasing efforts on R&D for the development of new competencies. The report shows that in Japanese listed companies, the investments in R&D have more than doubled from 2006 to 2011 (to USD 157 million). The focus of the Japanese shipbuilders' R&D is to increase energy saving and environmental technologies. Examples of these efforts include reducing CO2 emissions and improving fuel efficiency. Some of these R&D efforts are done in cooperation with other companies in order to improve development. For example, ClassNK is working with Imabari and Sanoyas Shipbuilding Corporation to test technologies that meet new EEDI regulations in actual operating environments.

MLIT's report of the green growth and maritime industries also emphasizes the R&D efforts to increase the industry's competitiveness through green innovations. While focusing on green growth in shipbuilding and especially the development of LNG-fueled ships, the report states that there are other industries that can utilize the new green technology. For example wind power generation at sea and the development of undersea resources can benefit from the new technological innovations. According to the report, regulations are good for the industry because they force the maritime cluster to invest in new technologies. An already mentioned example of this is the maritime sector's regulations on GHG emissions and the followed investments in energy saving technologies.

In April 2013, Japan approved a new Basic Plan on Ocean Policy. The aim of this plan is to protect the Japanese interests at sea. The first ocean policy was announced in 2008, but due to different factors such as weak institutional coordination, it did not lead to concrete action. Now Japanese policymakers face a fiercely growing global competition, motivating them to make more proactive plans to enhance the country's position among global maritime powers. Implementation of the new ocean policy also means increased efforts in securing the maritime transit routes and territorial waters.

According to Seatrade Maritime News, Japan already has several technically advanced yards that have an impressive track record of building a wide range of vessel types from FPSO's and LNG tankers, all the way through to cruise ships. Many yards have recently revealed new fuel efficient and environmentally friendly designs, claiming a reduction in fuel consumption of more than 30% compared to traditional designs delivered only a few years ago. This is good news for ship owners where fuel consists of approximately 60-70% of operational cost.... We are gradually witnessing a strategic move in Japanese shipbuilding: from the mass production of long-series standard bulk carriers (and oil tankers), to short-series, technically advanced high-end units, more or less tailor-made for specific future use. Owners of these units, often intended for the offshore sector, are more challenging for the yards than "traditional" owners, and they have crystal-clear expectations of the builder: quality and timely delivery.⁴ Citigroup's research supports this, saying, "Shipbuilding in Japan is going through a renaissance. The sharp depreciation of the yen has provided a cost advantage to manufacturers."

S. Korea



Currently, South Korea is the world's largest shipbuilding country with a global market share of 41% in Q1 2015. South Korea leads in the production of large vessels such as cruise liners, super tankers, LNG carriers, drill ships, and large container ships. In the 3rd quarter of 2011, South Korea won all 18 orders for LNG carriers, 3 out of 5 drill ships and 5 out of 7 large container ships. South Korea's shipyards are highly efficient, with the world's largest shipyard in Ulsan operated by Hyundai Heavy Industries slipping a newly built, \$80 million vessel into the water every four working days. South Korea's "big three" shipbuilders, Hyundai Heavy Industries, Samsung Heavy Industries, and Daewoo Shipbuilding & Marine Engineering, dominate global shipbuilding, with STX Shipbuilding, Hyundai Samho Heavy Industries, Hanjin Heavy Industries, and Sungdong Shipbuilding & Marine Engineering also ranking among the top ten shipbuilders in the world. In 2007, STX Shipbuilding further strengthened South Korea's leading position in the industry by acquiring Aker Yards, the largest shipbuilding group in Europe. (The former Aker Yards was renamed STX Europe in 2008). In the first half of 2011, South Korean

shipbuilders won new orders to build 25 LNG carriers, out of the total 29 orders placed worldwide during the period.

Germany



For years, Greece and Germany have been Europe’s shipping powerhouses. But while the Greeks stuck to a hands-on approach in which the owner arranged everything from financing to chartering and operations, the so-called German KG system largely depended on scores of investors ranging from banks to the country’s wealthy middle class. Many of them put their money into shipping at the peak of the market, before the 2008 economic downturn.

“As the global financial crisis took hold and the freight market gradually collapsed, the Greeks stayed above water as they were not overly leveraged and stood on cash generated during the boom years before 2008,” said Basil Karatzas, a New York-based maritime adviser who works with some of the world’s biggest shipping firms.

