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LEGAL AND ECONOMIC ANALYSIS OF TRAMP MARITIME SERVICES

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EXECUTIVE SUMMARY

1. This Report was commissioned by the European Commission to provide it with the necessary expertise on tramp shipping markets. The purpose is to assist the European Commission in applying the EC competition rules to the tramp vessel sector and, if appropriate, issuing guidelines on their application.

2. The tramp shipping markets covered by this Report effectively include all international ocean freight transport services, other than liner services. The term "services" is used loosely: as will be seen, in contract terms the "services" usually involve either the carriage of cargo by sea between pre-determined ports as a single voyage (a *voyage charter*[1]) or the hire of a ship by a charterer for a period of time (a *time charter*[2]).

3. *Tramp shipping* is a term which has been variously defined, not least by Article 1(3)(a) of Council Regulation 4056/86:[3] until its repeal on 18 October 2006[4], this accorded a special jurisdictional status to "tramp vessel services" as opposed to all other forms of international maritime transport services.[5] In the sense in which it is normally used in the shipping industry, "tramp shipping" can be defined as the transport of a single commodity, which fills a single ship. (There are exceptions, which are addressed in the Report.) The ship is typically fixed by a shipbroker and performs a transport service in accordance with the terms of the relevant charterparty (the contract).

4. In contrast, *liner services* are both regularly scheduled and advertised in advance. *Liner services* provide transport for cargoes that are generally *too small to fill a single ship* and need to be grouped with others for transportation. The ships operate on a regular advertised service between ports, carrying cargo at either fixed, or negotiable prices. Liner services are today almost exclusively containerised, meaning that cargoes are shipped in individual standard-sized containers (boxes).[6]

5. However, while liner services fall largely outside the scope of the Report, there is, to some extent, an overlap between a small part of the tramp market with liner shipping. Liner shipping will therefore be touched on to a limited extent.

6. Our aim throughout the Report has been essentially twofold: first, to carry out a systematic factual and economic analysis of the industry and secondly to carry out a comprehensive analysis of cooperative agreements in the industry from a competition law point of view. For this reason the Report has been divided into two parts: Part 1 being essentially factual and Part 2 essentially legal.

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1 As further explained at para. 19 of this Executive Summary. This, and other important definitions in the Report, are more fully defined in the Legal Definitions in Annex 2.

2 See Legal Definitions, Annex 2.

3 Council Regulation 4056/86 of 22.12.1986 laying down detailed rules for the application of the Treaty to maritime transport, OJL 378/4 of 31.12.86.

4 By Council Regulation 1419/2006 of 25.9.2006 repealing Regulation (EEC) No 4056/86 laying down detailed rules for the application of Articles 85 and 86 of the Treaty to maritime transport, and amending Regulation (EC) No 1/2003 as regards the extension of its scope to include cabotage and international tramp services, OJL 269/1 of 28.9.2006.

5 Article 1(3)(a) read: "Tramp vessel services means the transport of goods in bulk or in break-bulk in a vessel chartered wholly or partly to one or more shippers on the basis of a voyage or time charter or any other form of contract for non-regularly scheduled or non-advertised sailings where the freight rates are freely negotiated case by case in accordance with the conditions of supply and demand".

6 The term "unitised cargo" is also used.

7. The *factual* part of the Report first sets out for the European Commission how the tramp shipping market works (including providing the European Commission with a description and explanation of its overall structure, the main players in the market, the main contract types and how they are used, and, last but not least, the key shipping terms). Secondly, the tramp shipping market is analysed from a demand point of view and then from a supply point of view. Thirdly, the various forms of horizontal cooperation in the industry are described, consisting principally of pooling agreements and, so far as possible given the constraints of confidentiality, their key terms summarised and discussed as well.

8. The *legal* analysis first tries to identify the relevant economic markets for competition law purposes (and as far as possible seeks to define the scope of each of the relevant product/service and geographical markets); it then proceeds to consider how the competition rules should be applied to the cooperative agreements identified within each of those relevant markets. This involved taking relevant data from the factual part of the Report and seeing how, in light of those factual findings, the competition rules were likely to apply. As part of this, we identified and explained whether there are specific features of the industry (and its component markets) that might require the competition rules to be applied in a particular way or might justify the introduction of any new, special, rules or the adaptation of the existing rules.

9. We pointed out some of the constraints which we faced in carrying out our research for the Report and compiling the underlying data. We had uneven access to data in the different markets and in many cases (*e.g.* for pure car carriers) we had no access to published price information on which to base any firm conclusions. This particularly affects the market definitions given in the Report, which have to be seen as somewhat tentative. The scope of the study was such that a full econometric analysis could not be carried out and accuracy of data used was not verified at source. Only the European Commission has the appropriate powers to compel parties to produce relevant figures, whether in the context of a specific case, or notified merger, or sector inquiry. However, wherever possible, we relied on information gleaned from our contacts in the industry and our own best estimates.

10. The consultants are nevertheless confident of having prepared an accurate and fair account of the economics of the tramp industry based on the data available to them either from public sources or from their own experience.

11. Factual data were compiled in the period August 2006 to January 2007 and where there have been relevant developments during that period we have endeavoured as far as possible to include them.

THE TRAMP SHIPPING MARKET

12. The range of cargoes carried in tramp ships is hugely varied, including economically important commodities such as agricultural and chemical products and oil. Cargoes may be raw materials, semi-refined products, or finished goods.

13. Cargoes can be classified into dry cargo and liquid cargo. The descriptions are self-explanatory, clearly describing the key characteristic of the cargoes falling into each classification. A third category can be distinguished, often called neo-bulk, comprising non-free-flowing homogeneous bulk commodities (such as steel).

14. Within the "the tramp shipping market" as a whole and within the above three classifications and any narrower market classifications within them, one needs to distinguish four inter-related markets. This can best be seen from the perspective of the ship owner, who may at any time be trading in one or more of the following four different markets:

(a) The newbuilding market, where ships are ordered, but delivered with a time lag (for instance if a ship owner orders a vessel today, that vessel will be delivered in 2009 or 2010);

(b) The sale and purchase market, where existing vessels can be bought and sold immediately;

(c) The freight market, where ships are chartered;[7]

(d) The demolition market, where vessels are sold for demolition.

15. The focus in the Report is on the freight market, as this is the relevant part of the market in which shipping pools are involved. Accordingly, while the other three markets are discussed to a limited extent in the Report, they are not explained further in the Executive Summary.

THE FREIGHT MARKET

16. The major players in the freight market, in terms of the sea transport element, include the shipowners and/or ship operators, the charterers (including operators in the chartering in of ship/tonnage capacity for subsequent chartering to their customers) and shipbrokers. The freight market is a market in which sea transport is bought and sold. Sea transport is a service that allows international trade to take place, and accordingly the cost of sea transport constitutes an intermediate input to the cost of the underlying physical sale of the goods. Without international trade, there would be no reason for the tramp market to exist.

17. The freight market is complex, as there are many interests involved in the movement of cargoes by sea. The parties are or may be:

(a) The supplier of the cargo, such as a mining company (for coal/iron ore), a manufacturer of goods (for a product or part finished product), *etc.*;

(b) A trader (a merchant who buys a cargo from one party and sells it to another – there may be many traders involved in one transaction);

(c) A shipper (the person who arranges for the cargo to be shipped by sea);

(d) A charterer (who arranges for the carriage of the cargo by ship or for the hire of a ship for the carriage of cargo), who may or may not be a cargo owner and/or shipper;

(e) A ship owner or ship operator;

(f) A receiver (who receives the cargo on his own or on someone else's behalf at the end of the sea transport leg);

(g) A seller of the cargo (there may be many of these in one cargo shipment);

(h) A buyer of the cargo (there may be many of these in one cargo shipment).

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[7] The various contract types are described more fully in Section 1.6 of the Report. This market may itself be seen to operate at two levels (upstream and downstream): the level at which owners charter their vessels to other owners or pure operators who need relevant ship capacity to perform a transport service, and the level at which they in turn charter them to cargo owners in connexion with the provision of the actual transport services. This is further discussed in Section 5.1.

18. Shipbrokers play a key role in the tramp shipping industry. In each market, shipowners have vessels for hire, charterers have a requirement for ships to transport cargo, and shipbrokers seek to bring the two parties together. When a ship is chartered and all terms, including the freight or hire rate, are agreed, the ship is said to be "fixed", and this process typically involves a shipbroker, who, in short, covers market intelligence, brings parties together and negotiates contracts, follows up on contractual matters and assists in case of disputes.

TYPES OF CONTRACTS USED IN THE FREIGHT MARKET

19. When a vessel is "fixed", the following contractual arrangements are most commonly used in tramp shipping markets:

(a) **Voyage charter** – This is in concept the simplest form of charter. A voyage charter provides for a specific quantity of specific cargo to be carried from a load port to a discharge port (or perhaps a number of specified load ports to a number of specified discharge ports) on strict terms and for a fixed price. The price is usually agreed per tonne of commodities and/or goods carried.

(b) **CoA** – This form of contract (known as a contract of affreightment, but usually abbreviated to CoA) can be considered as a number of voyage charters, agreed at the same time, and forming one contract. The basic tenets are the same as for a voyage charter (that is, it provides for the carriage of a certain size of cargo of a product or commodity from a port or ports A to a port or ports B, but the contract of affreightment may be for, say, twelve such cargoes to be carried at, say, monthly intervals). Unlike a voyage charter, however, a specific vessel for each cargo is not usually specified in the contract. They can be very long-term contracts.

(c) **Time charter** – In contrast to a voyage charter or a CoA, under a time charter the charterer takes operational control of a ship for a period of time, effectively hiring the vessel for his own use. The period of hire may be a few days, perhaps the equivalent of a short-term voyage charter. On the other hand, a time charter may last for a period of months or years.

(d) **Bareboat charter** – A bareboat charter is effectively a time charter with the difference that the charterer has full control of the ship. In addition to paying for the hire of the ship, he also arranges the crew, maintenance, insurance and so on. Bareboat charters tend to be for significant periods of time and are often used by financial institutions as a means of providing security for loans.

20. Ships are mobile assets, capable of being moved as required to meet demand anywhere in the world. Unless designed for a specific local or coastal trade, or where committed to long-term contracts on one route, ships tend to trade internationally and, usually, worldwide. Even if they do not, their owners generally have the option to trade them on a worldwide basis. Shipowners and ship operators need to pay for their vessels, so in essence this means that they will trade their vessels where there is most demand and where they see the greatest profit. Because it takes time for ships to move around the world, there are separate regional markets which are only accessible to ships ready to load cargo in that area. These are short-term, as ships' ease of mobility means that other ships may be brought into any such market at any time. In addition, each such market is closely associated with every other given the transferability of ships, as a ship owner will respond to demand and seek to earn the greatest profit wherever the demand arises.

SUPPLY AND DEMAND FUNDAMENTALS FOR EACH MARKET

21. There are separate markets for different categories of ships, and they may behave quite differently. For example, the tanker market is driven by the demand for oil and oil products, whilst the dry bulk market is driven by demand for commodities such as iron ore, coal and/or grain *etc*. In the following summary, a brief description of each of the markets is given.

22. In all markets, however, the demand side characteristics are closely linked to the supply side characteristics of the market, *i.e* there are relevant differences between the types of ships which carry the respective products or commodities, but there are similarities in the patterns of supply and demand within each of the three main market categories examined in the Report, namely:

    (a) **Liquid Bulk** – products that are shipped in a liquefied state, by vessels designed to handle liquids;

    (b) **Dry Bulk** – commodities that are dry and do not require specialised handling at ports, thus enabling homogeneous handling;

    (c) **Neo-bulk (specialised)** – products which the consultants have classified separately from dry bulk in view of the fact that neo-bulk products as a rule require specialised shipping and handling at ports; the category includes items such as motor vehicles and refrigerated commodities and/or goods. The vessels used to transport neo-bulk products are often designed to accommodate specific products, although products vary in their degree of specialisation.[8]

23. The Report analyses both the supply[9] and demand[10] side characteristics for all the markets within the three main market categories.

LIQUID BULK MARKETS

24. The liquid bulk markets comprise the transport of, *inter alia*, condensates, crude oil, ethylene, fuel oil, diesel/gas oil, gasoline, jet fuel (kerosene), LPG, naphtha, natural gas, organic chemicals and inorganic chemicals/acids.

25. These products fall into the following shipping markets: the chemical tanker market, clean petroleum product market (CPP), crude oil market, dirty petroleum product market (DPP), liquefied natural gas market (LNG) and the liquefied petroleum gas market (LPG). Each of these shipping markets is briefly described below.

CHEMICAL TANKER MARKET

26. The chemical tanker market comprises the ocean transport of bulk liquid chemicals, edible oils, acids and other speciality liquids. There are two main types of chemical cargoes carried, either organic (methanol, MTBE, benzene, toluene, xylene and styrene) or inorganic (phosphoric acid, sulphuric acid and caustic soda).

27. The vessels which are used are chemical parcel tankers, which are deep-sea vessels equipped with compartments designed to carry parcels of various sizes. These vessels are classified as either IMO 1, 2 or 3 depending on the type of chemical carried.

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8 Global Insight data for Neo-bulk traffic include transport on General Cargo vessels (see Annex 1).
9 Chapter 3.
10 Chapter 2.

28. IMO 1 classed vessels carry the most dangerous substances, whereas IMO 3 classed vessels carry the least dangerous substances. Each type of chemical, both inorganic and organic, has unique types of requirement for its transportation.

29. Chemical tankers trade worldwide. More specifically, chemicals are traded from the US Gulf to Europe and the Far East. Other major trade routes are from Europe to the US East coast, from the US Gulf and South America to the Far East, from the Middle East/Gulf (MEG) to the USA, Europe and the Far East.

30. IMO 3 type chemicals can also be transported on clean product tankers. IMO 1 and IMO 2 type chemicals are almost exclusively transported on chemical parcel tankers.

CLEAN PETROLEUM PRODUCTS (CPP)

31. The CPP tanker market comprises the ocean transport of clean condensates, diesel oil, gas oil, gasoline, jet fuel, marine diesel oil and naphtha.

32. Clean products are transported on LR2, LR1, MR and Handysize product tankers. The approximate vessel capacities are 80-120,000 dwt for an LR2, 50-80,000 dwt for an LR1, 30-55,000 dwt for an MR and 20-40,000 dwt for a Handysize.

33. The major trades in the CPP market for LR1s are roughly 60% Arabian Gulf-Far East and 40% trans-Atlantic (the Mediterranean to USA and the Mediterranean to North West Europe), for LR2s roughly 80% Arabian Gulf-Far East and 20% Arabian Gulf-North America and trans-Atlantic, whereas MRs and Handysizes trade worldwide in a non-regular pattern.

34. CPP can also be transported on chemical parcel tankers.

CRUDE OIL

35. The crude oil tanker market comprises the ocean transport of crude oil, but also dirty petroleum products and dirty condensates, as all such products are transported on crude oil tankers.

36. Crude oil is primarily carried on crude oil tankers. Vessel sizes include Handysize, Panamax, Aframax, Suezmax and VLCC/ULCC tankers. These are not generally very sophisticated tankers, and the main difference between the different types lies in their size.

37. The largest crude oil carriers, the very large crude carriers (VLCCs), which are above 200,000 dwt in size, trade from MEG and West Africa to Asia, from MEG and West Africa to North America and Asia, from MEG to Europe, and within the North Sea.

38. Suezmax vessels, ranging in size from 120-200,000 dwt, trade from the Black Sea and North and West Africa to Europe, from West Africa to North America, from the North Sea to North America and from MEG to Europe. These vessels also trade regionally in the Americas and in Asia.

39. Aframax vessels, which vary in size from 80,000 to 120,000 dwt, trade primarily from the Caribbean to North America, the Baltic to North West Europe and North America to the Mediterranean. There is also some regional trading in Asia.

40. Crude oil can also be transported on clean product tankers and chemical parcel tankers.

DIRTY PETROLEUM PRODUCTS (DPP)

41. The DPP tanker market comprises the ocean transport of dirty petroleum products, which include dirty condensates, fuel oil, vacuum gas oil, and LSWR.[11]

42. In order to carry DPP, a vessel must, for most trades, have a heating system installed which is capable of heating the product (typically to 57°C) in order to keep the cargo pumpable and liquid. All crude oil tankers, apart from VLCCs, have the required heating systems installed.

43. DPP trades for the various vessel sizes are the same as for the crude oil trades mentioned in the crude oil section above.

44. Dirty petroleum products can also be transported on clean petroleum product tankers and chemical parcel tankers.

LNG

45. The LNG market comprises the ocean transport of liquefied natural gas. LNG is transported on purpose-built LNG vessels.

46. LNG is traded on a worldwide basis. The main exporting areas are the Pacific Basin (Indonesia, Malaysia, Australia, Brunei, the United States and Russia), the Middle East (Qatar, Oman and the United Arab Emirates) and countries in the Atlantic Basin (Algeria, Nigeria, Trinidad and Tobago, Libya, Egypt and Norway).

47. The main LNG importers are countries in the Pacific Basin (Japan, South Korea, Taiwan, China and India) and the Atlantic Basin (France, Spain, the United States, Italy, Turkey, Belgium, Puerto Rico, Greece, Portugal, the Dominican Republic and the UK).

48. The only substitute for LNG vessels is pipelines.

LPG

49. The LPG market comprises the ocean transport of liquefied petroleum gas, and the main commodities are LPG, ammonia, naphtha and petrochemical gases. In addition, ethylene is transported on purpose-built ethylene carriers, which also can transport LPG.

50. LPG is usually transported on pressurised, semi-refrigerated or fully-refrigerated vessels. A vessel's cargo capacity is measured in cubic metres, and vessel sizes vary from 800 m^3 to about 75,000 m^3. Empirically, vessels below 10,000 m^3 are usually pressurised, whereas semi-refrigerated vessels, which use a combination of pressure and cooling, vary in size from 3,200 to 20,000 m^3. Vessels above 20,000 m^3 are typically fully refrigerated.

51. LPG vessels trade in different areas depending on size. Pressurised vessels are used in regional trades only, whilst semi-refrigerated and fully-refrigerated vessels operate on a global basis. LPG vessels require specialised terminals for loading and discharging, which makes the trading routes more apparent.

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[11] LSWR is a by-product of the distillation stages of the crude oil refining process which can be further cracked to yield valuable products such as LPFO (Low Pore Fuel Oil) *etc*. through a process known as Fluidised Catalytic Cracking (FCC). It can also be used to fire boilers.

52. No other vessels can be substituted for the carriage of LPG.

DRY BULK MARKETS

53. The dry bulk market comprises the transport of, *inter alia*, other non-metallic products, coal, copper, alumina, bauxite, zinc, lead, nickel, other ores, fertilisers, grain, non-ferrous metals, oil seeds and soybeans, phosphates, crude fertilisers, steel, iron ore, sugar, aggregates, sulphur, salt, animal feed, briquettes, lignite, peat, coke and cement.

54. These dry bulk commodities are transported on four generic vessel types, and it is useful to separate the fleet into different categories based on size. All vessel types are, in principle, capable of carrying all types of dry bulk commodities, and therefore substitutable with each other.

55. The different vessel categories are as follows:

(a) **Capesize** – comprising the largest vessels, above 100,000 dwt, transporting primarily iron ore and coal. Some also carry grain.

(b) **Panamax** – comprising vessels ranging in size from 55-80,000 dwt, transporting coal, iron ore, grain, sulphur, cement, clinker, pellets and fertilisers.

(c) **Handymax** – comprising vessels ranging in size from from 40-55,000 dwt, transporting coal, grain, bauxite and alumina, phosphate rock, iron ore, cement, logs, sugar, salt, steel, fertilisers and logs.

(d) **Handysize** – comprising the smallest vessel type, ranging from 10-40,000 dwt, transporting all types of dry bulk commodities.

56. Dry bulk commodities are traded on vessels which operate worldwide. All commodities are traded from all continents to all continents.

57. Dry bulk commodities could also be transported on OHBCs (and on container vessels if containerised).

NEO-BULK MARKETS

58. The neo-bulk market comprises the transport of, *inter alia*, agricultural machinery, cork and wood, fruit and vegetables, meat/dairy/fish, metal products, motor vehicles, non-ferrous metals, paperboard and products, petcoke and other residual petroleum products, pulp and steel.

59. These commodities fall into the following shipping markets: the open hatch bulk carrier (OHBC) market, the Pure Car Carrier (PCC) market, the reefer market and the roll-on roll-off (Ro-Ro) market. Each of the markets is described below.

OHBC

60. The OHBC market comprises the transport of forest products such as wood pulp, rolled paper and other forestry products, other unitised cargoes, project cargoes, containers and minor bulk cargoes.

61. OHBCs are technically advanced purpose-built dry bulk vessels, designed specifically to carry wood pulp, rolled paper and other forestry products. Some modern OHBCs even have tween decks in some of the holds, enabling a mix of various fragile types of cargoes to be carried in the same hold.

62. OHBCs operate globally and provide liner-like services, in the sense that operators have a set of main ports called at in each service but are willing to deviate to other ports upon inducement. The main regions are from Europe to North America, from North America to South America and Far East, from South America to the Far East and Europe.

63. OHBC cargoes can also be transported on container vessels, PCCs, Ro-Ros and reefers.

PCC

64. The PCC market comprises the transport of agricultural machinery, motor vehicles and project cargo (including, *inter alia*, steel, space shuttles and yachts).

65. PCC services are a part of a global supply chain network for the major producers of new cars and agricultural equipment, as well as project cargo. Trade routes are operated between a large number of ports in all continents.

66. As the PCC trade, as well as the Ro-Ro trade, is primarily regular, scheduled and advertised, it may not be correct to classify it as part of the tramp shipping market. It operates more on a liner-like basis and may accordingly be split geographically into separate geographical trades. Should it, however, be considered as part of the tramp shipping market, the geographical market is likely to be global.

67. PCC cargo can also be transported on Ro-Ros, reefers and container vessels.

REEFER

68. The reefer market comprises the transport of perishables, fresh, frozen or otherwise processed fruit, vegetables, fish or any other commodity, whether loaded in break bulk, palletised or in containers.

69. The world's specialised reefer trades mainly carry bananas from the Caribbean and South America to Europe and the USA, deciduous fruit from Chile and South America to Europe, the Far East and USA, dairy and meat from Australia, New Zealand and Israel to Europe, vegetables from Israel to Europe and citrus fruit from Israel, Florida and South Africa to Europe, Japan, the USA and the Far East.

70. These commodities are transported by specialised reefers, which are described in the Report, and by reefer containers, which are a part of the liner market and hence not described in the Report.

RO-RO

71. The Ro-Ro market comprises the transport of the same cargo as PCC vessels, as well as lorries and containers.

72. Ro-Ro services are operated on a liner-like basis. Operators provide regular, scheduled services from Europe to Africa and South America, intra-Europe, Intra-Africa, from West Africa to Europe, from North America to West Africa, from South America to West Africa, and intra-Asia.

73. As the Ro-Ro trade is mostly scheduled and advertised, the Ro-Ro market may not qualify as a part of the tramp shipping market and may therefore be divided into separate geographical trades. Should it, however, be considered as part of the tramp shipping market, the geographical market is likely to be global.