In Germany, by contrast, a single vessel often had up to 1,000 investors and the system wasn’t strong enough to absorb the market stress, Mr. Karatzas said. “There were too many conflicts of interest, lopsided market concentration on container ships—which were among the hardest hit—and scores of loans by German banks, which poured billions into new vessels believing that demand will continue to grow,” he said.

Analysts say that at the end of 2012, German lenders including HSH Nordbank AG, Commerzbank AG and Norddeutsche Landesbank Girozentrale controlled about a third of the \$475 billion global ship-finance market. In the past four years, the three banks have set aside more than €3.6 billion (\$3.9 billion) in provisions for nonperforming shipping loans as they desperately try to sell vessels once owned by bankrupt shipping lines.

At the end of 2014, German banks were trying to sell up to 1,000 of the more than 3,000 ships owned by German interests, one senior German ship-financing executive said.

“The Greeks are among the primary buyers, having snatched 164 German-owned ships since 2011 for around \$1.9 billion,” said George Xiradakis, a shipping consultant in Athens who also advises China Development Bank on its shipping business. “The prices are attractive and they can pick and choose among some very high-quality vesDuring the years leading to the top of the market in 2008, Greek and German shipowners were competing closely in terms of new ship orders, which came in at big numbers to take advantage of the thriving market. But since 2009, when the market turned sour, the Greeks have ordered on average almost twice as many vessels as their German peers, who largely withdrew from the market.sels.”

Shipping employs more than 200,000 people in Greece and contributes around 7.5% of Greece’s gross domestic product.

The Greek-German maritime competition recently has taken on political overtones, as Athens is trying to secure a third bailout package from its international creditors to avoid a default on its debts that might force it to exit the eurozone.

As part of early talks with its creditors, Athens has agreed to increase its tonnage tax—a flat, annual rate, based on a ship’s capacity, that is now roughly harmonized across the European Union. Greece also would gradually abolish some tax benefits that other EU countries also offer.

But shipowners say that if the tax changes are enacted, Greece would become one of the most expensive countries in the EU in which to own a ship. That could lead many owners to abandon the country for other shipping centers, such as London, Dubai and Singapore.

“Germany is Greece’s top creditor, and the prevailing feeling among local owners is that Berlin is trying to damage the single modern Greek success, which is shipping,” Mr. Xiradakis said. “The push to boost shipping taxes in Greece is popular among the German public, which feels that while German taxpayers are asked to pay for yet another Greek bailout, Greek owners live lavish lives through tax avoidance.”

Several German officials and shipping executives declined to comment for attribution, but denied that the provisions were motivated by a desire to hurt Greece.

India



The high pace industrial and social developments in India has led to an increase in the environment emissions. It has been found that the greenhouse gas emissions in India rose from 1.2 billion tonnes in 1994 to 1.9 billion tonnes in 2007, an increase of close to 60%. Most of these emissions have come from the industrial and transport sector. With these numbers, India is set to be the fourth largest emitter of Greenhouse gas after United States, China and Russia.

Indian government and policy makers are quite sensitive to the rising pollution level in the country. It is believed, that the damage caused to the Indian society due to global warming would be far more compared to the developed world. As a large population of India still remains below poverty line, they would find it difficult to fund expensive technologies to escape the heat of global warming. The government has been pitching for accelerating deployment of green technologies to tackle climate change, wherever affordable and wherever possible.

Apart from being a global economy, India is poised to be one of the leading maritime nations. It has about 7,212 kms of coast line. India has close to 7% share in the global trade by volume. There are more than 35,000 ships calling to Indian ports in a year for trade. Indian companies are aggressively expanding their fleet to increase their share in the increasing trade from Indian ports. All these developments lead to increase in the maritime activity at the Indian coast. This would also lead to increase in the emission of greenhouse gas from the ships.

The requirement for technologies and systems that are environment friendly is eminent. Norway is conducting a market research in the Indian maritime sector, which is exploring reasons for using environment friendly technologies by the shipbuilding and ship scrapping industry. It is also exploring opportunities for the Norwegian technologies and services in the shipbuilding, shipping and Indian maritime education sector.

The Indian shipping industry plays an important role in the Indian economy as almost 90% of the country's international trade is conducted by the sea .

India is ranked 15th in the world, with a shipping tonnage of around 11.5 million gross tonnage (GT) in 2011.

Today, India has around 1071 ships with 722 coastal and 349 overseas ships, Indian coastal shipping is highly fragmented .