74. Ro-Ro cargoes can also be transported on PCC vessels, containers and reefers.

THE FUNCTIONING OF SHIPPING POOLS

75. The principal form of horizontal cooperation between carriers is the shipping pool. There is no universal, single model for a shipping pool and each of the markets which have been analysed reveal a variety of different pooling structures, albeit with a number of similar features and typical provisions.

76. In all the three market segments, *i.e.* liquid bulk, dry bulk and neo-bulk, there exist shipping pools. The Report has identified 27 liquid bulk pools, twelve dry bulk pools and three neo-bulk pools.

77. There are five general characteristics of shipping pools that can be singled out, as follows:

(a) **Similar tonnage** – The required tonnage is normally of a more or less similar type and size.

(b) **Central administration (pool manager**) – The day-to-day operations are delegated from the individual shipowners or ship operators to a Pool Manager which can either take the form of a (separately incorporated) company or can be one of the members performing the functions of the Pool Manager, usually referred to as administration-controlled pools and member-controlled pools respectively.

(c) **Joint marketing** – The pool is marketed as a single entity offering transport solutions regardless of whose ship performs the actual voyage.

(d) **Negotiation of freight rates** – The vessels are operated centrally by the pool management company or one of the members, as described above, who fix the vessels on agreed terms and conditions in accordance with the ship owners' agreed operating instructions for the pool. Some vessels might be deployed in the spot market, whilst others are fixed on longer time charter contracts or on CoAs. Vessels may be chartered to the pool manager, with authority to sub-charter them, or the pool manager may be authorised to fix vessels as the owners' agent.

(e) **Centralisation of incomes and voyage costs** – The pool's income is usually collected by the pool manager and revenue is distributed to the participants based on a complex distribution key that allows an equitable distribution of each vessel's actual earnings. Pool expenses, often referred to as voyage costs, are generally paid by the pool manager and deducted from the pool's earnings before distribution.

78. The predominant reason for carriers creating a pool is to achieve more efficient fleet deployment and spread risk. Given the cargo volumes and the timing considerations involved in the fulfilment of a CoA, many small to medium-sized ship owners or operators might feel that they either do not have the required capacity (physical or managerial) to bid for such business alone or, if they do, they may feel that the risks involved may be higher than what they would normally be prepared to accept. The establishment of a pool with other ship owners with similar vessels in many cases provides a commercial solution.

79. In the chemical market, pools can also accept parcel CoAs, such that they combine cargoes from different cargo owners in different tanks. This is a unique feature of the chemical market. Pools are therefore used as a way of making additional tonnage available for each of the pool members to use for the purpose of providing shipping services to their customers.

80. Pools also create a means for small to medium-sized owners to avoid the cost and burden of creating their own commercial operating structures, as they enable the commercial management of the pooled vessels to be "delegated" to either an independent commercial pool manager or another pool member with a vertically integrated commercial management structure already in place.

81. It can be argued that economies of scale are an incentive for ship owners or operators to pool their vessels, as entering into a pool may render the ship owner's chartering department redundant.[12] In addition, pools may have favourable purchasing agreements with their suppliers on bunkers *etc*.

82. Clearly, delegation by independent owners to a common pool manager of duties such as marketing and other commercial functions such as the fixing of vessels and their operation and giving that pool manager the freedom to contract their vessels on their behalf (including the fixing of freight and charter rates and selection of customers) raises issues of competition law.

83. The question nevertheless arises whether the existence of pools (by reducing the potential number of supply-side players) has any appreciable restrictive effects on competition, or whether it has positive effects on the market despite the apparent reduction in competition.

84. The analysis of the competition issues must be undertaken in the light of the relevant markets in which each of the pools operates. The Report reaches a number of tentative conclusions as to how best to define the relevant markets for such purposes.

THE RELEVANT MARKETS

85. In seeking to establish relevant market boundaries, we have followed the Commission's usual starting point of first examining demand substitutability, and then following this by a supply-side substitutability analysis. The first step we took in the formal determination of relevant product and geographical markets was to carry out a systematic price correlation analysis of freight rates.

86. The freight rate is the adjustment mechanism in the shipping market. Freight rate cycles are seen because the supply of ships adjusts in a much slower manner than the demand for ships, such that in periods where demand exceeds supply, freight rates spike, as no further sea transport is available until new ships are delivered from the yards. Conversely, when the supply side exceeds the demand for freight, freight rates drop.

87. Product market definitions are not based entirely on analyses of price correlations. However, notwithstanding the absence of statistical significance to any particular level of correlation, the European Commission has previously regarded correlations above 0.80 as high and correlations below 0.65 as low.[13] In general, we found high correlations (above 0.80) between prices in the various sub-segments. We chose to present the correlations at six different levels, 0.70-0.75, 0.75-0.80, 0.85-0.90, 0,90-0,95 and 0.95-1.00. The correlations[14] are presented for liquid bulk, dry bulk and neo-bulk, respectively.

88. We faced a number of specific difficulties in defining the precise boundaries between the different relevant markets. The reliability of our conclusions on market shares varies from market to market due to the different availability of information in each market. In the light of the objectives of this Report, which is to assess the competition implications of pools, we focused our analysis

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12 Haralambides, H.E, "The Economics of bulk shipping pools", extract from *Maritime Policy & Management*, 23(3): 21-237 (1996).

13 Case COMP/M.2187, *CVC/Lenzig*. The Commission had already stated in Case COMP/M.1939 *Rexam/American National Can* that correlations above 0.83 were "high levels of correlation".

14 To be found in Annex 10.

principally on those markets where pools operate. However, we encountered the problem that very few pools divulge any information on the type of products carried, in what geographical area, or the quantity. Thus, the consultants have had to make estimates and use what little information is available.

89. The resulting classification into separate service markets must therefore be seen in the light of these difficulties; more accurate data might generate different results and so lead to different conclusions.

90. Furthermore, any bald classification of service markets based on individual products or commodities shipped fails to take full account of the restraints on competition that may be exerted on prices and demand from the supply side. We have shown, for instance, that chemical parcel tankers are able to carry both clean and dirty petroleum products. There are, of course, some instances where such switching is not possible due to the configuration of the vessel.

91. Market shares should normally be calculated on the basis of the suppliers' sales of the relevant products in the relevant area.[15] This, however, proved impossible, whether on the basis of sales value or sales volumes. First, data on value in terms of total freight revenues in the tramp shipping market are not in the public domain, nor could they be acquired. UNCTAD provides an estimate of world seaborne trade, which includes both liner services and the tramp shipping market.[16] We took the view that it was not feasible to rely on estimated sales value as these would have been grossly misleading.

92. Secondly, volume data for seaborne cargo transport was simply not available in the detail required for this Report. For instance, available data is not split between vessels which have been put in pools and other vessels.

93. Moreover, as many relevant markets overlap, both in their product and geographical dimensions, it is a near impossible task to estimate market shares in each relevant market based on volume and value.

94. Another issue that arises is how to calculate market shares in those relevant markets where there are elements of a liner or semi-liner trade, combined with elements of tramp shipping, for instance in the reefer market, where deciduous commodities are transported both on specialised reeferships and on liner-operated container vessels in temperature-controlled containers.

95. In order to determine market shares for the various pools in a consistent manner for all the relevant markets, we have accordingly used the best data to hand, namely the number of vessels each pool controls measured as a percentage share of the total fleet in the relevant market. This accords with one of the methods prescribed by the European Commission to carry out market definition,[17] as it gives an estimate of the capacity available in the relevant market and how much of this capacity is controlled by the pools.

96. The final conclusions of the relevant market analysis are presented in a tabular format below.

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15 European Commission Notice on the definition of relevant market for the purposes of Community competition law, OJC 372/5 of 9.12.97..

16 UNCTAD Review of Maritime Transport, 2005, Report by the UNCTAD Secretariat [2005].

17 European Commission Notice on the definition of relevant market, at Para 54.

Relevant product and geographical market liquid bulk

Relevant product market liquid bulk		**Relevant geographical market liquid bulk**	
Wide definition	Narrow definition	Wide definition	Narrow definition
Chemicals	–	–	–
Clean petroleum products	LR1, LR2, MR vs. Handysize, ice class	Global for LR1, LR2 and MR. Regional for MR	No further segmentation
Crude oil	VLCC, Suezmax, Aframax, Panamax, shuttle tankers, ice class	Global for VLCC Both global and regional for the remaining vessel sizes	VLCC vs. the remaining vessel sizes
Dirty petroleum products	VLCC, Suezmax, Aframax, Panamax	Global for VLCC Both global and regional for the remaining vessel sizes	VLCC vs. the remaining vessel sizes
LNG	–	Global	East of Suez vs. West of Suez
–	LPG, Ethylene: VLGC, LGC, MGC, SR between 10,000/22,000 m³, Pressurised and Semi-ref less than 10,000 m³	Global: VLGC, LGC, SR between 10,000-22,000 m³ for petchems Regional: MGC, SR between 10,000-22,000 m³ for LPG, Pressurised and Semi-ref less than 10,000 m³	Pressurised and Semi-ref less than 10,000 m³ in Asia vs. Pressurised and Semi-ref less than 10,000 m³ in Europe SR between 10,000-22,000 m³: North West Europe vs. Med. for LPG

Relevant product and geographical market dry bulk

Relevant product market dry bulk		**Relevant geographical market dry bulk**	
Wide definition	Narrow definition	Wide definition	Narrow definition
Dry bulk cargo	Capesize, Panamax, Handysize, Handymax	Global for all vessel types except Handysize	Global for Capesizes and Panamaxes vs. regional for Handymax and Handysize

Relevant product and geographical market neo-bulk

Relevant product market neo-bulk		**Relevant geographical market neo-bulk**	
Wide definition	Narrow definition	Wide definition	Narrow definition
OHBC	–	Global	Regional: Asia, Intra-Europe, Intra-Americas
PCC	–	Global	Liner service network vs. Regional for small vessels
REEFER	Reefers vs. temperature controlled containers	Global	Liner service network
Ro-Ro	–	Global	Deep sea vs. short sea. Regional: Africa

97. After the relevant markets were defined, an attempt was made to calculate market shares held by each pool.

POOLS IN RELEVANT MARKETS –- MARKET SHARES

LIQUID BULK

98. Below, we set out our provisional calculations of market shares for pools operating in the various markets. When possible, market shares are calculated both for a wide and a narrow definition of the product and geographical market. These are presented in tabular form, for convenience. As the market definitions are somewhat tentative, it was necessary to set out some the market shares in separate tables.

Chemicals

99. The chemical market has not been subdivided into any sub-markets. The market shares are based on the total chemical parcel tanker fleet.

CHEMICALS[18]		
Pool name	**No. of vessels in pool**	**Share in no. of ships %**
Team Tankers	35	1.3
Odfjell Seachem	91	3.4
USC Chemical Pool	23	0.9
Non-pool	2,537	94.5
Total fleet	2,686	100.0

CPP

100. On its widest definition, CPP could be considered a single market. On that basis the pools' market shares would be as follows:

CPP		
Pool name	**No. of vessels in pool**	**Share in no. of ships %**
Dorado Tankers	16	0.8
Handytankers KS	73	3.9
Jacob-Scorpio	12	0.6
Mærsk Small Pool	8	0.4
Marida Pool	12	0.6
Norient Product Pool	28	1.5
TORM LR1	36	1.9
TORM LR2	22	1.2
TORM MR	23	1.2
UPT Handy Pool	24	1.3
Non-pool	1,598	86.3
Total fleet	1,852	100.0

18 Total fleet includes all vessels with IMO 1, IMO 2 and IMO 3 classification.

101. On a more narrow definition, CPP could be segmented into LR1, LR2 and MR versus Handysize and ice-class.[19]

LR1, LR2, MR		
Pool name	**No. of vessels in pool**	**Share in no. of ships %**
Dorado Tankers	16	1.1
Handytankers KS	73	4.8
Jacob-Scorpio	12	0.8
Norient Product Pool	28	1.8
TORM LR1	36	2.4
TORM LR2	22	1.5
TORM MR	23	1.5
Non-pool	1,308	86.2
Total fleet	1,518	100.0

HANDYSIZE		
Pool name	**No. of vessels in pool**	**Share in no. of ships %**
Mærsk Small Pool	8	2.4
Marida Pool	12	3.6
UPT Handy Pool	24	7.2
Non-pool	290	86.8
Total fleet	334	100.0

Crude oil

102. On its widest definition, crude oil could be considered a single market. The pools' market shares would be as follows:

CRUDE OIL[20]		
Pool name	**No. of vessels in pool**	**Share in no. of ships %**
Panamax International	16	1.1
Star Tankers Pool	47	3.1
Tankers International	45	3.0
Alliance chartering	43	2.9
Aframax International	38	2.5
Sigma Tankers	18	1.2
Non-pool	1,302	86.3
Total fleet	1,509	100.0

19 There are no specific ice-class pools.

20 Source: Fearnleys database (2006).

103. With a more narrow market definition the market could be divided into VLCC, Suezmax, Aframax and Panamax-sized vessels. The pools operating in the various markets and their market shares are distributed as follows:

VLCC		
Pool name	**No. of vessels in pool**	**Share in no. of ships %**
Tankers International	45	9.4
Non-pool	434	90.6
Total fleet	479	100.0

SUEZMAX		
Pool name	**No. of vessels in pool**	**Share in no. of ships %**
Alliance chartering	43	12.5
Non-pool	300	87.5
Total fleet	343	100.0

AFRAMAX		
Pool name	**No. of vessels in pool**	**Share in no. of ships %**
Aframax International	38	6.9
Sigma Tankers	18	3.3
Non-pool	495	89.8
Total fleet	551	100.0

PANAMAX		
Pool name	**No. of vessels in pool**	**Share in no. of ships %**
Panamax International	16	11.8
Star Tankers Pool	47	34.6
Non-pool	73	53.4
Total fleet	136	100.0

DPP

104. There are no pools trading DPP exclusively.

LNG

105. There are no pools in the LNG market.

LPG

106. The consultants have not established a wide definition of the LPG market, as this market is divided into several sub-markets based on vessel size and vessel characteristics and the pools operate accordingly. There is a discrete market for the ethylene trade which has its own pools.

FULLY PRESSURISED AND SEMI-REFRIGERATED <10,000 M³		
Pool name	**No. of vessels in pool**	**Share in no. of ships %**
Anthony Veder	8	N.a
ENGC	3	N.a
GasChem/Gas Mare	7	N.a
Unigas International	19	N.a
Unigas Kosan	21	N.a
Non-pool	N.a	N.a
Total fleet	N.a	N.a

107. Establishing market shares for this market is intricate as the fleet is split between North West Europe, the Mediterranean and Asia East of India. It is mainly pressurised units which trade in Asia, but in Europe both pressurised and semi-refrigerated units are used. In the table above the number of vessels controlled by the pools and the total capacity is presented, but no market shares are calculated. There are no sources available capable of establishing the correct market shares, as there is no public information available on the combined fleet of pressurised and semi-refrigerated vessels smaller than 10,000 m³. The best available estimate would be to use the share of the LPG fleet which is less than 5,000 m³, which was 606 vessels (or 1,316,130 m³) in September 2006. The problem is that about 50% of the pool vessels are larger than 5,000 m³, which makes any calculations unreliable.

SEMI-REFRIGERATED VESSELS 10,000 – 22.000 M³		
Pool name	**No. of vessels in pool**[21]	**Share in no. of ships %**
Gas Chem/Gas Mare[22]	1	1.5
Scandigas	24	75.0
Non-pool	7	23.5
Total fleet	32	100.0

21 Source: Fearngas, Oslo.

22 The vessel is 22,500 m³, but is included here, as it is not to be regarded as part of the MGC market.

MGC		
Pool name	**No. of vessels in pool**	**Share in no. of ships %**
Exmar MGC	33	50.0
Non-pool	33	50.0
Total fleet[23]	66	100

LGC		
Pool name	**No. of vessels in pool**	**Share in no. of ships %**
Bergesen LGC	20	76.9
Non-pool	6	23.1
Total fleet[24]	26	100

ETHYLENE		
Pool name	**No. of vessels in pool**	**Share in no. of ships %**
ENGC	29	26.6
GasChem/Gas Mare	25	22.9
Unigas International	8	7.4
Anthony Veder	6	5.5
Non-pool	41	37.6
Total fleet[25]	109	100

108. As the ethylene market is an *ad hoc* market, and many large ethylene vessels with a cubic capacity of about 20,000 m³ also trade LPG in addition to ethylene, it may be misleading to represent market shares in terms of ethylene vessels only. We have nevertheless determined the ethylene market as a discrete market.

DRY BULK

The market shares for the pools in the dry bulk market are presented in the following table:

23 Measured as share of total m³ in the 20-40,000 m³ segment, which was 1,911,000 m³ (or 66 vessels) on 1 October 2006, according to www.clarksons.net.

24 Measured in m³ as share of total m³ in the 40-60,000 m³ segment, which on the 12.10.06 was 1,466,000 m³ (or 26 vessels), according to clarksons.net. 2 vessels of 60,237 and 60,216 m³ are excluded from this pool, as they are above the 40-60,000 segment definition.

25 The total Ethylene fleet was 882,258 m³ (or 109 vessels), on the 12.09.06, according to clarksons.net.

THE DRY BULK MARKET					
Vessel Size	**No. of vessels total fleet**	**Pool Name**	**Vessels in pool**	**Market share in no. of ships %**	**Total all pools by segment %**
Handysize 10-50,000 dwt	3,685	IMC Transasia & Transocean Pacific Basin Bulkhandling CSL International[26] JJ Ugland LB/IVS Pool	18 59 9 12 6 41	0.5 1.6 0.2 0.3 0.2 1.1	3.9
Handymax 50-60,000 dwt	512	Bulkhandling JJ Ugland IMC Transocean	12 4 6	2.3 0.8 1.2	4.3
Panamax 60-80,000 dwt	1,260	CTP Panamax Baumarine CSL International IMC Transworld[27]	10 60 9 9	0.8 4.8 0.7 0.7	7.0
Capesize 80,000 dwt +	790	CTC Capesize	26	3.3	3.3
Non-pool fleet	5,966			95.5	
Pool fleet	281			4.5	
Total fleet	6,247			100	

NEO-BULK

109. There are only two neo-bulk markets in which pools operate; these are the reefer market and the OHBC market. We begin with the reefer market, where the pool's market share is as follows:

REEFERS		
Vessels size in cubic feet	**No. of vessels in pool**	**Market share in no. of ships[28] %**
Seatrade pool	143	11.5
Non-pool	1098	88.5
Total fleet	1,241	100

26 CSL International controls a fleet of 21 vessels, ranging in size from 26,608 to 77,549 dwt.
27 IMC Grab-fitted Panamax Dry Bulk Carrier Pool.
28 Here calculated as the number of ships owned by the pool divided by the total number of ships in each vessel category.

110. The Seatrade reefer pool thus controls 11.5% of the specialised reefer fleet, measured in total number of ships. That does not take account of any wider market including reefer containers.

111. There are two OHBC pools active, the Star Shipping pool and Saga Forest Carriers International. When measured in terms of number of ships, their market shares are 8.0% and 4.5%, respectively, as seen below:

OHBC		
Pool Name	**No. of vessels in pool**	**Market share in no. of ships %**
Star shipping	42	8.0
Saga Forest Carriers International	24	4.5
Non-pool	461	87.5
Total fleet	527	100

LEGAL IMPLICATIONS

112. The Report examines the extent to which the existing rules on competition – and any block exemption regulations and guidelines already available – apply to the principal categories of horizontal cooperation agreement in the tramp shipping sector.

113. Essentially the analysis covers Article 81(1) and Article 81(3). It then considers the relevance of the Specialisation Block Exemption[29] and whether it applies in principle to pooling agreements and, if so, whether it also applies to specific clauses in such agreements. It also refers to the possible application of Article 82 on abuse of a dominant position to pools with a collective dominant position and the application of the EC Merger Regulation[30] where pools constitute full-function joint ventures.

114. The Liner Consortium Regulation[31] is also briefly considered as a possible analogy.

115. While the Report was prepared for the European Commission, it must be emphasised that the views expressed represent the views of the consultants and do not necessarily reflect the European Commission's thinking.

116. The competition law analysis that we have carried out is principally focused on shipping pools, in view of the fact that they are the predominant form of horizontal cooperation in the tramp shipping sector. The analysis, however, also covered other contractual arrangements between owners or operators to the extent they were thought to raise competition issues. Although each shipping pool is different, our analysis revealed a number of features in common, both in terms of overall structure and in terms of specific contractual clauses.

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[29] Commission Regulation (EC) No 2658/2000 of 29 November 2000 on the application of Article 81(3) of the Treaty to categories of specialisation agreements OJL 304/3 of 5.12.2000.

[30] Council Regulation (EC) No 139/2004 of 20 January 2004 on the control of concentrations between undertakings (the EC Merger Regulation), OJL 24/1 of 29.1.2003.

[31] European Commission Regulation 823/2000 of 19 April 2000 on the application of Article 81(3) of the Treaty to certain categories of agreements, decisions and concerted practices between liner shipping companies (consortia), OJL 100/24 of 20.4.2000, as amended, principally by European Commission Regulation 463/2004 of 12 March 2004, OJL 77/23 of 13.3.2004.

117. The consultants specifically analysed a random sample of 17 pool agreements[32] in detail against a probable total of some 40 shipping pools in existence today across all parts of the tramp sector. Only limited details can be included in the public version of the Report for reasons of confidentiality.[33]

118. Specific clauses examined included principally the provisions governing the setting of prices, the determination of commercial policy and choice of customers, any non-compete provisions, any provisions governing lay-up and termination, and notice provisions.

119. The consultants identified some 40 pools in the chemical products, tanker, LPG, dry bulk and reefer markets[34] but were only in a position to analyse a limited and random selection of them. Of the total number of actual pooling agreements subjected to detailed analysis (17), one was for a pool that has been disbanded, and two had incomplete documentation. The main characteristics of the pools surveyed in this Report were as follows.

120. Although they had similar organisational and contractual features, there was no standard contract (in contrast to the position for charter parties) and terms varied in detail.

121. There were nevertheless certain definite patterns that emerged, both in terms of their organisational structure and in terms of the types of contract used and individual contract clauses.

122. In the majority of cases, the pools surveyed had separately constituted pool management companies in which the members of the pool were the shareholders (usually with a Shareholders' Agreement that sets out their respective rights and obligations) but which enjoyed a fair degree of commercial responsibility in relation to the management and operation (including, significantly, the marketing) of the vessels that the members place into the pool.

123. A more limited number of pool agreements were structured more simply, with one of the members fulfilling the pool manager's role. Despite this organisational difference, however, the functions performed by the member appointed as the pool manager were largely similar to those performed by the independently incorporated pool management companies in the survey.

124. For convenience, we grouped the functions that are usually retained by owners and/or entrusted to pool management companies or, as the case may be, members performing that role, into three broad categories: technical management of the vessels, commercial management of the vessels and commercial operation of the vessels.

125. Pools do not have responsibility for the technical management of the vessels in the pool, that responsibility always remaining the owners'. Owners retain quite considerable responsibility for matters relating to the vessels themselves, such as finance, insurance, safety and maintenance, classification *etc.*

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[32] The analysed sample also included one pool agreement for a pool that has since been dissolved; one pool agreement that was available to us only in draft; and one shareholders' agreement between the members of a pool without the corresponding pool agreement.

[33] The pool agreements were accessed on a confidential basis. For this reason, Annex 7, containing summaries of that detailed analysis is not for publication.

[34] Pools were not found in the LNG or PCC segments: the consultants concluded that the reason for this was that, for the LNG segment, the majority of the vessels are committed for long-term contracts before delivery. Moreover, some of the vessels are owned by both the ship owners or operators and the gas owners together. Similarly, there is very little spot trading in the PCC market. Because of the nature of these markets, entering into pools would not be a sensible option or offer any particular advantages for suppliers or customers.

126. Against this, all but one of the pool agreements in the analysis provided for *the pool* to carry out the *commercial management and operation* of the vessels.

127. By "commercial management" functions is meant all those aspects of the provision of tramp vessel services that relate to the fixing of vessels and are essentially "client-facing", such as the active seeking out of new business, maintaining contacts with brokers and other potential customers, responding to requests for tenders, negotiating charter or contract terms, including fixing the freight rates or charter hire , and concluding contracts and planning the vessel scheduling in such a way that this can be achieved. All pools provided (to a greater or lesser degree) for joint marketing of the services of the pool.

128. The "operational" functions mean the deployment of vessels to provide the services contracted for, including performing voyage charters, and delivering and taking redelivery of vessels at the start and end of each period charter, plus procurement of all the necessary services and supplies to enable the vessels to do their job.

129. Charterers, shippers and other customers are all aware that they are dealing with a pool and not individual competing owners. Pools are therefore integrated providers of the relevant tramp vessel services, and appear to compete directly, as entities in their own right, with owners who operate independently of any pool.

130. In performing the relevant commercial management and operational functions, the pool manager inevitably needs to be able to fix the vessels in the pool, and have the relevant authority from their owners to do so. Legally, this is achieved in one of two ways: either through time charters or through agency. In the former case vessels are chartered to the pool management company or relevant member with pool management responsibility, for subsequent sub-chartering by the pool management company or member to charterers under time charters or voyage charters in the usual way, or else used to perform voyages under any relevant CoAs entered into by the pool management company or relevant member.

131. The majority of pools assessed were net revenue pools in which the pool manager (whether or not separately incorporated) collects the freight rates or charter hire and other income and pays the voyage-related expenses before distributing the earnings to the members. The earnings are frequently based on each vessel's pool points and the number of days the vessel has been on-hire and various other factors, which vary from one agreement to the next.

132. Owners pooling their vessels effectively relinquish certain functions that they would otherwise have to carry out themselves as shipowners or delegate to a ship management company.

133. In conclusion, the pool manager in the majority of the cases analysed performs a single integrated economic activity, combining responsibility for organising the provision of the pooled services with responsibility for marketing and selling those services. From a charterer's perspective the pool is seen to be a single entity, effectively separate from its members.

134. Our competition law analysis was structured in three main stages:

(a) Application of Article 81(1);

(b) Application of Article 81(3);

(c) Possible application of block exemptions.

135. We then looked at various other forms of cooperation in the industry and carried out a similar, if briefer, competition law analysis.

Article 81(1)

136. Article 81(1) of the EC Treaty prohibits any agreement or concerted practice that has an actual or potential effect on trade between Member States and has as its object or effect the prevention, restriction or distortion of competition in the common market.

137. We approached this stage of the analysis, under Article 81(1), by examining, first, whether pools involve one or more restrictions of competition; secondly, whether they are deemed by their object to infringe Article 81(1); thirdly, whether they could be said to have appreciable effects on competition; and lastly, whether they have the necessary effect on trade between Member States.

138. Certain restrictions are deemed by reason of their objects to have an appreciable effect on competition, and these include the four "hardcore" restrictions: price fixing, limitation of output, market sharing or customer sharing.

139. Inevitably, owners who place their vessels into such a pool structure lose control over the way their vessels are traded and the prices obtained for the services provided through the use of those vessels. This is achieved through the provisions relating to the fixing of vessels (which includes the agreeing of freight rates or charter hire with specific customers) by the pool manager. From a competition law point of view, we reached the inevitable conclusion that this structure of itself required analysis under Article 81 as it *prima facie* leads to the fixing of prices, sharing of customers and markets and limitation of output as between the members of the pool and may therefore be contrary to Article 81(1).

140. We consider that the European Commission's Horizontal Guidelines[35] provide a suitable framework for the overall analysis even though it is currently stated not to apply to transport services as at the time they were subject to separate sectoral rules. We have also made reference, as appropriate, to the *de minimis* Notice[36] and the Notice on effect on trade.[37]

141. We, however, concluded that, as currently drafted, the European Commission's *de minimis* Notice did not apply as the Notice makes clear that it does not apply to agreements containing hardcore restrictions.

142. We concluded that the inter-state trade test would probably be met in most cases as pools trade internationally in and out of the European Union, and intra-EU.

143. The Horizontal Guidelines make it clear there can be no automatic presumption that horizontal cooperation produces economic benefits and that horizontal cooperation agreements consequently always escape the prohibition in Article 81(1). The anti-competitive effects need balancing against the economic benefits and agreements must be analysed in their full economic context.

144. The Horizontal Guidelines suggest three situations where horizontal cooperation would not normally restrict competition, namely (i) where the parties are not actual or potential competitors, (ii) where the parties would not have been capable (principally through lack of resources) to engage in the project or activity independently and (iii) where the cooperation concerns an activity that does not "influence the relevant parameters of competition".

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[35] Guidelines on the applicability of Article 81 of the EC Treaty to horizontal cooperation agreements, OJC 3/2 of 6.1.2001.

[36] Commission Notice on agreements of minor importance which do not appreciably restrict competition under Article 81(1) of the Treaty establishing the European Community (*de minimis*), OJC 368/7 of 22.12.2001.

[37] Commission Guidelines on the effect on trade concept contained in Articles 81 and 82 of the Treaty, OJC 101/7 of 27.4.2004.

145. We consider that the second situation might assist in some cases but the evidence mainly suggests that the decision to pool vessels is dictated by commercial considerations and not an inability to trade those vessels independently. The third situation might avail some purely technical forms of cooperation and information exchanges not involving commercially sensitive information.[38]

146. All but one of the pools examined involved a full integration of commercial and operational functions, with the result that *prima facie* they were brought within the scope of the prohibition in Article 81(1).

147. The key question is whether these are hardcore restrictions and so deemed by their object to infringe the prohibition in Article 81(1).

148. The Horizontal Guidelines clearly categorise cooperation agreements that have the object of fixing prices, limiting output, sharing markets or sharing customers as automatically falling within the Article 81(1) prohibition, regardless of their effects. The section of the Horizontal Guidelines headed 'Commercialisation Agreements' makes it clear that, for this category of agreement, Article 81(1) will always be applicable by virtue of its prohibited objects, regardless of whether it may have appreciable effects on competition or any such effects at all, and will only rarely be capable of satisfying the conditions of application of Article 81(3).

149. It is difficult to escape the conclusion that pool agreements do have hardcore restrictions as their object in the sense that the pool manager always (except in one case) negotiates contracts and fixes vessels, so by implication leading to the members agreeing price and output, and by implication also markets and customers.

150. In footnote 18 of the Horizontal Guidelines the Commission nevertheless acknowledges that what are termed "production joint ventures" with an integrated distribution function are an exception to the presumption that all agreements involving joint pricing or output decisions *per se* fall within the prohibition in Article 81(1). It is "inherent to the functioning of such a joint venture that decisions on output are taken jointly by the parties."[39] The same applies to prices where a joint venture also markets the jointly manufactured goods: "[I]n this case, the inclusion of provisions on prices or output does not automatically cause the agreement to fall under Article 81(1). The provisions on prices and output will have to be assessed together with the other effects of the joint venture on the market to determine the applicability of Article 81(1)."[40]

151. In principle we consider there to be no reason why the above guidance should not be capable, broadly speaking, of applying *mutatis mutandis* to shipping pools in so far as they enable services to be both produced and brought to the market on a joint basis. Difficulties of interpretation do, nevertheless, arise. In particular joint production implies much more than joint distribution or marketing: the question is which is the appropriate categorisation in the case of pools.

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[38] We noted that Article 2 of Council Regulation 4056/86 of 22 December 1986 laying down detailed rules for the application of Articles 85 and 86 of the Treaty to maritime transport, OJL378/4 of 31.12.86, listed a number of agreements in the liner sector whose sole object was "technical" with the result that they could be presumed to fall outside the scope of the prohibition in Article 81(1): we suggested that some of them might by analogy be treated in the same way in the tramp sector.

[39] Horizontal Guidelines (footnote 566),, footnote 18.

[40] *ibid.*, further developed at para. 90 of the Horizontal Guidelines (footnote 566),.

152. In our analysis, it is not the case that owners produce a service and pool managers merely redistribute or market that service.[41] The pool manager's functions are substantial and inherent in the production of the downstream transport services provided to customers.

153. The vessels are merely an input to the services and become the means of production of the joint services, just like the raw materials needed for the manufacture of physical goods. Each of the owners provides some of those inputs. The joint functions themselves (which typically include the commercial management and operation of the pooled vessels, in other words organising the service itself and marketing it) are, however, integrated into the hands of the pool manager, in the same way as production and distribution of goods might be integrated in a single joint venture factory as envisaged in the Horizontal Guidelines.[42]

154. The corollary of such an interpretation is that pools would not be categorised as joint commercialisation. Joint commercialisation is defined in the Horizontal Guidelines[43] as including joint selling, distribution and promotion.

155. We view the owners as merely providers of the input into the integrated services that the pool manager provides to the market; the sale, distribution and promotional functions entrusted to the pool manager are, if sufficiently integrated into these services, capable of being analysed as part and parcel of the joint provision of those integrated services.

156. We have, however, identified this as a critical issue that needs resolution before any definitive legal analysis can be given.

157. We would favour an interpretation whereby the majority of traditional pools, all of which are fully integrated, are analysed as forms of joint production and distribution of services. We showed in the Report that this could make a significant difference to their compatibility with the competition rules. The difference in legal treatment is as follows.

158. The Horizontal Guidelines indicate that horizontal cooperation agreements under which the parties integrate both production and distribution of goods or services are an exception to the rule that joint price and output decisions are automatically in breach of the prohibition in Article 81(1) by reason only of their objects. They will fall within that prohibition only if they have the effect of appreciably preventing, restricting or distorting competition in the relevant market. An analysis of their surrounding economic and factual context must be carried out. The higher the market share of the parties, the more likely it is that those effects will be appreciable.

159. The Horizontal Guidelines indicate that horizontal cooperation agreements under which the parties integrate both production and distribution of goods or services are an exception to the rule that joint price and output decisions are automatically in breach of the prohibition in Article 81(1) by reason only of their objects. They will fall within that prohibition only if they have the effect of appreciably preventing, restricting or distorting competition in the relevant market. An analysis of their surrounding economic and factual context must be carried out. The higher the market share of the parties, the more likely it is that those effects will be appreciable.

160. If pools can be treated as types of joint production and distribution, as we have argued, they are in any event eligible to be exempted by the Specialisation Block Exemption[44] to the extent that they

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[41] This is highly relevant to the question whether the Specialisation Block Exemption could apply, as it specifically does not cover mere distribution services. However, we return to this point below.

[42] See, in particular, para. 90 of the Horizontal Guidelines (footnote 566) for the underlying concepts.

[43] Horizontal Guidelines (footnote 566), para. 139.

fall within the Article 81(1) prohibition. It would only be necessary to have resort to Article 81(3) so far as the parties' aggregate market share was situated above 20% (the limit set by the Specialisation Block Exemption as a condition of block exemption) and/or the agreements contained restrictions that were not ancillary.

161. If this analysis is wrong, pools would have to be analysed as commercialisation agreements (as defined in the Horizontal Guidelines[45]) and consequently deemed to fall within the prohibition in Article 81(1). The definition in question covers agreements involving "cooperation between competitors in the selling, distribution or promotion of their products" and would have to satisfy the efficiency and other requirements of Article 81(3) or risk being unlawful.

162. Self-assessment would therefore be required in all cases.

163. The balancing exercise required under Article 81(3) ought to produce a similar result to the result obtained under US antitrust "rule of reason" approach, which we analysed in the section of the Report dealing with other relevant jurisdictions.[46] A pool which could be shown to have pro-competitive benefits and which did not give the parties the ability to raise prices or restrict output would generally be able to withstand an antitrust challenge under the rule of reason approach. US law would therefore seem to provide for a similar balanced assessment of the pro- and anti-competitive effects of pool agreements to that required under Article 81(3).

164. We proceeded to consider what arguments, if any, could be put forward in favour of pools under Article 81(3) on the assumption that self-assessment is needed (whether in all cases or only in those cases we have identified above). *Prima facie*, pools, by integrating vessels from different owners, should be more able to achieve efficiencies of scale and scope than the members could achieve on their own. The case law and the relevant Guidelines[47] do, however, set the bar at quite a high level in terms of the degree of proof needed to satisfy the relevant conditions and the corresponding evidence that must be adduced.

Article 81 (3)

165. Self-assessment under Article 81(3) requires the parties to justify their agreements, and in particular to adduce proof that they create sufficient efficiencies to outweigh their presumed anti-competitive effects, as well as proof of the indispensability of the joint selling, distribution and promotional restrictions, proof that those efficiencies are in principle able to benefit consumers, and proof that there is no risk of market power exercisable by the pool being such as to create the risk of market foreclosure.

166. There are generally four key efficiency factors which we have identified as being generally applicable to all pools. These are:

(i) the increased capacity utilisation and output;
(ii) economies of scale;
(iii) economies of scope and lowering of the trading risk;
(iv) efficiency enhancement and technical improvements.

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44 Commission Regulation (EC) No. 2658/2000 of 29 November 2000 on the application of Article 81(3) of the Treaty to categories of specialisation agreements, OJL 304/3 of 5.12.2000.

45 Horizontal Guidelines (footnote 566), paras. 139 *et seqq.*

46 See Section 9.3.10, Paras 1879 *et seqq*.

47 We relied on both the relevant sections of the Horizontal Guidelines and on the Commission's Notice on the application of Article 81(3), OJC 101/81 of 27.4.2004.

167. Most of the benefits which we believe pools may be able to show are of a quantitative nature. However there are also qualitative service improvements following from the better utilisation of the fleet and some pools that promote technical improvements, particularly in those markets which require specialised tonnage or access to specific shore-side facilities. However, the majority of the efficiencies in the tramp sector fall under the general heading of improvements in the production or distribution of goods.

168. The efficiency benefits are particularly evident in the case of CoAs, which require a certain minimum number of vessels to be commercially attractive to shippers. Large shippers with a requirement to ship large volumes of commodities and/or goods, but at infrequent intervals, like the flexibility of the CoA.

169. The Horizontal Guidelines make it clear that, in justifying joint production, only efficiencies that benefit customers directly or indirectly count and not those that only benefit the parties. In relation to the analysis of joint commercialisation, the Guidelines similarly make it clear that one is primarily concerned with identifying efficiencies resulting from the integration of the commercialisation. The size of the efficiencies is said to depend on the importance of the joint marketing activities for the overall cost structure of the product in question. The Article 81(3) Guidelines[48] support the argument that the ability to provide a higher quality service and better capacity utilisation are key efficiencies which may be taken into account, assuming they can be quantified.

170. An issue that arises is whether this would imply that only pools between small- or medium-sized owners create the necessary efficiencies to be justifiable under the first limb of Article 81(3). This is, however, not necessarily the case. In the first place, traditional pools operate on the market in their own right and the identity of the members (or their vessels) becomes of secondary importance to the customer when deciding whether to enter into a contract or invite the pool to bid for a contract. Secondly, when an owner commits his vessel(s) into a pool and places them under the control of a pool manager, the owner effectively loses the commercial and operational control of the vessel(s), provided the owner has no control over the commercial or operational management.

171. The argument applies equally for administration- and member-controlled pools, even though in the latter case the pool manager will consist of a dedicated employee and team within, all be it in a separate part of, the member's office. In any event, in particular in the case of member-controlled pools, larger owners tend to be reluctant to put all their fleet into pools at any one time. This tends to dilute any market power of a dominant member in a pool.

172. Ultimately, what counts in measuring the market power of a pool is the size of the fleet at its disposal, and that regardless of that identity of the owners of the vessels in that fleet. It is the size of the fleet which is the critical factor that gives the pool the relevant increase in efficiency of vessel utilisation and output that we have identified as the principal efficiency benefit accruing from pools. However, if small to medium-sized owners were precluded from entering into pools with larger owners, they could be deprived of the very scale efficiencies and access to resources and technical skills that justify the decision in the first place. The likely alternative would in many cases be either that they would operate as very small operators on a much reduced scale or not operate at all: either way, the alternative would be less competitive, or at least not more competitive.

173. Clearly each pool has to be assessed on its own merits and the different factors weighed up.

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[48] Guidelines on the application of Article 81(3) of the Treaty, OJC 101/97 of 27.4.2004, at paras. 65 and 68.

174. Economic benefits can generally be assumed to translate into benefits for customers in the form of lower transactional costs, increased service availability and greater capacity and therefore enhanced flexibility.

175. The role of pools can be even more important in markets with strong buyer power, and it may be the only way in which demand is adequately satisfied. For instance, the pools one finds in the LPG market were created in response to the concentration in the buyers' market, and thus the supply side of the market had to adjust in order to accommodate the increased demand. Pools may therefore be a direct response to customer demand for a particular scale and level of service not feasible independently.

176. The application of the indispensability test will differ according to whether a pool is analysed as a joint production agreement or a joint commercialisation agreement. The criteria that need to be taken into account are set out at paras. 154 *et seqq.* of the Horizontal Guidelines. These indicate that the "question of indispensability is especially important for those agreements involving price fixing or the allocation of markets".

177. In the typical pool structure we have seen, where the pool manager (or the relevant corporate entity that fulfils that function) fulfils all the main commercial and operational functions, it would not make any sense to remove the function of fixing vessels and to have independent pricing by the members. Pricing and scheduling of vessels and selection of the appropriate charter or contract period are intrinsic to the commercial functions. This enables the pool to make the relevant cost savings in terms of staff, bookkeeping and administration. Indeed it appears to us that there must be a risk that if one removed those functions from the pool manager one would jeopardise the attainment of the efficiencies of the pool.

178. A pool that does not have integrated commercial functions and an ability flexibly to deploy the pooled vessels to maximise the revenue earning potential of the fleet would not work as efficiently.

179. These benefits are particularly evident in the case of CoAs, which require a certain minimum number of vessels to be commercially attractive to charterers, shippers and other customers wishing to contract on that basis.

180. On the side of the owners, the predominant reasons for entering into a pool were found to be risk spreading and efficient fleet deployment: three specific reasons are generally given, namely the greater certainty of being able to secure an income when markets are poor and thus ensuring a more stable service, improving members' ability to meet customers' needs compared with the position if they acted alone (mainly through much more effective utilisation of capacity), and a greater opportunity to undertake large CoAs and persuade customers who want to enter into CoAs to contract with them.

181. Our research confirmed that pools do not appear as a matter of policy to restrict themselves to contracting exclusively on the basis of CoAs but, like any owner or operator outside a pool, pools seek to maximise their efficiency and their revenues by responding to demand. They therefore organise themselves so as to meet demand for CoAs, time charters or spot business depending on what the market wants from time to time and from customer to customer.

182. Modern pools tend to be highly flexible in the commercial strategies which they can offer their members, running spot business in parallel with CoAs, period time charters, and FFA cover. Many pools allow ship owners to choose their preferred level of risk for the vessels traded through the pool, depending on whether they want secure income, probably at a lower level of return compared to pure spot market operations, or a strategy of focusing on spot trading, where income can be much higher at times, but is more variable, and where the risks are consequently higher.

183. This greater stability of income generally appeals to financial institutions, and it is often a condition of a loan for a newbuilding or even second hand tonnage that the vessel should be entered into a pool: in that sense pools can act as an incentive to enter the market and provide a secure base for shipowners to expand capacity. This was seen in all parts of the market to have a beneficial effect in terms of bringing rates down.

184. In the majority of cases we perceived there to be strong efficiency arguments in favour of pooling, although in some markets and as between some parties the arguments might be stronger than they are for others.

185. Furthermore, the consultants identified a number of ways in which the various economies of scale and scope outlined could in turn be expected to contribute to net consumer welfare. Most of the benefits (in terms of better vessel utilisation, availability and flexibility of services, lower operational and administrative costs and other economies of scale) would in their view tend to increase the capacity available to perform the services and so directly benefit customers both in terms of increased output and lowering of rates.

186. The increased utility for buyers of pool services were to our mind therefore potentially clear. We considered that it was reasonable to expect that they would be passed on to customers, and ultimately consumers, provided that the fourth condition of Article 81(3) is duly met and the pool does not enjoy a level of market power in its relevant market that might allow it to control capacity or rates and therefore influence the normal competitive balance of supply and demand.

187. In addition to the central clauses dealing with joint operation and commercial management of the vessels in the pool, pool agreements contain various other potentially restrictive clauses which we analysed under Article 81(3) with a view to establishing whether they were indispensable.

188. Twelve of the pools analysed contain a form of non-competition covenant. The exact wording varies. They usually make it clear that the restriction on competing activities applies only to vessels of the same type as those committed to the pool ("qualifying" or "restricted" vessels) and/or in the same trade as the pool and some specify that the activities must be "in competition with" the pool. There would seem to us be a rationale for not allowing pool vessels to be traded outside the pool, principally that is would reduce the fleet capacity freely available and risk destroying the core efficiency gains that the pool is designed to bring about.

189. The termination provisions show some variations. Generally, pools have no fixed term, but contain provisions whereby they can be dissolved on giving between 6 and 12 months' notice, or whereby individual vessels can be withdrawn subject to notice (periods ranging from 90 days to 6 months) and provided they are not already committed by the pool.

190. Express provisions governing lay-up were found in nine of the pools analysed. Decisions on lay-up are required in such cases to be taken jointly, though the precise method differs.

191. The application of the indispensability test will differ according to whether a pool is analysed as a joint production agreement or a joint commercialisation agreement. In the latter case, the rate fixing functions of the pool manager would need justification on grounds that they were indispensable for the achievement of the efficiencies of the pool. We take the view that these functions are indeed indispensable for providing an integrated service and should therefore be considered indispensable. We considered also whether non-compete covenants were, in some or all cases, indispensable for the achievement of the efficiencies of the pool. As already mentioned, we considered that there might be a number of reasons, in particular where the restriction on competing activities is limited to the vessels placed in the pool. However, the onus of proof would fall on pool members to demonstrate this. The European Commission is not always prepared to accept non-compete provisions in the context of horizontal cooperation.

192. The evidence did not indicate that pools have historically ever been able to use their joint resources and combined market power to push prices up at any time in any segment of the industry. Far from it. Where there are pools, they operate as a single commercial entity in competition with other operators (both independent and pooled) and the freight rates show all the signs of responding to normal forces of supply and demand without the existence of pools apparently causing any distortions.

193. We gave our best estimates of the market shares held by pools in the various relevant markets that we had identified and found few examples of any pools with significant market shares except in the LPG sector. In calculating the market shares of pools, we took account of possible coordination effects arising from common memberships of several pools by aggregating those pools' market shares.