The top 9 companies account for nearly 70% of the total fleet by Dead Weight Tons and in terms of number of ships, the top 9 companies only control 20% share of the fleet. Many companies own just 1 or 2 ships.

The Indian shipping industry consists of approximately 31 major shipping companies with Shipping .

Corporation of India (SCI), the largest public sector enterprise also being the largest in the country.

Denmark



The size and importance of Danish shipping on an international scale is best illustrated by the fact, that the fleet operated by Danish shipping companies' transports approximately 10 percent of all globally traded goods.

Denmark has one of the world's largest shipping industries despite the country's small size.

Denmark is a global maritime industry leader with long-standing shipping activities and advanced technologies.

Denmark offers a uniquely stable and favourable regulatory framework and pursues a long-sighted industrial policy, which has resulted in long-term advantages and positive business conditions for the maritime industries.

The Danish shipping industry is strong and thriving. Helped by stable and competitive framework conditions – not least the Danish International Ship Register – the industry plays an important role in the world's infrastructure.

As gatekeeper to the Baltic Sea, Denmark's geographic location has played a strong influential factor in the country's development into one of the world's leading maritime nations. Surrounded by sea, Denmark has more than 400 islands and a total coastline of over 7,000 kilometers. Therefore, maritime transport has been a vital source of income in Denmark and is continually growing hand-in-hand with increasing international trade. Danes have been active in the shipping business from the Viking era. Today almost 10% of global trade is transported by ships under Danish control.

Since 1996 the total volume of goods transported by the global merchant fleet has more than doubled. Measured in GT (gross tonnage), the total volume of goods has increased from app. 450,000 GT in 1996 to more than 1 billion GT in 2013. Today

approximately 90% of global goods are transported by sea and, in Denmark; about 75% of all Danish exports are conveyed by ship. The massive growth in the volume of goods shipped by sea worldwide since 1996 is largely a result of increased global trade. Maritime shipping is significantly cheaper and produces far fewer environmentally harmful substances and greenhouse gases per transported tonnage/kilometer compared to air and ground transport.

According to a report from the Danish Ship-owners Association that was published in the end of 2014, the Danish merchant fleet has grown by 13% since 2013. With 637 ships transporting about 13.8 million GT, the Danish-flagged merchant fleet has never been greater. Numbers provided by Invest in Denmark states that Danish ship owners own approximately 3% of the world's tonnage transported by sea and 6% of the world's tonnage is operated from Denmark. The increasing number of Danish ships is particularly related to the inflow of ships involved in the installation of offshore wind turbines and offshore supply vessels. Approximately 115,000 people work in the Danish maritime sector and the industries supplying the shipping industry. The maritime of Danish maritime companies accounts for about 24% of the total Danish export.

Chapter 5: The Biggest Shipping Companies in the World

Shipping is an extremely vital industry that most people are not aware of. Have you ever wondered how exotic fruits from Asia can end up still fresh and juicy in Europe or North America? The shipping industry plays a huge part in all these by helping us achieve the goals of globalization and making this world look like just one small town.

The industry is also a billion dollar business. Here now is a list of the top 10 largest shipping companies in the world.

10. Orient Overseas Container Line

Orient Overseas Container Line is a shipping container and logistics service company based in Hong Kong. It has 280 offices in 55 countries and provides 78 services in international trading markets. The company was established in 1969 and has a fleet of more than 270 ships with different capacities and capabilities. Its ships range from 2,500 twenty-foot equivalent units, or TEU, to 13,000 TEU. It also owns some ice class vehicles that can be used for extreme weather conditions. It is a member of the Grand Alliance that includes Hapag Lloyd and Nippon Yusen Kabushiki Kaisha.



9. Mitsui O.S.K. Lines, Ltd.



Mitsui O.S.K. Lines, Ltd., or MOL, is a transport company based in Tokyo but whose main line of business is international shipping. The company was established in 1884. It was formed as a result of the merger between Mitsui Steamship Co., Ltd. and Osaka Shosen Kaisha, or OSK. Its fleet includes bulk carriers, car carriers, cruise carriers, ferries, LNG carriers, tankers and container ships.

8. Nippon Yusen Kabushiki Kaisha



Nippon Yusen Kabushiki Kaisha, or NYK, is a member of the Mitsubishi Group of companies. It is based in Tokyo in Japan and is one of the largest shipping companies in the world. It can trace its roots all the way back to 1870 when the Tosa clan established the Tsukumo Shokai Shipping Company. It has the distinction of operating the first passenger line service in the country, which it did in 1875 as Mitsubishi Shokai. It currently operates 776 major ocean vessels, apart from its fleet of planes, trucks and trains.