The Specialisation Block Exemption[49]

194. The consultants found no reason in principle why the Specialisation Block Exemption should not be relied upon by independent owners of tramp vessels who decide to integrate the management and operation of their vessels through a pool by appointing a pool manager or one of their members to manage, fix and operate those vessels on their behalf. The scope of the Regulation appears broad enough to cover the two different legal routes available for achieving a pooled fleet of vessels, *e.g.* the pool manager may have the right to sub-charter the vessels on common, pre-agreed, terms, or may be constituted a full commercial agent with power to contract on his principals' behalf (whether on a disclosed or undisclosed basis). However, there are some legal issues, including critical issues of legal construction, which we have acknowledged will in due course require further discussion and analysis.

195. The Specialisation Block Exemption (the Regulation) applies only to agreements governing the *joint production* of *certain* products or services. The question whether pooling can in the first place constitute joint production has already been addressed. The question also arises whether the reference to "certain" services prevents the Regulation from applying where all the owners' vessels are in a pool. Since owners retain certain functions, principally technical, and only pool certain other functions, the requirement may in our view be met so long as the relevant services entrusted to the pool manager are sufficiently identified and specified in the pool agreements.

196. The Regulation is also excluded where the services are for distribution or rental. The services provided by the pool manager to the customer involve distribution of goods, but the pool manager does not re-distribute any services obtained from the owner, which is what in our opinion would be necessary to exclude the Regulation. There is nevertheless a point of interpretation that is not clear.

197. An assessment of the non-compete clauses (if any), provisions governing lay-up and provisions governing the minimum period of notice of termination and/or the withdrawal of vessels from the pool, would need separate assessment: if ancillary, they would be covered by the Specialisation Block Exemption but, if not, self-assessment would be required pursuant to Article 81(3). There is then an issue, as we have seen, whether any or all of these clauses, as well as the basic provisions dealing with joint marketing and fixing of vessels, are indispensable for the establishment of a pool.

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[49] Commission Regulation (EC) No 2658/2000 of 29 November 2000 on the application of Article 81(3) of the Treaty to categories of specialisation agreements OJL 304/3 of 5.12.2000.

The Liner Consortium Regulation[50]

198. The Liner Consortium Regulation cannot apply to pools in the tramp sector as tramp services, unlike liner services, are generally not containerised. Furthermore, Recital 8 specifically provides that the Liner Consortium Regulation "does not cover the joint fixing of freight rates" and Article 5 of the Liner Consortium Regulation requires effective price competition between the members of the consortium even if they are part of a liner conference, or effective competition on the basis of services, or effective competition, actual or potential, from shipping lines which are not members of the consortium.

199. It may be worth considering extending the benefit of the Regulation at least to some of the tramp markets, for instance the neo-bulk markets which display many of the characteristics of liner services, such as PCC, forest products, *etc*. where there is regularity of sailing; but in our view a case could also possibly be made out in the dry bulk industry where volumes are moved at regular intervals and in large quantities.

Other forms of Horizontal Cooperation

200. We reviewed a number of other forms of horizontal cooperation of a sort which in our view might raise competition issues.

201. They were:

(a) Charters and other bi-lateral agreements:

202. The majority of charterparties and other agreements entered into between owners or operators would not normally be expected to raise competition issues as they are vertical in nature. They are often entered into as a means of procuring additional capacity for operators who do not want to invest in additional tonnage, or do not have sufficient tonnage available for various reasons to meet their contractual obligations at any time.

203. They will often benefit from automatic exemption under the block exemption for vertical agreements,[51] subject to satisfying the relevant market share cap of 30% if they are exclusive.[52]

204. If they are part of the arrangements for a pool they need to be analysed in that context.

205. Similarly where they are reciprocal, they clearly do raise horizontal cooperation issues and would require analysis under Article 81(1) and/or 81(3) in the same way as pooling agreements. They would not, however, be able to show the same degree of integration as the majority of pool agreements which we have specifically reviewed.

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50 See footnote 31.

51 Commission Regulation 2790/1999 of 22 December 1999 on the application of Article 81(3) of the Treaty to categories of vertical agreements and concerted practices OJL 336/21 of 29.12.1999 (Vertical Block Exemption).

52 *Ibid.*, Art. 3.

(b) Ad hoc vessel or space sharing arrangements

206. We found evidence of this type of agreement to be quite widespread, though specific details were scanty. We noted that they were often encountered in the reefer industry and other markets subject to cyclical peaks, enabling carriers to meet temporary capacity shortages. They tend to be spot fixtures, with rates being determined in accordance with prevailing spot rates. Our analysis did not suggest any particular competition issues.

(c) Joint outsourcing

207. It happens that owners may contract with the same specialist ship management companies for technical management or other services where, as is frequently the case, such services are outsourced. There could be an issue under competition law in terms of spillover of information from one owner to another or in terms of any possible coordinating effects. It did not seem to us that it would raise any competition issue if the relevant vessels were in different markets or if confidential information flows could be prevented by means of firewalls, as with B2B exchanges between competitors.

(d) Pure cargo or vessel sharing pools

208. We in fact identified only one example of a pool agreement described by its participants as a pool, but purely limited to joint scheduling. We had too few details to come to any conclusions but considered that there might be an analogy with vessel sharing arrangements in the liner industry, which are classified as consortia and potentially exempted by the Liner Consortium Regulation.

(e) Co-service agreements

209. According to the limited information available to the consultants, co-service agreements are common only in the chemical tanker markets but variants may exist in other markets. They are a relatively loose form of arrangement focused mainly on finding joint operational efficiencies to improve the services offered to customers. We thought they were clearly distinguishable from vessel pooling.

210. Co-service agreements differ from pool agreements as the ship owners retain their commercial independence and bid against each other when tendering for the relevant contract from the customer (except in those cases where joint bids are accepted and the joint bid is submitted with the customer's knowledge and approval). There is therefore no question of them constituting collusive tendering, a hardcore offence. Generally, however, the consultants believe this type of cooperation to be limited to purely operational areas, without joint marketing and selling, in contrast to pool agreements.

(f) Requirements contracts

211. For the most part we considered that requirements contracts, under which all a given customer's requirements are met by a given carrier, would be unlikely to raise competition issues, as they would normally be classified as vertical agreements and would be eligible for block exemption under the Vertical Block Exemption, subject to the relevant 30% market share cap and a 5-year limit if exclusive.[53]

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53 See in particular, Articles 3 and 5 of the Vertical Block Exemption, OJL 336/21 of 29.12.1999.

(g) Multiple time charters

212. The situation where a single owner or operator, operating in its own right in the market, enters into a series of long-term time charters with other vessel owners – so extending its fleet without incurring the capital cost of acquisition or financing the relevant tonnage or the legal responsibility for technical management – may raise competition issues even though, individually, each charter is ostensibly a vertical agreement.

213. This situation may apply to an owner with some owned vessels in his fleet or to a pure operator with no vessels under direct ownership.

214. The effect on the market for transport services is indirect, in so far as the arrangement potentially reduces the total capacity of vessels under the control of the operators' competitors or the vessels that those competitors could charter in. By bringing all vessels into a single operation it has effects on competition in the downstream market that resemble the effects of a pool, though it is legally quite distinct in that it does not involve any express agreement between the owners. However, to the extent such arrangements can be analysed under the Vertical Block Exemption, the overall market share held by the operator under all "parallel" agreements would in our view need to be taken into account.

(h) Other arrangements

215. Finally, there are various types of agreement which we thought would be unlikely to raise competition issues as they could generally be presumed not to influence the relevant parameters of competition, mainly because they are of a purely technical nature.

Article 82

216. We examined briefly if Article 82 could apply to pools on the basis that the members of a pool might hold a dominant position collectively. The case law suggests that this could be the case, but a dominant position would only arise if the pool had sufficient market power to achieve dominance in the relevant market. In addition, the pool would have to engage in abusive conduct that was not objectively justifiable. We thought that the grounds of justification might be similar to those under Article 81(3). Finally, we considered that that the establishment of a pool could involve a strengthening of a pre-existing dominant position contrary to Article 82 in certain cases.

Full-function Joint Ventures

217. We thought the pools analysed in this Report were clearly distinguishable from the sort of full-function joint venture that the European Commission cleared under the EC Merger Regulation[54] in the *NYK/Lauritzen* decision.[55] The latter related to the establishment of a full-function, autonomous and jointly owned undertaking that was intended to operate long-term on the market independently of its parents, whereas the typical shipping pool is a much looser form of cooperation and the powers of the Pool Manager are not as extensive as would be needed to create an autonomous undertaking.

218. Nevertheless, in certain cases some pools might have the necessary characteristics to take them within the scope of the EC Merger Regulation, in which case they would require notification and would not be lawful if they had been implemented without prior clearance.

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[54] Council Regulation 139/2004 on the control of concentrations between undertakings (the EC Merger Regulation), OJL 24/1 of 29.1.2003.

[55] Case COMP/M.3798 – *NYK/Lauritzencool/Laucool JV.*

CONCLUSIONS

219. In conclusion, the Report identifies a number of competition issues which are raised by the traditional pool structure.

220. To the extent that pooling agreements are a form of distribution and/or joint commercialisation, this raises difficulties as they would need self-assessment under Article 81(3).

221. There are in any event several specific clauses in pool agreements that require analysing under Article 81(1) as they might have the object or effect of preventing, restricting or distorting competition. Such clauses included non-compete clauses, termination and notice clauses and provisions on the lay-up of vessels.

222. The evidence found did not in fact indicate that pools have been able to use their joint resources and combined market power to push prices up at any time in any segment of the industry. Where there are pools, they operate as a single commercial entity in competition with other operators (both independent and pooled) and the freight rates show all the signs of responding to normal forces of supply and demand without the existence of pools apparently causing any distortions.

INTRODUCTION

THE TRAMP SHIPPING MARKET

1. This Report was commissioned by the European Commission to provide it with the necessary expertise on tramp shipping. In this introduction, we describe the overall scope of the Report and explain, chapter by chapter, how we have presented our findings.

2. The tramp shipping markets covered by this Report effectively include all international ocean freight transport services, other than liner services. The term "services" is used loosely: as will be seen, in contract terms the "services" are usually either for the carriage of goods or commodities by sea between pre-determined ports as a single voyage (a *voyage charter*[56]), or the hire of a ship by a charterer for a period of time (a *time charter*[57]).

3. *Tramp shipping* is a term which has been variously defined, not least by Article 1(3)(a) of Council Regulation 4056/86[58] which, until its repeal on 18 October 2006,[59] accorded a special jurisdictional status to "tramp vessel services" as opposed to all other forms of international maritime transport services. In the sense in which it is normally used in the shipping industry, "tramp shipping" may be defined as the transport of one single commodity, which fills a single ship. (There are exceptions, and these are addressed in the Report.) The ship is typically fixed[60] by a shipbroker and performs a transport service in accordance with the terms of the relevant charterparty (the contract).

4. This Report is divided into two main parts. Part 1 ("Descriptive analysis of supply and demand") is a compilation of data giving a complete and detailed picture of the tramp shipping market. It comprises, in Chapter 1, the "Tramp market fundamentals". This is a factual description of the main mechanisms of the tramp market: the various commodities, players, contracts used, *etc*.

5. Chapter 2 focuses on analysing the demand side of the market for liquid bulk, dry bulk and neo-bulk shipping. In particular, it sets out the geographical scope and characteristics of the demand for each product or commodity.

6. Chapter 3 describes the supply side of tramp shipping market by market. In particular, it describes the orderbook for each market, the major owners, as well as elements of price competition, whether there exists substitutability for the vessels used, the geographical scope of the demand and the various barriers that might exist to entering a particular market.

7. Chapter 4 goes into detail about horizontal cooperation arrangements, in particular shipping pools. It contains a description of the way in which shipping pools typically work, and of the different shipping pools which exist today. Chapter 4 also gives information about dissolved pools and other forms of horizontal cooperation which may exist in the tramp market.

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[56] All key legal terms are defined in the Legal Definitions in Annex 2.

[57] See Legal Definitions, Annex 2.

[58] Council Regulation 4056/86 of 22 December 1986 laying down detailed rules for the application of the Treaty to maritime transport, OJL 378/4 of 31.12.86.

[59] By Council Regulation 1419/2006 of 25 September 2006 repealing Regulation (EEC) No 4056/86 laying down detailed rules for the application of Articles 85 and 86 of the Treaty to maritime transport, and amending Regulation (EC) No 1/2003 as regards the extension of its scope to include cabotage and international tramp services, OJL 269/1 of 28.9.2006.

[60] See 1.6 below for a definition of the different ways in which a vessel may be fixed.

8. Part 2 of the Report ("Market definitions and legal analysis of tramp shipping services") provides an in-depth analysis of the industry based on the information provided in Part 1 of the Report. In other words, it takes the raw data as the basis for arriving at appropriate market definitions and examines the consequences in terms of competition.

9. Chapter 5 categorises the data into various geographical and product markets, in accordance with normal practice in competition cases and in particular in the light of the European Commission's guidelines on market definition.[61] For this purpose we relied first on price correlation analyses. The various product/service characteristics and elements of supply side substitutability were, however, also taken into account in defining the markets.

10. Chapter 6 contains a legal analysis of the above findings. It assesses pools in their economic context and considers how the rules in Article 81(1) and Article 81(3) of the EC Treaty should be applied to them, including their individual terms to the extent known, as well as briefly examining the possible relevance of any block exemption regulations, and the possible application of the rules on collective dominance in Article 82 of the EC Treaty and of the rules on full-function joint ventures in the EC Merger Regulation.

11. Chapter 7 is a review of the existing literature on tramp shipping. In that chapter, relevant literature consisting of books, articles, conference papers, *etc.* were reviewed with a view to understanding the origins and functions of shipping pools in the tramp sector and to see if the literature can shed any light on the likely effects of applying competition law in full to tramp shipping.

12. Chapter 8 is a review of the economic literature on tramp shipping, providing, in particular, an explanation of transaction costs in tramp shipping and of the possible application of economic theory to the tramp shipping market.

13. Chapter 9 is a review of the existing case law on tramp shipping from certain jurisdictions, namely Algeria, Angola, Argentina, Australia, Brazil, Japan, Libya, Russia, South Africa and the United States of America.

14. Finally, Chapter 10 provides some conclusions on the economic analysis of the tramp shipping markets and of the legal analysis of pools and other forms of cooperation carried out in this Report.

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[61] European Commission Notice on the definition of relevant market for the purposes of Community competition law, OJC 372/5 of 9.12.97.

PART 1:

DESCRIPTIVE ANALYSIS OF SUPPLY AND DEMAND

1. TRAMP MARKET FUNDAMENTALS

1.1 GENERAL INTRODUCTION

15. The cargoes carried on board tramp vessels are physical cargoes which are themselves being traded. This means that the tramp vessel service represents only part of the overall supply chain. Demand for tramp shipping is closely, but not exclusively, dependent on the underlying physical trade flows. There is therefore a close interdependency between the various shipping markets and the underlying markets for the different raw materials, semi-refined products, and finished goods.

16. Tramp shipping markets are complex. The demand for bulk transport services results from and largely depends on the demand for shipments of that commodity, and others. Fluctuations in demand for different commodities, seasonal variations in the production or consumption of specific commodities, general economic conditions affecting demand for or consumption of manufactured products and foodstuffs, and many other economic and trading conditions, all have an impact on demand for transport services.

17. Cargo can be classified into *liquid cargo* and *dry cargo*. These descriptions clearly reflect the key underlying characteristic of the products within each classification. A third category is, however, distinguishable, often called *neo-bulk*, and comprising non-free-flowing homogeneous bulk commodities (such as steel). This third category may sometimes be known as "specialised" or "specialist" bulk although, as we say in the Report, the terms are not interchangeable and they should really be reserved to describe, respectively, cargoes with different characteristics and the vessels specifically designed to carry them. These are the principal categories into which we have divided the various individual commodities analysed in this Report.

18. Liquid bulk is transported in "tank" ships ("tankers"), with the main cargoes being crude oil, oil products and liquid chemicals.

19. Dry bulk cargoes can be subdivided as follows:

    (a) The five major dry bulks – these are the principal categories of dry bulk commodities transported in bulk carriers. They comprise iron ore, grain, coal, phosphates and bauxite;

    (b) Minor dry bulks – these comprise the many other commodities that travel in shiploads, the most important being cement, gypsum, non-ferrous metal ores, sugar, salt, sulphur, forest products, wood and chemicals;

    (c) Break bulk - traditionally, the term break bulk was reserved for general cargo vessels carrying smaller parcels of non-homogeneous cargoes. For the most part, this trade has been replaced today by container transport.

20. The consultants have preferred in this Report to use the term "neo-bulk", as set out above, to describe shiploads of homogeneous bulk commodities that are not free-flowing. Neo-bulk cargoes include bulk cargoes with specific handling or storage requirements. Examples are motor vehicles, steel products, refrigerated cargo and specialised cargoes such as aeroplanes and agricultural equipment. It can therefore be contrasted with both the major and minor bulks in that the cargo is not tipped into a pile or loaded by conveyor. The European Commission has distinguished a separate category of transport services which it has defined as "specialised transport". The term "specialised" in this Report here reserved for vessels, equipment and cargo with specialised features, or for cargo which requires specialised handling, as the case may be.[62] Examples include:

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[62] See also discussion at Para 55 *et seqq.* below.

sophisticated chemical (parcel) tankers, particular types of reefer ships, wine tankers, car carriers (PCCs), car and truck carriers (PCTCs), very large bulk carriers with cranes, and wide beam tankers (specialised to maximise cargo intake in shallow waters).

21. Below are summaries of the general ship types and the commodities they often carry.

Ship type	Generic name	Commodities carried	Vessel description
LIQUID BULK			
Oil Tankers	Handysize	Clean and dirty petroleum products	Oil tanker of approx. 10-50,000 dwt.
	MR	Clean and dirty petroleum products	Medium range oil tanker of approx 30-55,000 dwt.
	Panamax	Dirty petroleum products, crude oil. Newbuilds may be employed in clean products trades	Ship in the 55,000 to 80,000 DWT range, but narrower in beam than 100 ft (32.2 metres), which is the largest capable of navigating the Panama Canal.
	LR1/LR2	Clean petroleum products. Alternative cargoes; dirty petroleum products	Long range oil tanker. LR1 approx. 50-80,000 dwt. LR2 approx. 80-120,000 dwt.
	Aframax	Dirty petroleum products, crude oil. Newbuilds may be employed in clean products trades	A tanker of 80.000-120.000 DWT. Originally a vessel of 79.999 DWT, but the type has subsequently grown and is today typically of 800.000 barrel capacity. Increasingly these vessels have coated tanks and are capable of carrying clean products.
	Suezmax	Crude oil. Alternative cargoes; fuel oil and gas oil	Tanker typically between 120,000 and 160,000 DWT, the largest vessels to transit the Suez Canal fully laden (restricted draft). For modern vessels the capacity is at least 1m barrels.
	VLCC/ULCC	Crude oil. Alternative cargoes; fuel oil and gas oil	Very Large Crude Carrier. A term used to describe tankers between 200,000 and 320,000 DWT. A modern VLCC is a vessel of at least 2m barrel carrying capacity. Ultra Large Crude Carrier is larger than 320,000 dwt. Only four ULCCs still exist.
Chemical tankers	IMO 1 type	IMO 1 type chemicals. Alternative cargoes; IMO 2 and 3 type chemicals, petroleum products	Vessels which are qualified to carry IMO 1, 2 and 3 type chemicals. Vessels are no larger than 40,000 dwt.
	IMO 2 type	IMO 2 type chemicals. Alternative cargoes; IMO 3 type chemicals, petroleum products	Vessels which are qualified to carry IMO 2 and 3 type chemicals. Vessels are no larger than 120,000 dwt.

	IMO 3 type	IMO 3 type chemicals. Alternative cargoes; Petroleum products	Vessels which are qualified to carry IMO 3 type chemicals. Vessels are no larger than 120,000 dwt.
	Stainless steel	Acids. Alternative cargoes; IMO 1,2 and 3 type chemicals, petroleum products	Vessels which are qualified to carry IMO 1, 2 and 3 type chemicals. Vessels are no larger than 50,000 dwt.
Gas carriers	LNG	LNG	Liquefied natural gas which is carried on purpose built vessels. Capacity measured in cubic metres. Typical vessel capacity of approx. 150,000 cubic metres.
	LPG	LPG, ammonia, petro-chemicals, Chemical gases. A certain portion of the fleet LPG/ethylene carriers may carry all commodities. Certain vessels cannot carry ammonia. All vessels can carry LPG.	Liquefied petroleum gas which is carried on purpose built vessels varying in capacity from 700 cubic metres to 80,000 cubic metres.

Crude oil carrier

Chemical Tanker

LPG Vessel

LNG Vessel

Ship type	Generic name	Commodities carried	Vessel description
DRY BULK			
Dry Bulk carriers	Handysize	All dry bulk commodities Steel, logs, lumber, and scrap. Iron ore is not widely traded in this size segment, apart from India	Bulk carrier of approx. 20-40,000 dwt. Usually fitted with cranes.
	Handymax	All dry bulk commodities Steel, logs, lumber, and scrap. Iron ore is not widely traded in this size segment, apart from India	Bulk carrier of approx. 40-55,000 dwt. Fitted with cranes. Latest generation of bulk carriers 50-55,000 dwt often referred to as "Super Handymax" or "Supramax.
	Panamax	All dry bulk commodities. Coal, iron ore, and grains constitute about 75% of all commodities carried by Panamax bulkers	Bulk carrier of approx. 55-80,000 dwt. A few are fitted with cranes.
	Capesize	Coal and iron ore constitute more than 95% of all commodities carried by Capesize bulkers	Bulk carrier of approx. 100,000 dwt+.

Bulk carrier

Ship type	Generic name	Commodities carried	Vessel description
NEO-BULK			
Car carriers	PCC	Cars	Pure Car Carrier. Used in the Report to mean both PCC and PCTC. Modern vessels vary in capacity from 4,000 to 8,000 CEU (Car Equivalent Unit).
	PCTC	Cars, other vehicles, any type of machinery, equipment *etc* that may be rolled onboard	Pure Car Truck Carrier. Used in the Report to mean both PCC and PCTC. No hoistable decks. About 2500-3000 Cars. Last vessel built was in 2001, before that last done was early 1980s.
	Ro-ro	Cars, other vehicles, any type of machinery, equipment *etc* that may be rolled onboard. Some have container capacity.	Roll-on, roll-off. In Europe 1200-1400 lane meters.
Open Hatch Bulk Carriers	OHBC	Forest products, metals, minerals. Alternative commodities; all dry bulk commodities and containers	Open Hatch Box-Shaped holds Bulk carrier of approx. 40-55,000 dwt. Fitted with cranes.
Reefers	Reefers	Refrigerated goods, frozen goods. Alternative cargoes; containers, cars.	Purpose built vessels for temperature controlled cargo. Capacity measured in cubic feet.



PCTC, a Ro-ro combined vessel a modern ro-ro/container vessel with PCC inspired design


Open Hatch Bulk Carrier Reefer

1.1.1 *The Freight Market*

22. The freight market is a market in which sea transport is bought and sold, and the business is primarily transacted by shipbrokers. There is a growing forward market through institutions like IMAREX[63], which offer tanker and dry bulk derivatives.

23. Whenever referring to "the shipping market", whether in overall terms or in terms of one of the three main categories (liquid, dry and neo-bulk) introduced above, or even narrower market segments, it may be necessary to distinguish at least four inter-related markets, any one of which may be relevant to a particular analysis at any one time. From the point of view of the ship owner, for instance, there are four different markets in which a ship owner may at any one time be trading:

(a) The newbuilding market, where new ships are ordered, but delivered with a time lag. For instance, if one orders a VLCC today, this vessel will be delivered in 2009 or 2010.

(b) The sale and purchase market, where vessels can be bought and sold immediately;

(c) The freight market, where ships are chartered;[64]

(d) The demolition market, where vessels are sold for demolition.

24. There are separate markets for different ships in the freight market. In the short term the freight rates for tankers, bulkers and containerships behave quite differently. However, because it is the same group of traders, what happens in one sector eventually ripples through into the others. Also, because it takes time to move around the world, there exist separate regional markets which are only accessible to ships ready to load in that area. Thus, some ships are available for spot fixtures in one area, but unavailable in other areas.

25. There are different contractual types for fixing a vessel. There are different types of risks involved in the different types. When a ship is chartered or a freight rate is agreed, the ship is said to be "fixed". This is a result of the shipbroker merging the interests of the ship owner or operator and the charterers, as the ship owner or operator has a vessel for hire and the charterer has cargo to transport. A number of contractual agreements are commonly used. The different types are described in the following:[65]

1.1.1.1 The Contract Of Affreightment

26. The contract of affreightment (usually abbreviated to "CoA") is an agreement between the ship owner or operator and the charterer, where the ship owner or operator undertakes to carry quantities of a specific cargo on a particular route or routes over a given period of time[66] using ships of his choice with specified restrictions.

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[63] IMAREX stands for International Maritime Exchange ASA, and their website is www.imarex.com.

[64] This market may itself be seen to operate at two levels (upstream and downstream): the level at which owners charter their vessels to other owners or pure operators who need relevant ship capacity to perform a transport service, and the level at which they in turn charter them to cargo owners in connexion with the provision of the actual transport services. This is further discussed in Chapter 5.1.

[65] But see Annex 2 for fuller legal definitions.

[66] The time period may be quite lengthy. For example, NYK and Baosteel have just been reported as having entered into a 24 year CoA for the shipment of iron ore. Such a long period is highly unusual.

27. For example a steel mill can agree with a ship owner or ship operator to carry ten consignments of 150,000 tonnes of iron ore from Brazil to Rotterdam. This can be done within a given time period, such as one year. The CoA will identify a window of time within which the customer must give notice for each consignment.

1.1.1.2 The requirements contract

28. Requirements contracts are contracts which are designed to satisfy all, or a proportion of, a customer's transport requirements over a given period of time. They can be distinguished from Contracts of Affreightment in so far as that a requirements contract allows the customer to call for the owner or operator to perform under the contract of carriage as and when the customer needs it. Usually, the requirements contract is entered into with a single service supplier and will be designed to meet all the customers' transport needs. It is commonest in such as the car trade.

29. In one of its decisions the European Commission mentions service contracts as a particular feature of neo-bulk or specialised transport.67 In the consultants' experience, service contracts tend to be a feature of the Japanese trades, but their legal effect is in many ways similar to the legal effect of the requirements contract and may be just another name for it.

1.1.1.3 The Time Charter

30. A time charter gives the charterer operational control of the ships carrying his cargo, while leaving ownership and management of the vessel in the hands of the ship owner or operator. The length of the charter may be the time taken to complete a single voyage (trip charter) or a period of months or years (period charter). When on charter, the ship owner continues to pay the operating costs (i.e. the crew, maintenance and repair) of the vessel, but the charterer directs the commercial operations of the vessel and pays all voyage expenses (i.e. bunkers, port charges and canal dues) and handling costs. It is very attractive if the shipper does not want to become a ship owner or operator, but his business requires the use of a ship under his control.

1.1.1.4 The Bare Boat Charter

31. If a company wishes to have full operational control of the ship, but does not wish to own it, a bare boat charter is arranged. Under this arrangement the investor purchases the vessel and hands it over to the charterer for a specified period, usually ten to twenty years. The charterer manages the vessel and pays all operating and voyage costs.

1.1.1.5 The Voyage Charter

32. A voyage charter provides transport of a specific cargo from port A to port B for a fixed price per tonne. For instance, 150,000 tonnes of iron ore from Tubarao to Rotterdam at US$x per ton. The shipowner pays, from the freight, the voyage expenses (as well as the operating costs).

33. The different cost elements in a bareboat charter, time charter and voyage charter are illustrated in the table below.

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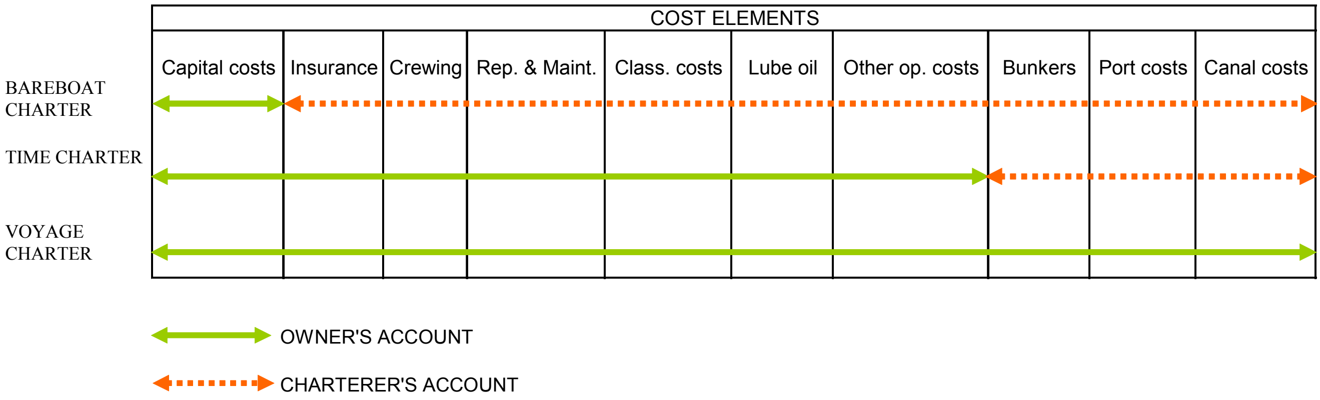
[67] See *TAA* decision, cited at footnote 71 below.

Cost Elements in Bareboat Charter, Time Charter and Voyage Charter



Source: Fearnleys (2006)

1.1.1.6 The cross-space charter

34. Cross-space charters do not appear to exist in the tramp market, at least not on the scale in which they exist in liner shipping. We have identified forms of cross-space charters in the PCC market (the market for pure car carriers). This has many of the characteristics of a liner market. They are also encountered in the chemical tanker market. A cross-space charter is an agreement (which may be quite informal) between competing shipowners or operators to supply each other with given capacity, subject to availability. In some cases the additional capacity will be provided ad hoc on a voyage charter basis, but in other cases (and more commonly in the chemical market) the arrangement are longer term, in which case they are more like reciprocal CoAs, with terms agreed in advance.

1.1.1.7 Co-service agreements

35. This type of contract is typically found in markets like the chemical tanker market where there is a demand for very high volumes to be shipped and where no single carrier is large enough to supply the necessary ships or willing to take the risk of bidding for the contract on its own. The customer is, however, interested in obtaining the same level of service and paying the same agreed rate regardless of the carrier which actually supplies the service. Co-service agreements are therefore generally entered into between carriers who agree to provide each other with the relevant capacity to meet the requirements of the customer at a predetermined, common rate agreed with the customer. This type of arrangement is commonest in the chemical tanker trade. A similar result can be achieved where the carrier enters into a requirements contract with the customer and sub-contracts part of the work to other carriers.

1.1.2 *Ownership Structure*

36. The structure of ownership within the shipping sector and the way in which charterparties (contracts for the carriage of cargo or the hire of a ship) are used, both as the basis of the shipping service provided to shippers and to provide the vessel capacity needed to deliver the service, will be explored in more detail in the main part of this Report. Some introductory remarks, however, follow.

37. So far as vessels are concerned, there are distinctions to be made, from both a legal and an economic point of view, between ship "ownership" and ship "operation". The owner of a vessel need not be, and often is not, the commercial operator of the vessel. Indeed, the legal ownership of

the vessel is often irrelevant in terms of understanding how the downstream market for tramp services works. It is usual in the industry for the registered owner of a vessel to be one special purpose company, that company often owning just one vessel. Such special purpose companies tend to be private companies incorporated in maritime jurisdictions such as Liberia, Panama, British Virgin Islands, Greece, Cyprus, Malta, *etc.* Within the tramp sector it is relatively common for ultimate vessel ownership - that is, ownership of a special purpose company as described - to be in the hands of a single individual or family, an offshore trust or series of offshore trusts, or a larger corporation.

38. Establishing precisely the ultimate ownership of a ship or ships may be very difficult. In any event, with so many shipping companies the market share of an individual ship owner is very small. This conclusion is illustrated by an analysis carried out of 7,000 dry bulk cargo fixtures (covering various types of dry bulk commodities) between January 2001 and April 2003. The survey[68] analysed the ownership of each vessel "fixed", and calculated the share of fixtures for each owner. A total of 750 shipowners were found to be trading during the survey period. Out of this total, 712 accounted for less than 0.5 per cent of the total 7000 fixtures; 28 counted for between 0.5 per cent and 1.0 per cent of the total; and five accounted for between one per cent and 1.5 per cent. Of the remainder, one ship owner or operator had 2.5 per cent and another 13 per cent, which was the highest.

39. Typically, the functions of a ship owner or operator include registering and paying for the vessel (usually by way of secured finance), insuring the vessel, maintaining the vessel in good condition and conducting repairs, ensuring conformity with Classification Society rules and arranging the compulsory ship inspections and certifications, taking care of safety issues including ensuring compliance with the ISM Code and the ISPS Code requirements, as well as responsibility for insuring, crewing, often bunkering, chartering the vessel and such like. It is common for providers of ship finance to have their interest in the vessel (usually in the form of a mortgage) registered against the vessel on its flag registration document, and on the record of the ship held by the flag state. Alternatively, and less common, they may be registered as nominal owners with the vessel bareboat chartered to the "real" owner. The real owner carries out the duties and functions of a ship owner described above.

1.1.3 *Commercial And Technical Management*

40. The term "commercial management" involves the process of fixing vessels, but also paying agent fees, attending to demurrage claims etc. After a vessel is fixed, it is the "operations department" which attends to the daily matters to keep the vessel moving and earning. This is usually a department of the owner's office. The operations department will attend to bunkering the vessel, dealing with ship agency, some crew matters, liaising in respect of cargo loading and discharging, voyage orders, Bills of Lading and related issues, and general day to day matters relating to the operation of the vessel. The interplay between the two departments is typically very tight, as post and pre fixture business must be seamless.

41. "Technical management", covering in particular vessel maintenance, conformity with Class and arrangement of ship inspections, ISM and ISPS compliance and other safety issues, may be undertaken by the owner, or may be subcontracted to specialised ship management companies. It is very common for technical management of vessels to be delegated in this way within privately owned structures, for financial reasons and as an easier means of acquiring the requisite expertise. Larger owners - or rather those who manage vessels on behalf of a number of registered owners (who often have the same principal behind the registered owners) -will of course be better resourced and may find it easier to build up the expertise in-house.

42. An owner himself - or those who manage several vessels on behalf of a number of registered owners - will usually attend to the vessel's chartering. The owner may do the job himself, usually in close association with his brokers, he may appoint someone in his office to do it, or may have a team of "in house" brokers to arrange charters for the vessels, under his overall authority.

43. An "operator" or "ship operator", by contrast, provides a commercial transport service. He may not even have a vessel (owned or chartered) at the time the service is contracted – that is, when he agrees to carry a cargo for a shipper or provide a vessel for another charterer - as vessels can be chartered in to perform the service(s) as and when needed. An operator will charter a ship from the market either against cargoes he has contracted to carry, or will charter a ship on a speculative basis aiming to use his knowledge of the market to make money. He applies the same principle to cargoes.

1.2 DEFINITION OF TRAMP MARKETS – SOME ISSUES

44. The tramp market was defined for the purposes of the application of the EU competition rules by Article 1(3)(a) of Council Regulation 4056/86 (since repealed)[69] in the following terms:

> *"Tramp vessel services means the transport of goods in bulk or in break-bulk in a vessel chartered wholly or partly to one or more shippers on the basis of a voyage or time charter or any other form of contract for non-regularly scheduled or non-advertised sailings where the freight rates are freely negotiated case by case in accordance with the conditions of supply and demand".*

45. That definition was far more precise than an ordinary dictionary definition, or the general perception of the term. However, in the view of the consultants it was still an incomplete definition as it created some "grey areas" that were open to interpretation and dispute.

46. The most problematic part was probably *"...non-regularly scheduled or non-advertised sailings,"* a two-part definition. The latter part is quite clear. Either the sailings are advertised, or they are not. In the transportation of dry bulk commodities the consultants are not aware of any advertised sailings in the sense that a shipping company, on their website or through direct contact with customers, advertises sailings from ports A, B, C…to ports D, E, F…. However, for the pure car carriers (PCCs), open hatch bulk carriers (OHBC) and reefer segments there are instances of ship owners or operators to a certain degree "advertising" sailings; but what they advertise is their service network, including the main ports of call and information on the number of sailings per month. In some cases the monthly sailings are provided as an interval (*e.g.*, 6-8 voyages) but in most cases the sailing dates are given. The markets for PCCs, OHBCs and reefers could therefore be considered as quasi-liner. This will be discussed further below.

47. Similarly, at least some of the operators of open hatch bulk carriers[70] and reefers do the same.

48. The phrase: *"Non-regularly scheduled*" is much more open to interpretation. The opposite must necessarily be *"regularly scheduled sailings"* which is well known from liner operations. However, several questions arise. For example, if a ship owner or operator has entered into a Contract of Affreightment (CoA) for 12 monthly cargoes between fixed ports of loading and

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[69] Council Regulation 4056/86 of 22 December 1986 laying down detailed rules for the application of the Treaty to maritime transport, OJL 378/4 of 31.12.86, repealed by Council Regulation 1419/2006 of 25 September 2006 repealing Regulation (EEC) No 4056/86 laying down detailed rules for the application of Articles 85 and 86 of the Treaty to maritime transport, and amending Regulation (EC) No 1/2003 as regards the extension of its scope to include cabotage and international tramp services, OJL 269/1 of 28.9.2006.

[70] See section 3.3.2 and 3.3.3235 for more information.

discharging during the course of one year, does this imply regularly scheduled sailings? As far as the consultants have been able to ascertain, all CoAs stipulate a frequency of shipments – even the smallest covering only three or four cargoes. These shipments may be considered as regularly scheduled, but the question is how strictly one should interpret this term. In dry bulk it is customary to include a nomination clause in the CoA. This clause requires the charterer to nominate, in advance, loading dates within an already agreed and stipulated period. For instance:

> *"By latest the 1st day of each month the Charterers are to inform the owners about the voyage schedule for the following month. Laydays and the cancelling to be mutually agreed with a spread of 14 days"*

49. Thus, the loading period is decided as far in advance as one month or so, or as late as (about) four to five days in advance, and can be given as any 14-day period in a month. This is a typical clause in all sectors of dry bulk shipping and on any basis it is difficult to see this constituting a *"regularly scheduled sailing".* Moreover, it is not clear whether the phrase "non-regularly scheduled" is tied to the vessel(s) used for performing the contract. That is, if the shipping company decides to use one particular vessel performing the contract (and even on consecutive voyages) does this mean the service is regularly scheduled? The better view would appear to be that it is not.

50. If, on the other hand, a ship owner or operator considers entering into a particular CoA for pure arbitrage reasons (because, for instance, the ship owner or operator expects freight rates to decline, and plans to fix all cargoes with other owners) it may thereby transform itself into a charterer *vis-à-vis* the spot tramp market. Therefore, one could consider the relationship between the head charterer (the shipper, or cargo owner, or receiver depending on the terms of the underlying sales contract for the commodity) and the shipping company (now the sub-charterer) as "regularly scheduled sailings", but *vis-à-vis* the spot (tramp) market, it is hard to see how this could be described as regularly scheduled, as any company with suitable vessels in position may offer for each cargo.

51. Another operational strategy is normally called "semi-liner" or "liner-like" operations. This type of operation is prevalent in the PCC, deep-sea forest product, reefer, LNG, and chemical carrier trades. The chief characteristic of these trades is that the ships operate in regular trading patterns. Usually the ports of call are set and there is a reasonably set schedule. However, most of these operators, if not all, will accept calling at other ports to load cargoes upon (proper) inducement. Thus, if the freight and commodity fit in, and if the extra time spent for deviating to a port and the port-time does not impede operations, the operator may accept such business. Therefore, even for these types of operations, the schedule is not "carved in stone" as for container liner operations, and, in addition, freight rates (*viz.* the rates per tonne for carrying the cargoes and/or the charter hire) are freely negotiated and not based on advertised schedules. These operations would largely appear to conform to the definition provided in the Regulation. Alternatively, it may be that the operation is non-tramp shipping in its regular service, but tramp shipping in the case of lifting an *ad hoc* cargo. If, for instance, Eukor (a PCC operator) holds a CoA with Ford Motor Co. for transporting 250 Ford Ka's from Spain to Malaysia weekly and they occasionally agree to call at an Italian port to carry a number of Fiats to Singapore – is the contract with Ford "regularly scheduled" but the contract with Fiat not? It is important to note that certain ship owners or operators may operate under different regimes in this respect.

52. For car carriers it should be noted in this context that most transportation contracts between car manufacturers and car carrier operators are "requirements contracts". These ensure that the carriers become part of the car manufacture's supply chain. Requirements contracts typically provide for either a minimum, or a maximum, quantity, although neither of the parties to the contract have an exact idea about the volume which will be transported. In case volumes fall considerably, ports of call may be cancelled or changed. Similarly, if the volume is greater than anticipated, the number of calls, or ports, may have to be increased. Thus, the nature of the demand side as a result of this

contract type is closer to "non-regularly scheduled sailings" than "regularly scheduled sailings". This provides the charterer with the flexibility needed, but leaves the operator with the risk of only getting the minimum volume. Thus, the operator must secure other cargo in the spot market in order to maintain earnings and utilise capacity optimally. In such circumstances the operator will be more willing to call at other ports "upon inducement". In other words, a liner-like operation becomes more of a pure tramp operation due to deteriorations in the market conditions.

53. The European Commission does therefore now have an opportunity to apply the competition rules to the whole of the industry in a far more logical and consistent way having regard to the nature of the relevant agreement and its economic effects. More significantly, the abolition of the block exemption provided for liner conferences under Article 3 of Regulation 4056/86 (which only fully takes effect in October 2008) will subject liner operators to the same legal regime as tramp operators.

54. However, it may be found that differences in the economic and commercial characteristics of the liner industry, compared with those of the tramp industry, will make it unwise to extrapolate any general principles from one side of the industry to the other; and so the old distinction will likely still be needed in practice. The "*non-regularly scheduled"* part of the definition causes some difficulty as it is too broad and could be construed to exclude shipping operations that otherwise, and certainly within the shipping industry, would be considered tramp shipping operations.

55. Within the tramp shipping sector, there are a number of separate product and geographical markets, each of which make up a separate "relevant product market" for the purpose of applying competition law. The consultants have in this Report attempted to identify the appropriate boundaries between the different relevant product markets based on the detailed economic analysis that follows. Our conclusions are contained in Chapter 5: "Relevant market definitions". It must be noted, however, that in many sectors the boundaries in commercial terms are very flexible and may change.

56. The European Commission, in its *TAA* decision[71], identified a separate category of "specialised transport" which it distinguished from scheduled (liner) transport and unscheduled (tramp) transport. The European Commission explains specialised transport in the following terms:

> "There are also shipping operators who specialise in certain types of containerisable goods. Where a shipper has a large quantity of homogeneous containerisable goods to be carried on a regular basis and can put together the necessary quantities, it can be more economical to use specialised ships than to carry the goods by container.
>
> This type of transport (which is termed 'neo-bulk') thus involves certain categories of goods in consignments which are too large to be economically carried by container and which may themselves fill a good part, if not the whole of the vessel. They include above all steel or metal products, fertilisers, certain chemicals, forest and wood products, and motor vehicles.
>
> In this case, carriers conclude long-term contracts with one or a few large shippers and operate these specialised services regularly, but mainly on the basis of charterparties or service contracts. This regularity, which is linked to an isolated or concentrated demand for transport services, is negotiated between specialised carriers and their customers and differs from the regularity of liner shipping services, which operate regular services

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[71] 94/980/EC: Commission Decision of 19 October 1994 relating to a proceeding pursuant to Article 85 of the EC Treaty (IV/34.446 - Trans-atlantic Agreement).

independently of any specific demand and offer their services on a non-discriminatory basis to all shippers."

57. As will be seen, this corresponds to some extent to the definition of neo-bulk used in this Report, a term which the European Commission itself uses in its decisions. The consultants would agree with the European Commission's assessment that the transport of neo-bulk cargo is organised differently from liner shipping services, although we would not categorise all the products mentioned in the TAA decision as neo-bulk.

58. Neo-bulk is distinguishable at some levels from the remainder of the tramp sector. The key distinguishing features are its semi-regular nature and large volume, as discussed above, as well as the use of, at least in part, specialised vessels developed specifically to cater for the customer's requirements. It is not, however, significantly different from a number of major and minor bulk shipping trades, which also involve the movement of large volumes of cargo, and which are also often linked to an isolated or concentrated demand for transport services.[72]

1.3 TEN KEY POINTS CHARACTERIZING "TRAMP SHIPPING" [73]

59. In this sub-section the key features which are traditionally said to characterise the tramp shipping market are outlined. These ten key characteristics are:

- Globally competitive markets
- Close to perfect competition model
- Different sub-market segments in response to customer needs
- Competition between sub-markets for cargo
- Volatile and unpredictable demand
- Many small entrepreneurial companies
- Global trade patterns
- Ease of entry and exit
- Cost effectiveness
- Responsiveness to development of market and shipper's needs

60. These general characteristics are evident in all tramp shipping markets. So far as the ten key characteristics are concerned, the following general comments can be made, which need to be borne in mind by way of background to the rest of the Report. Although this Report is concerned solely with the tramp shipping markets, within certain of these markets there is an overlap with liner shipping as has been discussed above.

61. The best example is the reefer market where there has been a noticeable shift in demand away from specialised reefer vessels to reefer containers. The liner market displays many of the same characteristics identified above, but we do not propose to examine the liner market unless it overlaps with the tramp market, and when it is necessary to explain the functioning of the specific tramp markets.

62. The transport of goods is management intensive, and the liner business offers a number of commercial features that distinguish it from tramp shipping, including:

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[72] Neo-bulk in this report includes PCCs, Ro-Ros, Reefers and OHBCs. Cargoes include agricultural machinery, cork and wood, fruit and vetetables, meat, dairy, fish, metal products, motor vehicles, non-ferrous metals, paperboard and products, petcoke and other residual petroleum products and steel.

[73] These key points were taken from the Clarkson Report on tramp shipping.