7. Hanjin Shipping Co. Ltd.

Hanjin Shipping Co. Ltd. is a shipping company founded in 1949 and based in South Korea. It has a fleet of more than 200 ships, including containerships, bulk carriers and LNG carriers. It ships more than four million TEU containers every year, with more than half of them at 2.3 million being handled in the terminal in Busan. The company makes use of Gantry cranes and operates around 60 liner and tramp trade services all over the world.



6. Hapag Lloyd

Hapag Lloyd is a transportation company based in Germany that was founded in 1970. It can trace its roots to the middle part of the 19th century, however, as the company is a result of the merger between the Hamburg Amerikanische Paketfahrt Aktien Gesellschaft, or Hapag that dates back to 1847, and Norddeutscher Lloyd, which was established in 1856. The company also purchased CP Ships, a Canadian liner, in 2005. The company currently has 147 vessels.



5. China Ocean Shipping Container Line



China Ocean Shipping Container Line, or COSCO, is a provider of shipping and logistics services based in China. The company was established in 1961. Its main lines of businesses are freight forwarding, shipbuilding, ship repairing, and operation of terminals. It is the largest liner carrier and dry bulk carrier in China, and one of the largest dry bulk shipping operators in the world. It has more than 300 subsidiaries and owns and operates around 550 ships. Its total carrying capacity is 30 million metric tons deadweight.

4. Evergreen Marine Corporation

Evergreen Marine Corporation is a shipping company founded in 1968 and based in Taiwan. It has over 150 ships that call on 240 ports around the world in around 80 countries. Its ships are easily distinguishable by the color green and the word Evergreen painted prominently on the side of the ships. The company also owns another company in Taiwan called Uniglory Marine Corp., and has subsidiaries in the United Kingdom called Evergreen UK Ltd. and Italy called Italia Marittima S.p.A.



3. CMA CGM S.A.



CMA CGM S.A. is a transportation container and shipping company based in Marseilles in France, with a North American headquarter in Norfolk in Virginia. It traces its roots to 1851 with the founding of Messageries Maritimes, or MM, which merged with a company called Compagnie Generale Maritime, or CGM. CGM was a state company that was privatized in 1996 and sold to Compagnie Maritime d’Affretement, or CMA. As CMA CGM, it went on to buy the Australian National Lines and Delmas of France. The company now has 200 routes operating in 400 ports in around 150 different countries.

2. Mediterranean Shipping Company S.A.



The Mediterranean Shipping Company S.A. is a shipping line based in Geneva in Switzerland. Established in 1970, the company has a presence in all the major ports around the world, though its most important port is the one in Antwerp in Belgium. It currently operates 474 vessels with a total combined capacity of 2.3 million TEU. It has vessels with a capacity of 13,800 TEU, including the MSC Beatrice and the MSC Emanuela, the latter of which is considered to be one of the largest container ships in the world. It has been named as Shipping Line of the Year six times in a span of 11 years starting from 1996.

1. A.P. Moller – Maersk Group



A.P. Moller – Maersk Group is a conglomerate based in Copenhagen in Denmark that was established in 1904. It is considered as the largest container ship operator and supply vessel operator in the world. The company has held that distinction since 1996. It operates 600 vessels with 3.8 million TEU. It also owns the ship Emma Maersk, considered as the largest container ship in the world. The company has a presence in 135 countries around the world.

Chapter 6: Conclusion

In total, the world fleet grew by 42 million GT in 2014, resulting from newbuildings of almost 64 million GT minus reported demolitions of about 22 million GT.

More than 91 per cent of GT delivered in 2014 was built in just three countries: China (35.9 per cent); the Republic of Korea (34.4 per cent); and Japan (21.0 per cent), with China mostly building dry bulk carriers, followed by container ships and tankers; the Republic of Korea building mostly container ships and oil tankers; and Japan specializing fundamentally in bulk carriers.

To respond to demands for a more environmentally sustainable shipping fleet, shipbuilders, owners and non-governmental technical bodies such as classification societies increasingly collaborate on the development of new technologies and eco-ships. Notably, classification societies have in recent years led research into the use of alternative energies on ships, including wind and solar power.