(a) regular and frequent services for many small cargo consignments, including efficient administration of the cargo flow, saving the shipper a great deal of the administrative burden that it would otherwise have to bear;

(b) a pricing structure that differentiates between products, as each consignment needs a separate price (for instance the price for shipping a Volvo XC90 may be different from that for shipping a smaller VW Golf from Europe to the US onboard a PCC-vessel);

(c) greater clarity and predictability in terms of route planning and scheduling, using fixed port-to-port routes and fixed shipping schedules, taking responsibility for tonnage planning and scheduling of the shipper.

63. In the remainder of the Report, however, we will examine the market in detail and distinguish a number of economic markets with similar competitive conditions based on their different characteristics of supply and demand.

1.3.1 *Globally Competitive Markets*

64. Ships are mobile units and as long as an individual vessel complies generally with the requirements of the Classification Society and fulfils all statutory requirements, it can find employment all over the world irrespective of flag, domicile of the owner, or operator. Thus, in principle, all vessels within a particular type can in principle compete with each other, sometimes given time, wherever they may be currently trading. There are few barriers of a legal[74] or regulatory nature preventing ships from being physically moved around the world to meet demand wherever it arises. This aspect of the industry is explored in more detail in Chapter 5, in particular in relation to the geographical scope and the supply-side of the market.

65. The only exceptions are cabotage[75], which usually requires national flags and national crews in addition to the above requirements, and short-sea shipping. However, as long as these requirements are met, any cabotage tramp market could be considered "competitive", albeit not "globally competitive".

66. There are some limitations, although one in theory could contemplate that virtually all products can be carried on any type of ships. One could imagine that oil (in drums or in tanks) could be carried in relatively large quantities on reefers, or grain carried on tankers (which has happened from time to time). The consultants maintain that the tramp markets are in principle globally competitive, but there are qualifications, such as:

- Ports: In terms of physical restraints as to which a vessel can be used, the principal restraints are, beam, draught, length of the ship, *etc*;
- Canals provide physical as well as operational restrictions in the sense that certain canals cannot accommodate ships above a certain size (e.g., beam, length and draft restrictions in the Panama canal and principally a draft restriction in the Suez canal);
- Some regulatory issues may to a certain degree limit the competition. For example, in the oil tanker market, the Oil Pollution Act 1990 (OPA 90) in the United States has resulted in some owners not being willing to send their vessel to US ports due to the

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74 Such as the IMO regulations for instance.

75 Cabotage refers to intra-state trade between ports in the same state. In some jurisdictions this may be reserved, in whole or in part, to vessels flying the national flag and with national crew.

unrestricted liability if an oil spill occurs. Of course, for an appropriate freight rate an owner may change his mind;

- Oil tankers may not carry chemicals, whereas chemical tankers may carry oil (due to IMO requirements with respect to pollution);

- Certain terminals do not accept oil tankers without double hulls. This is, however, a temporary limitation as tankers (other than the smallest) built since the early 1990's are fitted with double hulls, and the old tankers are over time either being scrapped, or converted for other purposes, and therefore phased out of the liquid market;

- Only LNG carriers can carry liquefied natural gas;

- All LPG carriers can carry liquid petroleum gas, but only a proportion of the fleet can carry ethylene, and there are some restrictions on the number that can carry ammonia;

- ILO: ILO is the International Labour Organization and is an UN agency bringing governments, workers and employers together to promote decent work and social safety nets. This is mainly achieved by setting and supervising international labour standards in the form of conventions and recommendations.

1.3.2 *Close To Perfect Competition Model*

67. It is traditionally said that shipping markets follow a perfect competition model. Perfect competition is an economic model that describes a hypothetical market form in which no producer or consumer has power in the market to influence price. According to the standard economic definition of efficiency, perfect competition would lead to a completely efficient outcome. The analysis of perfectly competitive markets provides the foundation of the theory of supply and demand. If the tramp market were *perfectly* competitive, one would expect to see the fulfilment of the four parameters described below, namely atomicity, homogeneity, perfect and complete information and equal access. We have tried in this Report to examine whether this is true both as a general proposition and in relation to each identified economic market within the tramp sector as a whole. However, it is important to note that the tramp market can still be competitive, without being *perfectly* competitive. In other words, failure to fulfil every item below does not indicate an uncompetitive market.

68. Broadly, the market for tramp vessel services is created by the demand for the transport of cargo between ports or broader geographical areas. The main distinction in term of supply side capacity is between vessels designed for carrying dry bulk products, vessels (tankers) designed for carrying liquid bulk and vessels which are purpose-built to carry neo-bulk. Some specialised vessels are designed to carry specific cargoes in the most efficient way. Within each of these broad categories, however, are specific vessel sizes and types that are better suited than others to specific services, although substitution between the different vessel sizes and types takes place depending on market circumstances. For certain commodities, vessel size can be limited because of specific features of the commodity that give rise to specific physical requirements, such as refrigeration for perishable products, tank lining for corrosive chemicals, specific equipment for loading and discharging depending on the nature of cargo. Broadly speaking, therefore, specialised vessels have been developed to handle specific cargoes. This is true for the neo-bulk market, but specialised vessels have also been developed for the carriage of LNG and LPG, and specialised chemical carriers (known as "parcel tankers") for chemical products. The detailed analysis of the supply side and demand side distinctions is discussed in Chapters 3 and 4. At this point the analysis is limited to some general comments about the interplay between supply and demand in each of the principal markets.

69. In the liquid bulk market, owners of tankers intended for transporting clean petroleum products tend to avoid carrying dirty products. This is because they cannot after carrying dirty products carry clean products without some cleaning. Depending on freight levels and expectations for future freight rates, clean petroleum tankers from time to time will be seen entering the dirty trades. Furthermore, a certain proportion of the Very Large Gas Carriers (VLGCs) are able to transport light petroleum products (*e.g.*, Naphtha and Gasoline). In periods with low gas carrier freight rates, these vessels may be seen trading in the clean petroleum market. Crude oil exports from West Africa are mainly carried in Aframaxes, Suezmaxes and Very Large Crude Carriers (VLCCs). However, as market conditions change, two Suezmax cargoes may be put together and transported on a VLCC. If, on the other hand, VLCC freight rates reach a certain level, the charterer may split the cargo into two and ship it on two Suezmaxes. There is, in other words, a market-clearing at a certain freight level leading to a migration of demand between the two size segments.

70. The situation is similar in the dry bulk markets. Demand for transportation migrates between the size segments from time to time depending on market levels. Charterers may have some flexibility in the choice of discharging ports, but a limited choice with respect to loading ports. This is more usual than having a greater choice of load ports against discharge ports. As long as shipboard cargo handling gear is not required, any bulk carrier can carry any bulk commodity, subject to the physical restrictions of the ports involved. All Panamax bulk carriers can enter ports that Capesize bulkers can enter. As an example, the majority of iron ore and coal cargoes tend to be carried in Capesize or Panamax bulkers, sometimes being split into smaller lots due to high freight rates for the larger size ships.

71. Seabourne transport of cars and other vehicles is normally done by PCCs and PCTCs. However, these vessel types face competition from (deep sea) ro-ro carriers and reefers. There has traditionally been a fairly large trade in used cars from Japan to New Zealand and Australia (right hand drive cars), carried by reefers as a backhaul trade into their traditional loading areas.

72. For reefers, there is strong competition from container ships. Thus, any freight increase for specialised reefers would immediately lead to further competition from container carriers.

73. By preference forest products are shipped in bulk carriers with wide open hatches and box-shaped cargo holds (Open Hatch Bulk Carriers: “OHBC”'s). Forest products are in addition shipped in straight bulk carriers, containers as well as in ro-ros.

74. Perfect competition requires the following four parameters to be fulfilled: atomicity, homogeneity, perfect and complete information, and equal access in response to customer needs. In such a market, prices would normally move instantaneously to economic equilibrium.

1.3.2.1 Atomicity

75. Atomicity is a feature of a market in which there are a large number of small producers and consumers, each so small that their actions have no significant impact on others. In the context of this Report the producers are the ship owners or operators, the consumers are the charterers, and the commodity consists of a given category of transportation service.

76. At the start of 2006, the world's total merchant fleet comprised about 38,000[76] vessels of 300 GT (gross tonnes), or more. This figure excludes passenger and special ships (offshore auxiliary vessels, fishing boats, naval support vessels, dredgers, *etc*) but includes container vessels.

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76 Shipping Statistics and Market Review, Jan/Feb 2006, ISL (Institut für Seeverkehrswirtschaft und Logistik), Bremen at p. 42.

According to Clarkson's[77], about 26,000 of these vessels were controlled by almost 5,000 companies. An analysis of these figures shows that almost 90% of the companies control less than 10 vessels; on average they each control less than three vessels.

77. It is more difficult to count the number of cargo owners. However, in each transaction involving transportation there are always (at least) three potential customers. If the seller, or his agent, sells the cargo C&F[78], he thereby takes responsibility for the transportation. If the buyer, or his agent, buys FOB[79], he takes responsibility for the transportation. Alternatively, if the transaction is carried out through an intermediary, a trader, he may take care of the transportation. Thus, theoretically, there are several thousand potential customers.

78. Furthermore, the "producers" can also become "customers" in the tramp markets. A shipping company may have entered into a CoA and for one, or more, cargoes they may decide to charter in a vessel from the market. This may be for any number of reasons, including that they do not have any of their own ships in position for meeting their obligations under the contract. Or, it may be the result of a shipping company having made contracts for several cargoes, which they intend to transport on one ship (as each parcel is too small to fill a single ship or it is uneconomical to do so).

79. As an example, we looked at spot fixtures done in 2005 on tankers and dry bulk carriers: in total, more than 17,000 individual fixtures[80]. The consultants do not have a complete list of all fixtures concluded, but we believe the number is sufficient to provide representative results. These transportation contracts were concluded with 778 different charterers. According to the data, the single largest customer, BP, fixed 682 cargoes, or 3.9% of the total volume. 483 of the customers fixed five, or fewer, cargoes during 2005. This represents 62% of the charterers.

80. The more "sophisticated" (parcel) chemical tankers may have up to 52 individual cargo tanks. It is not uncommon for such ships to have 52 different consignments, or parcels, of cargo on board with 52 different charterers. In fact, it is not unusual to find that two different charterers, shipping the same product, share one tank. Thus, the ship may have more than 52 consignments and charterers on one single voyage.

81. In some trades, *e.g.* the iron ore trade, the natural resources are controlled by only a handful of companies, but the demand side is also concentrated. The global seaborne trade in iron ore was approximately 670 million tonnes in 2005. Out of this, three companies (CVRD, BHP, and RTZ) were responsible for almost three quarters of the volumes annually shipped[81]. However, these companies appear to have relatively little control over sea transport. The consultants' estimates indicate that the share of C&F sales represented about 10%, 30%, and 40% respectively of each company's total (export) sales. In other words, they together controlled only about 17% of the chartering. The balance of their exports is controlled by their customers who, basically, comprise the global steel industry. Thus for this cargo the market is supply side concentrated and although the market as a whole should not be described as atomistic, the sea-transport element appears is competitive.

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77 The Tramp Shipping Market, Clarkson Research Studies, April 2004 at p. 2.

78 Cost and freight.

79 FOB: Free (to the ship owner) on board (the vessel).

80 Fearnleys fixture database. These 17,000 fixtures covered a fleet of 4,762 vessels.

81 UNCTAD: The Iron Ore Market 2005-2007, May 2006, at p. 49.

1.3.2.2 Homogeneity

82. Homogeneity means that goods and services are perfect substitutes; that is, there is no product differentiation.

83. Hypothetically, this is correct in the sense that all ships of similar types can offer similar services[82]. However, there will most likely be a differentiation in price. For instance, oil exports from the Middle East Gulf to India are shipped in tankers between 10,000 dwt and 320,000 dwt. As freight per unit of cargo declines with increased ship size (economy of size), the ship owner's total costs increase with size. Furthermore, in most tramp shipping markets, age tends not to be a major factor in determining price, although charterers will aim generally for the newest available vessel. That means that an older and cheaper vessel may earn the same, or not too much discounted, freight rate as a modern vessel. The running costs of an older vessel, taking into account extra insurance (which the vessel's owner arranges) are higher. Furthermore, time charter hire levels tend to reflect the lower (total) cost to the Charterers of chartering a more modern and efficient vessel. In particular, modern vessels normally have better fuel efficiency, are faster and carry more cargo for a given size. Bunker costs are the responsibility of the time charterer, unlike with voyage charterers (where the cost of the bunkers is paid by the owners (from the freight received)). Charterers may therefore be prepared to pay more for modern tonnage by way of charter hire. There may also be opportunities to negotiate discounts for older vessels, depending on the state of balance between the supply of ships and demand for them at any one time.

84. The only striking exception to this is that in late 2005 a two-tier freight regime developed for the largest oil tankers carrying oil from the Middle East Gulf to East Asia. The differential in freight is not directly linked to age, but more with the fact that large tankers with double hulls are preferred.

85. For certain products we also observe that there is substitutability between different ship-types. For example, forest products are carried in both ro-ro carriers and OHBC's and, to a certain extent, (used) cars are carried onboard both car carriers and reefer vessels. Further, chemical carriers transport refined oil products as well as chemicals, and certain clean petroleum product tankers carry some types of chemicals.

1.3.2.3 Perfect and complete information

86. For the tramp shipping market this is very largely true. For the large bulk commodity markets (dry bulk and liquid bulk) price information is available from a variety of sources to owners and charterers on a continuous basis. Most shipbrokers provide daily and weekly assessments, as well as daily reports, covering individual fixtures concluded. Minute by minute information is available to clients. Furthermore, the Baltic Exchange publishes daily reports covering over 64 individual routes for tankers, bulk carriers, and gas carriers. In addition, they produce seven indices based on freight assessments.

87. For more specialised types of vessels, information on prices (freight) may be less readily available[83]. However, some shipbrokers operate in specialised shipping segments that monitor and regularly assess freight conditions. This information is not always published, but is often available upon request. It also requires those looking for such information to know whom to ask. Again, a key role of the shipbroker is to track vessels, cargoes, and freight rates paid/accepted using all available sources, and use the information to enhance business for their clients.

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[82] For a detailed description of vessel sizes and types by commodity, please see Section 1.3.3.

[83] As will be seen in Chapter 5, freight data could not be obtained for the purpose of this report for the reefer market.

1.3.3 *Different Sub-Market Segments In Response To Customer Needs*

88. The tramp shipping industry has always been flexible enough to respond to the changing demands of its customer base. This can be seen in all markets, and in the development of specialised vessels to service a particular trade. Most of the changes tend to be evolutionary rather than revolutionary.

89. In terms of the key landmarks over the last 150 years or so, it is worth singling out the introductions of bulk liquid tankers (the "tanker" GLUCKAUF in 1886), the replacement of sail power vessels by steam powered vessel, and later diesel powered ships, and the introduction of the standard cargo container.

90. In terms of new ship types, the principal four are the Pure Car Carrier (PCC), later extended to the Pure Car and Truck Carrier (PCTC) for carrying cars and trucks; the Open-Hatch Bulk Carriers (OHBC) for the forest products industry; parcel tankers for small consignments of sophisticated chemicals; and liquefied natural gas carriers (LNG) for that specific trade.

91. Within the same ship type there has been a general evolution towards larger ships. These larger vessels often have lower costs per unit of cargo. The logic is that larger vessels will reduce freight per unit of cargo and ease port operations as fewer calls are needed for importing a given volume of cargo. This is most evidently seen in the large cargo volume markets such as coal, iron ore, and crude oil.

92. In order to build up a more scientific picture of the degree of interchangeability between different commodities and products within a given type or size of vessel, the consultants carried out an analysis of trading patterns for vessels in the tramp shipping market. The data for this analysis came from Fearnley's tracking activities for bulk carriers, combined carriers, and tankers. Since 1961 they have tracked all vessels of these types and larger than a certain size (originally 18,000 dwt – nowadays; 50,000 dwt). The tracking was based on movement data provided by Lloyds Maritime Intelligence Unit. From this it is possible to identify what commodity a vessel has loaded, the quantity, and the port(s) where the cargo was discharged. Normally this information is used to estimate demand for ships and analyse trade structure. In this section we have extracted the relevant data to show the interchangeability between commodities and products.

1.3.4 *Competition Between Sub-Markets For Cargo in Terms of Vessels*

93. Chapter 5 of this Report examines in more detail the extent to which vessels of different types and sizes can be substituted for each other to meet demand for the carriage of specific cargo. Even where specialised vessels have been developed to meet the requirements of a particular cargo type, they can also be used for other cargo, e.g. reefer ships are used to carry new or used cars from the Northern Hemisphere to the Southern Hemisphere on their "backhaul" routes. In some cases the substitution may occur mainly in one direction, e.g., it is easier to utilise a tanker trading with clean petroleum products in the dirty petroleum product trade than the other way around. As explained earlier, owners and charterers aim to optimum the size of the vessel depending on what alternatives in the market are available for each of them at the relevant time: this can make it economic to split large cargoes to be carried by more than one ship. Where the size of vessel used is too large to allow it to call at the load or discharge port, lightening takes place, *i.e.* the cargo will be transhipped to or from the mother ship to or from the shore by "lighters" or smaller vessels. It is therefore possible to get economies of scale when using a larger vessel even where a port is not able to physically accommodate the ship.

94. A division between size-dependent sub-markets is quite normal for the bulk markets. The choice of size of ship is usually determined by the volume of cargo the buyer wants and the physical (and/or operational) restrictions in ports. Nevertheless, smaller vessels can often compete with

larger vessels due to differences in trading patterns. Smaller vessels, due to versatility, can combine voyages and, hence, reduce the time in ballast and therefore increase earning days. As a result, the operators of such vessels can be competitive with freight rates for one or more voyages in the combination trade, and subsequently compete with larger vessels unable to utilise combination opportunities.

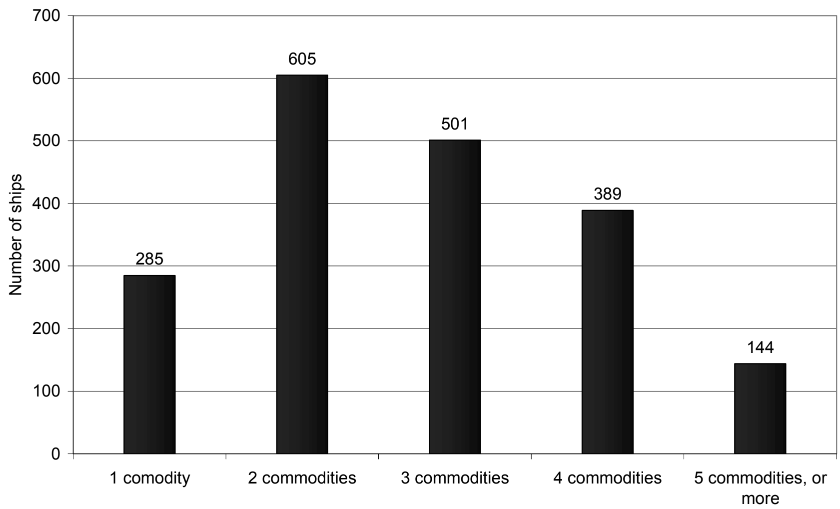
95. We also observe the opposite substitution from time to time. One example is seaborne trade in steel. Usually, steel is carried in geared bulk carriers, since the loading and/or discharging often require vessels with cranes. However, in certain trades the ports in question are modern with shore based cranes and charterers can benefit from "economy of size" using, say, Panamax bulk carriers, thereby reducing freight rates paid per unit of cargo. However, the charterer has to include rental of shore-based cranes (added costs) whereas the usage of ship-based cranes is normally covered in the agreed freight rate.

96. There is also substitution between different ship types. The clearest example is probably the combined carrier. There are two main types: OBO (Oil-Bulk-Ore) and OO (Ore-Oil). These are vessels specially constructed for the carriage of both liquid and dry bulk commodities (albeit, not simultaneously) and can therefore compete in most bulk commodity trades. The design had its glory days in the 1970s with a brief spell in the 1990s. The concept, brilliant in theory, has never really proved commercially attractive, as most vessels trade most of the time in dry bulk, and there is very little switching between dry bulk and liquid bulk.

97. Other sub-markets where different ship types frequently compete are multi-purpose carriers and ro-ro carriers for non-containerised break bulk cargo (oversized cargo not suitable for putting into an ISO container, but can be either rolled on/off the ship, or lifted on/off the ship). Deep sea ro-ro carriers compete with PCTCs (Pure Car and Truck Carriers) for non-vehicle cargoes. Petroleum product carriers and chemical carriers may compete for clean petroleum products (e.g. gasoline and naphtha). And OHBC's and multi-purpose carriers may carry containers, thus competing with container vessels, and reefers and car carriers may both carry (second hand) vehicles.

98. Studies were made into cargo (commodity) interchangeability. Based on 1,924 dry bulk vessels trading in 2003, vessels carrying only one type of commodity through the year, vessels carrying two different commodities during 2003, *etc* were grouped. As can be observed from the table below, less than 15% of the fleet carried only one commodity during 2003. Almost 54% of the fleet carried three different commodities. Of course, the largest dry bulk vessels generally trade in two commodities only (iron ore and coal), and Panamax vessels which are clean for grain cargoes may prefer to avoid "dirtier" cargoes between grain cargoes.

Number of Bulk carriers broken down by the number of different commodities carried in 2003



Source: Fearnleys (2006)

1.3.5 *Volatile And Unpredictable Demand*

99. The sea transport cost in the tramp vessel markets is the price paid by the charterer or other recipient of the sea transport service. In essence this will either be the "freight", for moving a specific quantity of a specific cargo between two named ports, or the "hire", for having use of a vessel for a period of time. The freight is usually expressed as a price per unit of cargo carried between two ports, whereas the hire is usually expressed as the daily rate paid for the use of the ship.

100. In order to facilitate comparison of freight rates and hire, the industry usually calculates from the freight rate the "time charter equivalent".

101. Spot rates, either freight or hire, are prices agreed for voyages or time charters which are to commence immediately. They are a useful guide to price movements in all parts of the industry, even where a price is agreed for a time charter extending some way into the future, or for charters commencing not immediately, or for CoAs. The starting point which both buyers and sellers will have in mind will be the prevailing spot rates, and the parties' expectation of future spot levels.

102. The demand side is volatile for several reasons and can impact the market equilibrium significantly. Energy commodities such as coal and crude oil are relatively homogeneous in quality. Crude oil is usually sold on the basis of a reference quality (like Dubai Light, Brent Blend, or WTI[84], *etc*.) with a discount or premium paid in accordance with the quality of the crude oil cargo in question. Similarly, coal is usually priced according to a fixed specification (calorific value, ash content, sulphur, *etc*.) and the coal cargo in question is priced with a discount or premium to the relevant price. Thus, potential buyers of both crude oil and coal have a multitude of sources to import the cargo from. Furthermore, as these are trading commodities, the cargo can change hands several times en route to the final destination. Thus, depending on the FOB price, premium/discount to the reference price, and freight, an oil company or a power utility can change the trading pattern rapidly if they find that, in the case of coal, it is better to buy in New South Wales rather than South Africa, or Russia. In addition, a coal exporter in New South Wales might have reasons to increase exports to Europe, for example, and could decide to sell a million tonnes over a relatively short period. This will be at the expense of other exporters, e.g. Russia, and it will impact the market equilibrium in both the Atlantic and the Pacific basins.

103. The supply side is usually capable of responding quickly to changes in demand through, *inter alia,* adjustments in the spot freight rates.