The world's commercial fleet grew by 3.5 per cent during the 12 months to January 1, 2015, the lowest annual growth rate in over a decade, the United Nations Conference on Trade and Development (UNCTAD) Review of Maritime Transport 2015 reveals. At the beginning of the year, the fleet totalled 89,464 vessels, with overall 1.75 million in deadweight tonnage.

Despite its economic troubles, Greece remained the leading shipowning country, with Greek companies accounting for more than 16 per cent of the world industry, followed by companies from Japan, China, Germany and Singapore. Together, the top five shipowning countries control more than half of the world deadweight tonnage. Five of the top 10 ship-owning countries are from Asia, four from Europe and one – the United States of America – from continental America.

Over the last decade, China, Hong Kong (China), the Republic of Korea and Singapore have moved up in the ranking of largest shipowning countries, while Germany, Norway and the United States have a lower market share today than in 2005. In South America, the largest shipowning country (in deadweight tonnage) continues to be Brazil, followed by Mexico, Chile and Argentina. The African country with the largest fleet ownership is Angola, followed by Nigeria and Egypt.

China ranked highest on the UNCTAD Liner Shipping Connectivity Index, which provides an indicator of a coastal country's access to the global liner shipping network (the network of regular maritime transport services for containerized cargo). China was followed by Singapore, Hong Kong (China), the Republic of Korea, Malaysia and Germany.

The best-connected countries in Africa are Morocco, Egypt and South Africa, reflecting their positions at the corners of the continent. In Latin America, Panama

ranks highest on the Liner Shipping Connectivity Index, benefiting from the Panama Canal and from being at the crossroads of main East–West and North–South routes, followed by Mexico, Colombia and Brazil. The 10 economies that rank lowest on the Index are all island States, reflecting their low-trade volumes and remoteness.

Data on fleet deployment illustrate the process of concentration in liner shipping, which has seen the recent mergers of *Compañía Sudamericana de Vapores* and *Hapag Lloyd*, and *Compañía Chilena de Navegación Interoceánica* and *Hamburg Süd*. While the container-carrying capacity per provider for each country tripled between 2004 and 2015, the average number of companies that provide services to each country's ports decreased by 29 per cent.

Both trends illustrate two sides of the same coin: as ships get bigger and companies aim at achieving economies of scale, there remain fewer companies in individual markets. The *Review of Maritime Transport 2015* says that it will be a challenge for policymakers to support technological advances and cost savings, for example through economies of scale, yet at the same time ensure a sufficiently competitive environment so that cost savings are effectively passed on to the clients, that is, importers and exporters.

At the beginning of 2015, the report reveals, the top 10 liner shipping companies operated more than 61 per cent of the global container fleet, and the top 20 controlled 83 per cent of all container-carrying capacity. Together, the three largest companies have a share of almost 35 per cent of the world total.

All companies with vessels on the order book are investing in larger vessels, with the average vessel size being larger than the current average container-carrying capacity. This attempt to realize economies of scale increases the risk of oversupply, UNCTAD notes.

The average vessel size for all new vessels on order by the top 15 companies is above 10,000 twenty-foot equivalent units, which is double the current average size of vessels in the existing fleet of each company. Only very few companies outside the top 20 carriers have placed any new orders and these orders are for far smaller vessel sizes.

Rates of tonnage added to the global fleet continued to decline in absolute terms compared to previous years. The report notes, however, that the overall growth rate of tonnage remained above indicators such as that of global gross domestic product and trade growth, and slightly higher than that of the growth of seaborne trade (3.4 per cent in 2014).

The *Review of Maritime Transport 2015* says that total tonnage delivered in 2014 was only slightly more than half the tonnage delivered in the peak year of the historically largest shipbuilding cycle in 2011. The report explains that because several years pass between the placement of an order for a new ship and its delivery, ships are often

ordered when the market is perceived as strong, only to be delivered years later, when the market may have become weaker.

As the report explains, tonnage delivered in 2014 had been ordered in some cases as long ago as 2008. While this oversupply may not be good news for shipowners, UNCTAD argues that it is a positive development for the revival of global trade because there is no shortage of carrying capacity and the cost of trade continues to decline in the long term.

In addition, the report reveals that, for the first time since the peak of the shipbuilding cycle, the average age of the world fleet increased slightly in 2014. The delivery of fewer new ships, combined with reduced scrapping activity, means that newer tonnage no longer compensates for the natural aging of the fleet.