104. Spot freight rates are by nature highly volatile and the difference between troughs and peaks can in some sub-markets be extreme. This can be exemplified through a comparison between the DJIA (Dow Jones Industrial Average Index) and the BDI (Baltic Dry Index). The BDI is an index based on rate assessments of 24 different dry bulk routes covering several commodities and sizes. The BDI is calculated on a daily basis based on fixtures concluded. During a 5-year period starting January 2000, the DJIA changed less than 5% over any given one-month period for 73% of the time. The corresponding figure for the BDI is 46%. During this period, the DJIA changed less than 10% (over a month) for 94% of the time and never more than 20%. The corresponding figures for the BDI were 70% and 10%. For the remaining 20% of the time the BDI changed between 10% and 20%.

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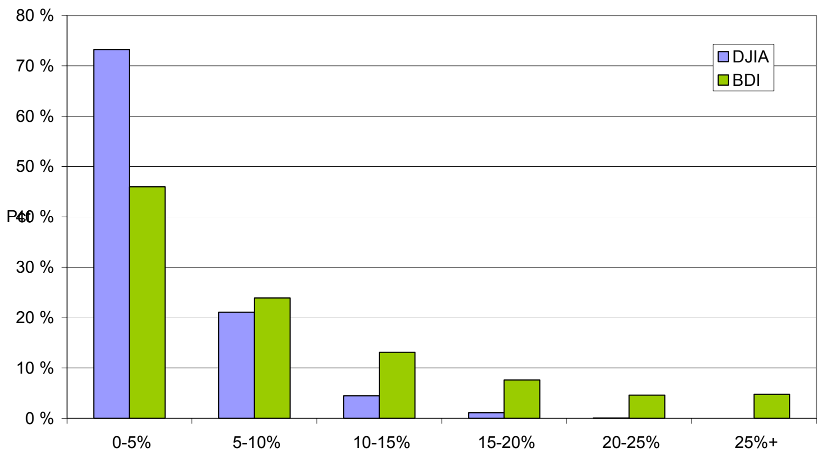
[84] Western Texas Intermediate.

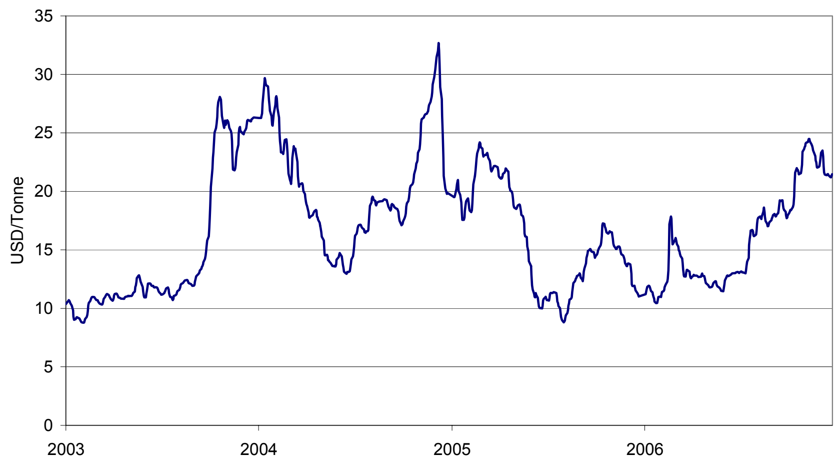
Monthly change in Indices (January 2000- May 2005)



Source: Fearnleys (2006)

105. It should be noted that, since the BDI is based on a basket of rates, individual routes may be even more volatile. For instance, the Capesize route for coal from South Africa to Rotterdam has changed more than 20% over a one-month period for almost 23% of the time during 2000-2006 (August). The most extreme change was in early autumn 2003 when this freight rate rose 133% during a six-week period.

150 000 mt Coal Richards Bay - Rotterdam



Source: Fearnleys (2006)

106. In the short term, the global supply of transportation capacity is essentially fixed, in the sense that the capacity for turning out new ships from shipyards is relatively steady and it takes a long time from contract to delivery for a newbuilding project. At the same time, ships are sold for demolition, or for permanent conversion to, e.g., offshore oil units. Thus, the net growth in the fleet is generally quite low – typically 0%-7% p.a., and the supply side is fixed within relatively short periods. This leads to a so called shipping cycle, see Chapter 5 of this Report.

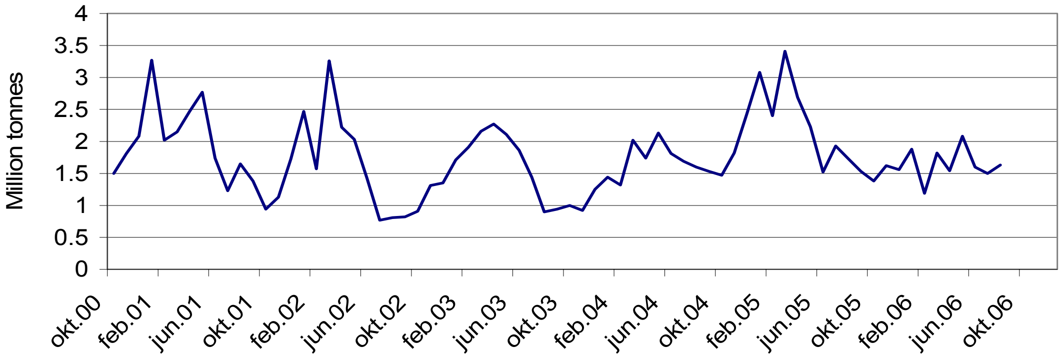
107. For defined regions, or loading areas, the situation can be different. There may be a shortage of tonnage available in one area and, at the same time, a surplus in another area. This imbalance will

impact freight levels temporarily as the market seeks equilibrium again. However, it is important to note that the aggregate market will reach equilibrium, an important sign of a competitive market.

1.3.5.1 Seasonality

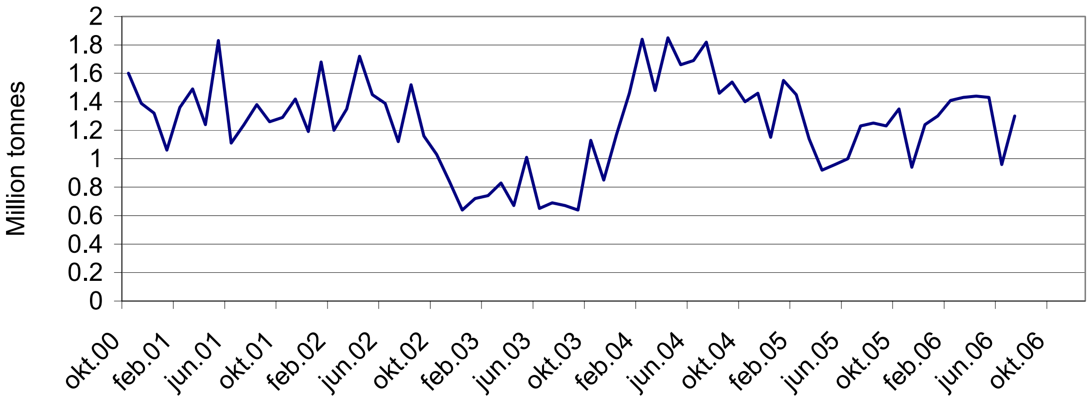
108. Of the major bulks, there are no major seasonal elements for iron ore, coal, bauxite and alumina. Grain is the only major dry bulk commodity in which one can observe seasonal differences in production.

Argentina's Grain exports (Monthly)



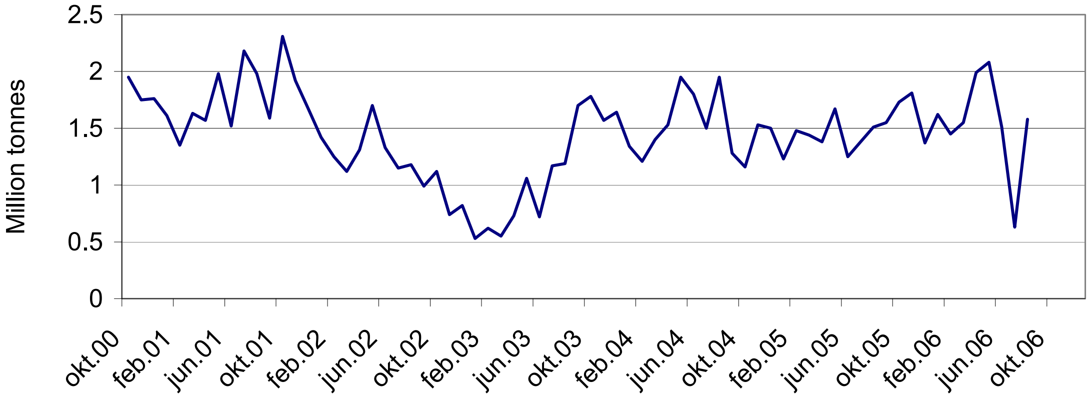
Source: IGC/Fearnleys (2006)

Australia's Grain Exports (Monthly)

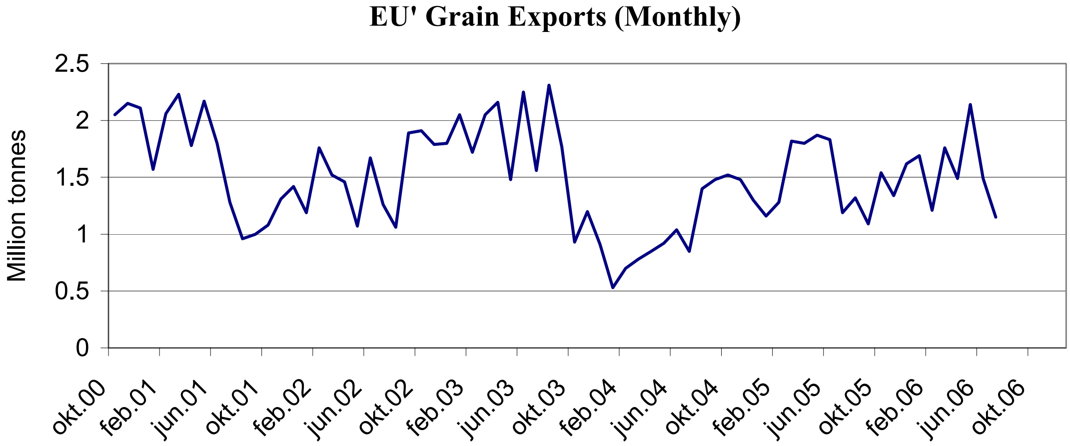


Source: IGC/Fearnleys (2006)

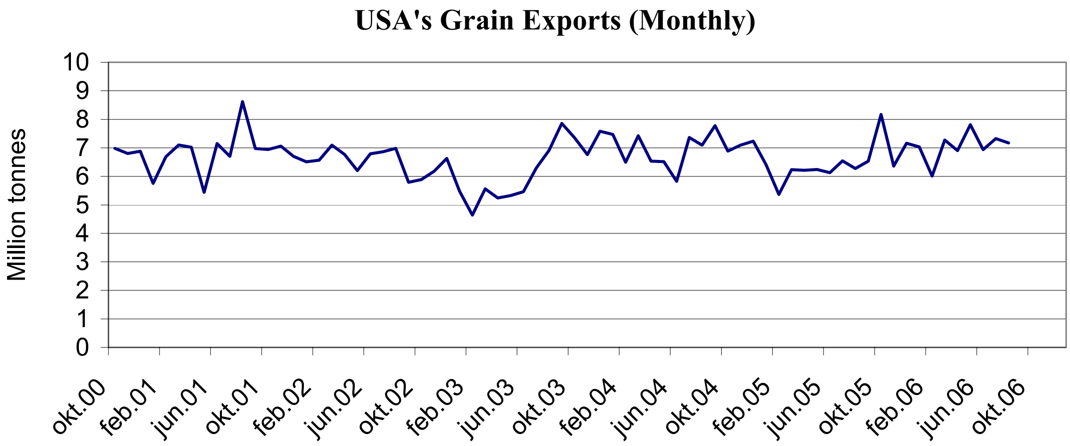
Canada's Grain Exports (Monthly)



Source: IGC/Fearnleys (2006)



Source: IGC/Fearnleys (2006)



Source: IGC/Fearnleys (2006

109. In the "grain-market" we observe two dominant factors: the harvest period in the Southern hemisphere and the harvest season in the Northern hemisphere. The former, usually harvesting during the first quarter of any year, leads to what often is called "the Plate Season". That is, exports increase dramatically from southern Hemisphere ports – including those in the River Plate- during the second and third quarters of a year. For the Northern hemisphere, represented predominantly by North American exports, the season is the fourth and first quarter of any year. The exports from the two areas are counter-cyclical and this can impact the market for a short period of time.

1.3.5.2 Climate and Weather

110. All parts of the world are impacted by climatic changes; whether it is freezing cold during the winter periods (November-March in the Northern hemisphere, June-September in the Southern hemisphere), monsoon season in South Asia during July-October, hurricane season in the Caribbean (June-November) or Typhoon season in South East/East Asia in June-November). As the temperatures and precipitation change during the year, the crop seasons vary around the globe. So to do needs for increasing inventories change as a result of ports and harbours becoming inaccessible due to various weather conditions, such as high surf in India or, in other parts of the world, ice. Shipments of cargo ex parts of Canada stop during the winter due to the freezing of the Great Lakes and the St Lawrence Seaway. Similarly, Indian iron ore exports decline sharply during late summer due to the monsoon.

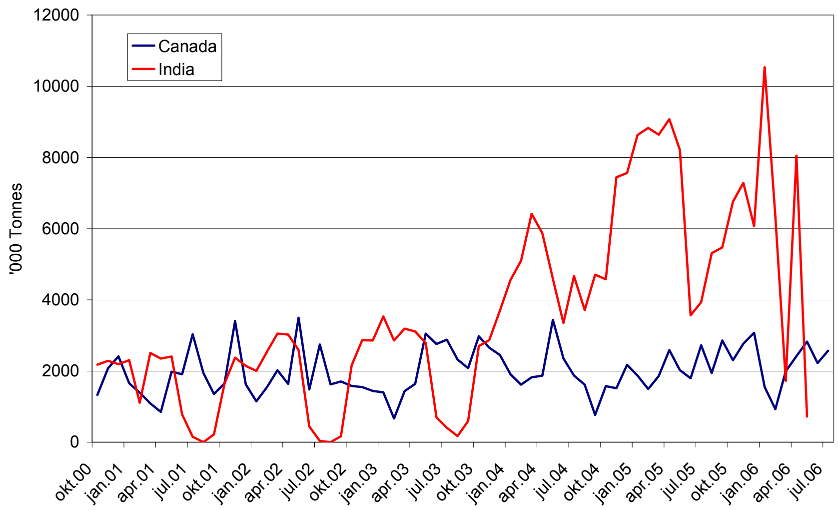
111. Climatic conditions also play an important role and impact the demand side in the shipping markets (especially for dry bulk and tanker markets, but they also have a certain impact in other sub-markets as well).

112. In the crude oil trades we observe climatic conditions impacting the demand for tankers. When Russia started operating their export terminal in Primorsk in the Bay of Finland, ice conditions during winter became an issue. Periodically, ice conditions can be quite severe, making some ports unavailable, and reducing demand for shipping services.

113. Demand for oil, for heating, often increases during the northern hemisphere winter. The demand is particularly led by Europe and part of the USA.

114. As a large proportion of all dry bulk commodities moved by sea is linked to construction activities, such activities traditionally decline during the winter in the Northern hemisphere. This impacts on, amongst others cargoes, demand for cement and steel. Hence, demand for transportation of these traditionally declines during the winter. This is a regional phenomenon, as steel will continue to move regularly in areas not affected by winter conditions (like those experienced in North America and Northern Europe).

Iron ore exports - Seasonality



Source: Fearnleys (2006)

115. In recent years, following a strong increase in Indian exports, the seasonal fluctuations impact the market considerably.

116. All crop commodities are periodically impacted by the weather. A very good example was hurricane "Mitch" in 1998 when most of the year's banana crop was destroyed, effectively pulling the plug on the reefer market. In both 2004 and 2005, hurricanes (Ivan in 2004, Katrina in 2005) wreaked havoc and impacted demand for tanker transportation dramatically. Following Katrina in 2005, import demand for gasoline in the USA soared and transatlantic product tanker freight rates rose almost by the hour, and trebled over a fortnight.

117. Trade in certain commodities is usually not impacted by weather and climate as they move regularly during the year, and the usual ports involved are generally less affected by poor weather. The cargoes are, for instance, cars and other vehicles, steel, and some forest products.

1.3.6 *Many Small and entrepreneurial companies*

118. Most ship owning companies are quite small, usually owning less than five vessels. Also, they often own different types of vessels. The following table gives details of the number of vessels owned by each ship owning company in a selection of tramp shipping segments.

	Number of owners	1 ship	2-4 ships	5-9 ships	10 ships, or more
Oil tankers	934	349	307	123	155
Share (%)		37	33	13	17
Bulk carriers	1460	521	493	245	201
Share (%)		36	34	17	14
Gas carriers	442	198	122	65	57
Share (%)		45	28	15	13
Chemical tankers	897	401	264	124	108
Share (%)		45	29	14	12
Car carriers	164	103	37	11	13
Share (%)		63	23	7	8

Source: Clarksons Ship Register (2006)

119. It can be observed that at least 36% of the owners within each segment own only one vessel; while around 70% own less than 5 vessels.

1.3.7 *Global Trading Patterns*

120. The trading patterns are presented for each commodity in Chapter 2 and are further elaborated upon in Chapter 5.

1.3.8 *Ease of Entry and Exit*

121. There are a number of possible barriers to entry for a new player joining the tramp shipping market. The first is capital, the second is time, the third is management and the fourth is technological. Despite the fact that new and second hand vessels cost several million USD, finance is generally available in the shipping market.[85] It is, therefore, right to assume that any new player interested in entering the market will, with collateral, be able to obtain the necessary finance to purchase a vessel or vessels. The active financing market effectively mitigates the capital cost barrier to entry in the tramp market. The principal forms of ship finance are discussed at section 1.9 of this Report.

122. Finance for vessels may be acquired even though one has no proven track record of management capabilities, neither technical nor commercial. Both these functions may be outsourced to third party companies, such as Barwil or V Ships.

123. The minimum efficient scale of operation is determined by the level of service one aims to provide. Given that one aims to compete with the largest operators in each relevant market, a useful benchmark might be the size of the fleets which they control. The alternative for a single ship owner, regardless of the minimum efficient scale, would be to put the vessel in a pool, and thus be part of a larger and more efficient organisation.

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85 See discussion of the role of financial institutions in section 1.9 below.

124. A pool may further reduce the barriers to entry, as a pool can offer an owner a long term time charter, with the potential for a profit share in addition to hire, and which secures a steady source of income for the vessel.

125. Time is a potential barrier. An active second hand market for the desired ship type is necessary for a new player to enter immediately. Without an active second hand market, new vessels must be ordered, and market entry may thereby be delayed by several years. The activity in second hand markets is described further below.

126. The global merchant fleet has expanded substantially over the past ten years and is set to continue to expand considerably in the coming three years. As a result, employment opportunities for seafarers are good. Many ship owners and operators are concerned about the future supply of both officers and crew. Many shipping companies, as well as third party ship management companies, have established crewing offices as well as academies for educating seafarers and officers in order to secure a steady supply of seamen. A company entering the shipping market (irrespective of segment) may find hiring a good crew an obstacle, but this is not so much a barrier as a hindrance. Furthermore, national flags and cabotage trades normally require a full crew of nationals from that country.[86] For example, shuttle-tankers operating in the North Sea between off-shore loading facilities in the Norwegian sector and Norwegian ports have to be registered in the ordinary Norwegian registry (as opposed to the Norwegian International Registry) and crewed by Norwegian nationals. In a situation where the number of Norwegian crew and officers is decreasing, this may delay entry.

127. New entry into the sector does, of course, require specialist assets and resources to be acquired or developed. These do not amount to barriers to entry in the economic sense, but do represent initial investment costs. For example, costs are generally higher for entering the chemical tanker, reefer, and gas carrier trades as a ship owner. These ship types are quite sophisticated. The operation of chemical tankers requires skilled crew capable of avoiding contamination and spillage of cargo; reefers require highly skilled crew to operate complex cooling plants and maintain required temperatures in cargo holds; and gas carriers require skilled crew for operating the cooling plant. Thus, there may be some issues in finding sufficiently skilled crew to operate a ship.

128. To become a major player in one of the more industrialised market segments (chemicals or car carriers) requires of a lot more than having the equity to buy the required number of vessels. A player needs, amongst other features, organisation, (IT) systems, human resources, customer relations, preferably a track record, and sufficient cargo coverage. But these are not essential when buying one ship, or a handful of ships, as investors can operate as pure tonnage providers to the major shipping companies in the various segments. As a parallel, German "KG" companies and at least one bank have for decades been tonnage providers to, especially, the container liner shipping companies without having any organisation or systems for operating as liner companies. We observe today that the KG-houses are moving into traditional tramp sectors using the same model for owning.

129. There are different operating costs depending on the market, customers and ships involved. For example, it is common today that oil companies (like BP, Shell, Exxon, *etc*.) vet the ships they take on charter. This means that technical inspectors of the oil company physically inspect the ship and the procedures employed onboard, and approve/disapprove the ship in accordance with their standards. If a tanker, having "oil major's approval" (as it is often referred to) is sold, the ship automatically loses all such approvals. This means that the new owner is barred from fixing his vessel to, for example, BP until BP has inspected the vessel and approved it. Even if the vessel is

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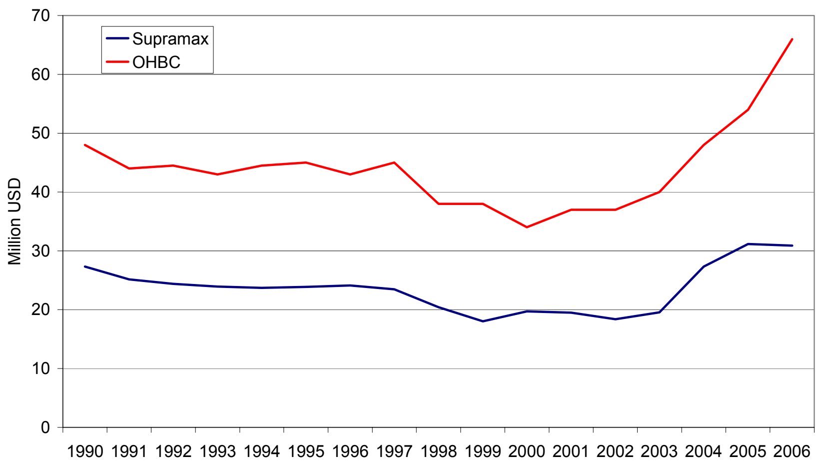
86 Within the EU, as stated, cabotage has now been entirely liberalised and no discrimination is allowed between EU nationals and EFTA nationals.

sold to a company already owning a number of ships approved by BP, the newly acquired ship will not automatically be approved. Thus, the company that purchased the ship has no other option than to fix it with companies not requiring vetting until the ship is inspected and approved.