Chapter 7: Bibliography

- <https://www.roanoketrade.com/panama-canal-expansion-shipping-industry/>
- <https://www.liscr.com/liscr/AboutUs/AboutLiberianRegistry/tabid/206/Default.aspx>
- <http://www.bfsb-bahamas.com/news.php?cmd=view&id=2781&pre=y>
- <http://www.hellenicshippingnews.com/maltas-maritime-industry-thrives/>
- <http://www.maritime-executive.com/article/unctad-reveals-shippings-top-five-countries>
- https://en.wikipedia.org/wiki/List_of_merchant_navy_capacity_by_country
- <http://unctad.org/en/pages/PressRelease.aspx?OriginalVersionID=272>
- <http://worldmaritimeneews.com/archives/182683/infographic-top-10-shipowning-nations-by-value/>
- http://video.minpress.gr/wwwminpress/aboutbrandgreece/aboutbrandgreece_samiotis_vlachos.pdf
- https://en.wikipedia.org/wiki/Greek_shipping
- <http://www.hellenicshippingnews.com/rippling-economically-japans-shipping-industry/>
- <http://www.mitc.com/wp-content/uploads/2015/04/2015-Marine-Industries-Resource-Guide-Japan-and-China.pdf?3dc2e8>
- <http://www.wsj.com/articles/greek-shipping-industry-extends-its-dominance-1438951601>
- <http://www.seatrade-maritime.com/news/americas/shipping-leaders-split-over-industry-outlook.html>
- <http://www.channelnewsasia.com/news/business/singapore/tough-times-for-offshore/1784106.html>
- https://en.wikipedia.org/wiki/Shipbuilding#Present_day_shipbuilding
- <http://www.mapsofworld.com/world-top-ten/largest-merchant-shipping-fleets.html>

- http://www.norway.gr/News_and_events/Business/The-Norwegian-maritime-industry/#.VxzHth2LTIU
- <http://www.investindk.com/Clusters/Maritime-industry>
- <http://www.usadk.org/news/denmark-is-the-worlds-fifth-largest-maritime-shipping-nation/>
- <http://icsclass.org/news/unctad-reveals-top-5-ship-owning-countries/>
- <https://www.oecd.org/turkey/48641944.pdf>
- http://ec.europa.eu/maritimeaffairs/documentation/studies/documents/italy_employment_trends_en.pdf
- http://www.conyersdill.com/publication-files/Article_075_09_09_02_Shipping_Bermudas_Secret.pdf
- http://www.conyersdill.com/publication-files/115_10_01_26_Bermuda_Shipping_Industry.pdf
- <http://www.therichest.com/rich-list/the-biggest/the-biggest-shipping-companies-in-the-world/?view=all>
- <http://www.globalsecurity.org/military/world/brazil/shipbuilding.htm>
- <http://www.fisherassoc.co.uk/dbimings/Belgian%20shipping.pdf>
- https://en.wikipedia.org/wiki/Russian_Maritime_Register_of_Shipping
- <https://www.utu.fi/en/units/tse/units/PEI/Documents/M%C3%A4kinen%202015.pdf>
- <https://www.vesselfinder.com/news/4491-Global-commercial-shipping-fleet-witnessed-lowest-growth-rate-in-a-decade-UNCTAD>
- <http://www.investindk.com/News-and-events/News/2016/Denmark-Stands-out-Among-the-Top-10-Largest-Shipowning-Nations>
- <https://issuu.com/unpublications/docs/9789210574105>
- http://www.reportlinker.com/report/best/keywords/Shipping?utm_source=adwords&utm_medium=cpc&utm_campaign=Transportation&utm_adgroup=Shipping&gclid=CIWYm6TjhsWCFWQq0wodb5sDUA
- <http://www.worldshipping.org/about-the-industry>
- <http://www.worldshipping.org/about-the-industry/history-of-containerization>
- http://www.seapowermagazine.org/pdf_files/americas-maritime-industry.pdf

- <http://encyclopedia2.thefreedictionary.com/Shipping+industry>
- <http://www.thecanadianencyclopedia.ca/en/article/shipping-industry/>
- <http://www.iww.org/unions/iu510/yarbird/yarbird20.shtml>
- http://unctad.org/en/PublicationsLibrary/rmt2015_en.pdf
- <http://unctad.org/meetings/en/Presentation/Jan%20HOFFMANN.pdf>
- http://www.greece.org/poseidon/work/articles/polemis_one.html