130. OHBCs are quite expensive vessels, but in general the newbuilding prices correlate quite well with Handymax/Supramax bulk carriers. The following chart shows the newbuilding prices for a "state of the art" OHBC compared with straight bulk carriers of a similar size:

OHBC Newbuilding Price



Source: Fearnleys (2006)

131. On average, the newbuilding cost for an OHBC has on average been about USD20.5 million higher than a straight bulk carrier of the same size. The main reasons for this difference are:

- The cost of cargo gear. Gantry cranes are significantly more expensive than jib cranes.
- Hull construction. All OHBC are of double hull construction. That is, double sides and double bottom requiring increased steel consumption, more coating (paint) as well as more labour-intensive construction.

132. It should be noted, however, that the reference vessel used for pricing of OHBCs has increased in size from 1990 to 2006. In the earlier part of this period the typical OHBC was 42/43,000 dwt whereas the standard ship today is about 52,000 dwt.

133. The production technologies in this context are the ships themselves. The theoretical basis for constructing ships is of course available to anybody. However, specific ship designs must be considered proprietary technology. This technology is owned either by the shipbuilders or by ship design companies. However, as a potential customer of a shipyard there are, in the experience of the consultants, no restrictions or limitations to ordering any ship of any design. As long as the potential customer can prove his ability to carry out his contractual obligations (primarily that he is able to pay for the ship), shipyards is willing to offer any type of ship as long as it is within their capabilities to deliver.

134. Thus, there is equal access to the production technology for anyone.

135. The minimum efficient scale of operation is determined by the level of service one aims to provide. Given that one aims to compete with the largest operators in each relevant market, a useful

benchmark might be the size of the fleets which they control. The alternative for a single ship owner, regardless of the minimum efficient scale, would be to put the vessel in a pool, and thus be part of a larger and more efficient organisation.

1.3.9 *Cost effectiveness*

136. It is generally claimed by the industry that it is very cost effective. This must be qualified.

137. Spot freight rates in the tramp markets are in general quite volatile, and it has been known for certain segments to see changes of more than 25%, up or down, during the course of one month. Despite this volatility, there is a long term downward trend in the ratio between freight costs and values of the products transported. Clarksons[87] argues that, on average, transport costs have declined by 80% in real terms during the second half of the 20th century.

138. During this period there have been several "shocks" to the market which had a considerable impact on the freight markets. These include the Korean War in the early 1950s; the Suez crisis in 1967, the closure of the Suez Canal in 1973, *etc*

139. As long as a vessel is operating, it must be assumed that it receives revenue which is above the total costs for running the vessel. The alternative to running the vessel is to put it into lay up, or scrap it. A reasonably reliable measure of the running costs against the freight market for a given type of vessel may be the revenue required which would stop shipowners deciding to put their vessel into lay up.

140. In practice age/cost differentials and economics of scale have worked together. Regarding cost effectiveness, a modern VLCC crude oil tanker of 320,000 dwt requires only the same number of crew as an Aframax (80,000 dwt) crude oil tanker, and uses only about half as much fuel per deadweight tonne. Similarly, for dry bulk carriers the annual running cost per deadweight tonne for a ship of 170,000 dwt is about one third of a 30,000 dwt vessel. Thus, the increase in vessel size has led to vessels becoming more cost effective, and the transport cost per tonne decreases proportionally with the increase in vessel size.

141. Economies of scale in shipping occur as the size of the fleet which the operator has at is disposal increases. Under the assumption that a given volume of goods is to be transported between a number of ports, a larger fleet can reduce ballast legs due to better ability to schedule the sailings compared to a single ship operator. Furthermore, if the supply of goods to the loading port is not evenly distributed over time, a system of several ships improves the service to the shippers as the waiting time for the next ship to show up will be shorter compared to a single ship owner.

1.3.10 *Responsiveness to development of market and shipper's needs*

142. In the post-War period, one of the key issues was how to build larger ships. Modern welding technology was in its infancy during the war and the late 1940s. This technology rapidly improved during the 1950s, and combined with improved vessel construction technology and steel qualities enabling larger structures to be built. For bulk commodities (oil, grain, iron ore *etc*.) the size of shipments has always been important, and large shipments bring about freight benefits per unit of measure. Thus, when the technology was available, ship-sizes increased rapidly.

143. One example is oil tankers which, in general terms, had a cargo capacity of less than 50,000 dwt in the late 1950s (albeit with some notable exceptions). Already in the second half of the 1960s, the

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87 Clarkson Research Studies,"The Tramp Shipping Market", April 2004, p. 3.

VLCC had emerged having a cargo capacity in excess of 200,000 dwt. Dry bulk carriers followed a similar development.

144. During the same decade, Japan evolved as a major exporter of, primarily, passenger cars to the US and European markets. As a result, shipowners converted bulk carriers to "car-bulkers", or contracted such newbuildings. These were bulkers fitted with a large number of hoistable/retractable decks in the cargo holds on which they could carry cars. Thus they could for example, carry coal from the USA to Japan, and cars back to Europe/the USA.

145. This solution was time consuming and the risk of damage to the vehicles was high resulting in the development of pure car carriers (PCC) in the early 1970s. These ships were dedicated to the transportation of passenger vehicles and as such had maximised the number of decks. This reduced their flexibility when the market demanded larger cars, mini-buses, and in recent years, SUVs. As the deck heights were fixed, the ship owner had little flexibility in meeting the car manufacturers' demands. This resulted, around 1980, in the development of the pure car and truck carrier (PCTC) which featured a number of hoistable decks as well as different heights in between the fixed decks. As a result, the ship owner now had the flexibility to meet almost any mix of passenger cars, vans, mini buses *etc*. the car manufacturer needed to transport. During the same period the size of the ships increased as well.

146. We have also witnessed a similar development for the OHBC's. In the 1960s, when US and Canadian paper and pulp exports took off, careful and effective cargo handling became an important issue as both paper and pulp are sensitive products. Both products are sensitive to humidity and paper is in addition very sensitive to physical impact. Furthermore, a need for quick loading and discharging was required. This resulted in the development of the box-shaped bulk carrier; that is, the shape of the cargo hold is boxed. Furthermore, hatch-openings have the same size as the bottom of the cargo hold. By the combination of these two features one is able to load the cargo directly into the place in the hold where it will stay during the voyage. In ordinary bulk carriers, or multi-deck vessels, one traditionally had to move such cargo horizontally in order to utilize the full capacity of the holds. This is time-consuming and it increases the risk of damage.

147. Further, the gantry crane was developed for maritime use. Such cranes are highly effective in loading and discharging operations of forest products.

148. In recent years we have witnessed further responses to market and shipper's needs. Amongst others, the development of combined carriers for carrying aluminium, serving the aluminium industries in the Middle East and Oceania. The development of caustic soda/alumina carriers enabled, again, the aluminium industry to take advantage of natural trading patterns for these commodities, thus reducing freight.

149. Finally, several owners of bulk carriers have in recent years developed and commenced the operation of floating terminals. By doing so they have been able to utilise larger vessels for the ocean transportation of the relevant product, and thereby reducing freight costs.

1.4 BUYER POWER

150. Buyers in the tramp shipping market include companies entering into transportation contracts with ship owners and operators, and pools. Such companies may be the end users of the products carried, but they may also be agents.

151. Some of the buyers in the various markets analysed in this Report are very large multinational companies with very large resources at their disposal, and with large chartering departments employing large teams of experienced staff capable of negotiating in their employers' best interests. For instance, in the bulk trade, contracts are often let by large mining companies. Charterers in the oil and gas markets represent some of the largest multi-national companies in the

world, and where contracts are let to the receivers of cargoes, these too may be large manufacturers or importers in the industrialised or developing parts of the world, with considerable resources at their disposal and therefore with significant buyer power.

152. In tramp shipping markets the term "buyer power" may have a time dimension. If a charterer has "all the time in world" for fixing a freight contract, and the owner is in a pressed situation, this could temporarily give the buyer a specific commercial advantage which would be tantamount to "buyer power". Of course, the situation may equally be reversed, if the charterer needs to fix a cargo quickly.

153. In this context some examples of where charterers use their "buyer power" and some areas where charterers are able to press for their preferred terms will be provided.

154. Some of the major charterers have multiple annual CoAs covering their global transportation needs. They are usually defined by the geographical scope, the product, the annual quantity to be shipped, *etc*. When they request offers they also make it clear that any bidder has to offer for all contracts, but are not guaranteed to be awarded any of them. Those seeking to transport oil and chemicals appear to use this approach more than some other CoA charterers. However, in practice the charterer often, upon receipt of an offer, awards each CoA to the lowest bidder. Thus, the ship owner (who would typically base his offers on an optimal utilisation of its fleet) is left with the poorest paying contracts. From a demand side point of view, this is of course quite efficient. However, it may force the owner to bid on contracts it may not even be interested in, in order to qualify. This demonstrates that within this market buyers clearly can exercise a considerable degree of buyer power.

155. Pools are very useful in satisfying the charterer who adopts such a strategy. With often a wider range of vessels, and perhaps a greater ability to find the right ship on the market at the right time, a pool may be better placed to provide the ships that the charterer wants, at his price, thus keeping the freight paid for each contract down, but without the owner suffering a loss (which, long term, cannot benefit the market).

156. Another possibility is the use of options. Several charterers have for many years operated on the basis of asking ship owners or operators bidding for their contracts to offer for optional periods. Unless the shipowners offer for the optional periods, they do not qualify (unless their rate for the initial period is too attractive to the charterers for them to ignore it). An example may be a contract for a certain amount from port A to port B over a 12 month period firm, with charterers' option to extend for another 12 months, with the charterers' option to extend for another 12 months, with charterers' option to extend for another 12 months. The owner has to offer for three 12 month periods that are purely to the benefit of the charterer, and the charterer always has the final say on whether to exercise the renewal options or not. This example of "buyer power" is probably linked to the reality that, before the end of the first 12 month period, the charterer will again enter the market asking for offers for the same contract. Thus, the owner holding the contract will end up with the poorest freight no matter what happens: if all offers are above its freight for the first optional year, the charterer is likely to exercise the option. If the owner wants to keep the contract because general market rates have declined since the contract was entered into, he has to offer against himself in order to keep the contract.

157. In certain CoAs, often used in the car trades and chemical trades, no minimum volume is stipulated, but most players in these markets will have an idea of what the volume might be. Nevertheless, most companies still prefer to have a fairly predictable future as the use of no minimum volumes increases the owner's or operator's risk.

158. Common to all freight contracts is that charterers to a degree dictate the terms. However, they are not free to choose what terms they offer as they cannot do much about port restrictions, the capacity of loading gear, *etc*. Owners may have little leeway in changing terms relating to

operational. Ideally, the charter party should be a balanced contract not favouring any of the parties unduly. In recent years, several charterers have developed their own contracts that, on several occasions, are quite "charterer-friendly". An owner usually has little possibility to demand the use of another charter party, or freight contract, if he wants to fix its vessel. Nevertheless, if terms are too onerous for an owner, he simply won't accept them.

1.5 THE PLAYERS IN THE FREIGHT MARKET

159. This section is meant to give a brief overview of the major players in the freight market. In terms of the sea-transport element, they include the shipowners and/or ship operators, the charterers (including operators when chartering in ships) and shipbrokers[88]. The consultants also set out how the freight and hire market works.

160. There are many interests involved in the movement of cargoes by ship. There may be more than one of any one type (for example, a party who trades in cargoes). The parties are or may be:

(a) The supplier of the cargo (perhaps a miner (for coal/iron ore), a factory owner (for a good or part finished good), *etc*.;

(b) A trader (a merchant who buys cargo from one party and sells it to another – there may be many involved in one transaction);

(c) A shipper (the person who arranges for the cargo to be shipped by sea);

(d) A charterer (who arranges for the carriage of the cargo by ship / the hire of a ship for the carriage of cargo) (the charterer may or may not be the cargo owners and/or the shipper);

(e) A ship owner or an operator;

(f) A receiver (who receives the cargo on his own or on someone else's behalf at the end of the sea transport leg);

(g) A seller of the cargo (there may be many of these in one cargo shipment);

(h) A buyer of the cargo (there may be many of these in one cargo shipment).

161. The freight market is a marketplace in which sea transport is bought and sold. Sea transport is a service that allows international trade to take place and accordingly the cost of sea transport constitutes an intermediate input to the cost of the underlying physical sale of the goods. Without trade, there will be no reason for the tramp market to exist.

162. There are separate markets for different ships, and they may behave quite differently. For example, the tanker market is driven by the demand for oil and oil products, whilst the dry bulk market is driven by demand for, principally, iron ore, coal and/or grain. In each market, shipowners have vessels for hire, charterers have a requirement for ships to transport cargo, and brokers seek to bring the two parties together. When a ship is chartered and all terms, including the freight or hire rate is agreed, the ship is said to be "fixed".

163. Ships are mobile assets. Unless designed for a specific local or coastal trade, or where committed to long term contracts on one route, ships trade internationally and, usually, worldwide. Even if

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[88] The major contract types used are presented in greater detail in section 1.6 and the role of brokers is elaborated in section 1.7.

they do not, their owners generally have the option to trade them on a worldwide basis. Ship owners and operators need to pay for their vessels, so in essence this means that they will trade their vessels where they see the greatest profit. Because it takes time for ships to move around the world, there are separate regional markets which are only accessible to ships ready to load cargo in that area. These are short term, as other ships may be brought into any such market at any time. In addition, each such market is closely associated with every other for transferable ships, as a ship owner will respond to demand and seek to earn the greatest profit. In the following table certain requirements and limitations in the tramp market are summarised.

Important criteria in the choice of ships in the tramp shipping market		
Vessel type[89]	**Examples of port/terminal requirements and or geographical limitations which may reduce the number of vessels which can load or discharge in a port/terminal.**	**Comments**
LPG	Beam restrictions Booster pumps Draft restrictions Ice-class requirements LOA (Length Over All) restrictions Manifold arrangements Reheaters	About 90% of all vessels in the LPG segment are purpose built for a given set of terminals. This does not imply that the vessels only call a limited number of ports/terminals, rather that they are suited for the terminals believed to be important for their planned trade, and in addition they can call a large number of other terminals as well. Ice-class is needed when trading in areas with ice, such as Russia, in the winter. Some harbours cannot accept all vessel types, with respect to LOA, draft and/or beam.
Dry bulk	Draft restrictions Beam restrictions LOA restrictions Ice-class requirements Cargo gear restrictions	
Tank – Clean and dirty	Draft restrictions Ice-class vs. no ice-class	Single hull vessels may be unacceptable for certain charterers (such as the oil majors) or to certain countries.

89 For more detailed info on the various vessel types, please see more detailed description of these in section 1.3.3.

	LOA restrictions Single vs. double hull	
Chemicals	Whether or not a given chemical can be transported on a vessel given the regulations in the IBC code[90]	It is beyond the scope of this Report to identify limitations with respect to the IBC code.
Reefer	Ice class	Unknown whether there exist any specialised reefer vessels with ice class
LNG	Ice class	
PCC	LOA restrictions for the largest WWL vessels in some harbours	This is only a disadvantage for WWL as they have vessels which are extra long

164. Despite initial appearances, the simple movement of commodities and/or goods in tramp ships from one port to another is not a straightforward process. The reason is that there are usually many interests in each trade and cargo movement (as outlined above). Sometimes the "chain" of interests involved in making available a raw material or producing a product, selling it (sometimes a number of times), transporting it, and delivering it to the end user is relatively straightforward. The simplest chain of interests in a commodity sale contract will include a "supplier", sea transporter, and "receiver". Perhaps the simplest example of this may be iron ore extracted from the ground by one of the major industry leaders in this sector of the market (for example, BHP or Rio Tinto). In certain locations the ore is extracted close to the loading port. Thus the ore comes out of the ground and is effectively ready to load onto a ship. The supplier may or may not be the charterer of the ship, but in any event the cargo is placed on a ship and is then transported and delivered to the receiver. This may be a large steel mill in, say, China.

165. Often a trade is not this simple. Many parties are involved in most trades, generally with different (and sometimes conflicting) objectives. However, in this section we present a simplified picture of the contractual relationship which exists, to a greater or lesser extent, in all tramp trades.

166. Whilst larger enterprises may have their own freight department, which will assess the market and arrange fixtures, smaller companies do not always have this facility. Such a company may delegate the role to a person or people who also have other responsibilities within the company. In this case, the individuals within the company may rely more heavily on data and assessments provided by their shipbrokers. One of the shipbroker's tasks is to know what commodities and/or goods and ships are available in a region at a given time, what the owners/charterers want to be paid/pay, and the going rate in the market. Even with this information the shipbroker is not in a position to set the market, he is only in a position to report what has been fixed, and provide his assessment as to the future trend of the market. The owner and charterer make the decisions on whether or not to fix, and the terms of any fixtures. As already mentioned,the following contractual arrangements are commonly used to fix a vessel

(a) Voyage charter – See section 1.6.1.1 of this Report

(b) CoA – See section 178 of this Report

90 The International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk.

(c) Time charter – See section 1.6.1.2 of this Report

(d) Bareboat charter – See section 1.6.1.3 of this Report

167. The reason for alternative methods of charter is governed largely by money, supply of and demand for ships, and perceptions as to how the market may move (up or down). Those seeking to move cargo by sea transport aim to do so most cheaply. The ship owner or operator will want to maximise his hire or freight. Different forms of charter are used at different times, depending on the supply and demand for ships and commodities and/or goods, the nature of the business, and the perception and sentiment of the market by owners and charterers. The key aspect remains, however, that the charterer or cargo owner wishes to pay as little as possible for sea transport, whereas the owner or operator aims to maximise his revenue. Both will be flexible in order to achieve their aim.

168. Owners also have an interest in ensuring that the available vessel capacity keeps broadly in line with future market growth, without exposing themselves to downward market cycles. For this reason it is usual for owners to acquire new tonnage (either through commissioning newbuildings, buying vessels on the second hand market, or through long or short term charters) to meet demand, the choice depending on an individual owner's reading of the market and willingness to commit capital.

169. Either a ship owner or operator, as well as a charterer, may decide that although he has fixed his ship or cargo, using one of the above mentioned contracts, there is risk that they may not have judged the market correctly. Or the owner or charterer may anyway decide to "hedge" the fixture. This may happen more with long term charters, or for CoAs, or for business fixed to take place at some date in the future, although increasingly it takes place with short term and early fixtures too. In such circumstances a "player" may chose to cover what he sees as his financial risk on the Forward Freight Assessment (FFA) market. This is a paper (rather than physical) futures market. Maturity of futures contracts placed occurs when the date in question is actually reached, and the then physical market governs whether the investor has to pay another party or parties, or whether he receives income. Thus a ship-owner or operator, or a charterer, may "cover" his perceived exposure with a futures contract which works against the physical risk he has taken. The effect, whether he is right on the physical or futures market, should mean that he will not suffer a large loss, although his possible profit will also be cut by taking out the hedge cover. FFA's are becoming an increasing important hedge market for ship owners/operators and charterers.

1.6 CONTRACTS

1.6.1 *Contracts used in the tramp shipping market*

170. The contracts applied in the various tramp shipping markets are described below.

171. Contracts for the hire of a ship or for moving commodities and/or goods are called charterparties, or "charters" for short.

172. Four categories of contracts are used in the various tramp shipping trades. In terms of the provision of sea transport services, voyage charters, CoAs and time charters are key. The bareboat charter is usually used as a method of financing new vessel capacity, with ownership often vesting directly in the finance institution.

173. In the charter of just one ship, the four main categories of charterparty may be utilised between the "head" owner and the charterer at the end of the "chain". For example, a vessel may be hired under a bareboat charter from the "head" owners to a "disponent" owner for, say, ten years. The disponent owner relets the ship under a period time charter for a period of three years. The period time charterer relets the ship to another charterer, who hires the vessel for one time charter trip.

This is to fulfil a voyage charter of cargo that he has committed to carry, and the charter is loaded on the ship. The voyage charter, however, is one part of a CoA, and the voyage charter in question is a relet of part of the CoA by the CoA owner. Thus, one ship may be under any number of charters and sub-charterers at any one time.

174. The four categories are described in more detail in the following sections:

1.6.1.1 Voyage Charter

175. This is in concept the simplest form of charter. A voyage charter provides for a specific quantity of specific cargo to be carried from a load port to a discharge port (or perhaps a number of specific load ports to a number of described discharge ports) on strict terms and for a fixed price. The price is usually agreed per tonne of commodities and/or goods carried.

176. The charter party will set out detailed provisions covering major and minor agreed contractual terms which may be relevant. For example, if a vessel is delayed in loading or discharging for a reason that is not the owner's fault, then the charterer will, under an agreed provision of the charter party, have to pay a penalty per day or part of a day to the owner ("demurrage").

177. One of the most used basic formats for a voyage charterparty is the "GENCON" form. The standard document[91] is invariably altered to suit the business, and will have additional clauses appropriate for the trade.

178. Contract of Affreightment (CoA)

179. This form of contract may be considered as a number of voyage charters, agreed at the same time, and forming one contract. The basic tenets are the same as for a voyage charter (that is, a certain size cargo of a commodity from port (or ports) A to port (or ports) B), but the contract of affreightment may be for, say, twelve cargoes at, say, monthly intervals. Unlike a voyage charter, however, a specific vessel for each cargo is not usually specified in the contract. The contract provides for a type of ship, and parameters within that type of ship, for each cargo lifting. The owner/operator is then required to supply a ship for each "parcel" of cargo under the contract of affreightment.

180. A CoA is not a requirements contract. Under a CoA, the quantity of cargo and the dates for the various commodities and/or goods to be loaded will be set out in the contract. This is different to a requirements contract where a receiver calls for cargo as and when he needs it.

181. The advantage to the owner/operator is that he fixes some certainty of income for some time in the future. Subject to the terms of the charter-party, he may use his own ships or he may charter ships from the market to fulfil the CoA, or part of it. The owner or operator may, indeed is likely to, find cargoes which fit in between the contract of affreightment cargoes and so minimise the time that any of his ships spend at sea not carrying cargo (and therefore not earning revenue).

182. A charterer may choose a contract of affreightment to build certainty, especially of cost, into his business plan for the future.

183. For both the ship owner or operator and the charterer, a CoA enables them to take a view of the movement of freight rates in the market. As already observed, an owner will generally seek to

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91 A copy of which is available on the BIMCO website at: http://www.bimco.dk/Corporate%20Area/Documents/Document%20samples/Voyage%20Charter%20Parties/GENCON.aspx.

engage in a CoA when he perceives the freight levels to be high, and a charterer when they are low. However, a degree of certainty in fixing business for the future may outweigh such short term market considerations. For example, a CoA should give the owner guaranteed revenue with which to satisfy his bank, or he may need such a contract for other reasons. The charterer will have some certainty to, for example, satisfy an important customer.

184. CoAs may be based on a voyage charterparty form, although they are usually recorded as stand alone documents, drafted for the purpose. The majority of terms, as earlier outlined, are very similar to or the same as those of a voyage charterparty. Additional terms will include an outline description of the type of vessel which the owners are to nominate to perform each leg of the CoA (that is, set out the key characteristics), and the date(s) by which the owners and charterers are to nominate the vessel for each leg, and the quantity of commodities and/or goods and dates for each leg of the CoA.

1.6.1.2 Time Charter

185. In contrast to a voyage charter or a CoA, under a time charter the charterer takes operational control of a ship for a period of time, effectively hiring the vessel for his own use. The period of hire may be a few days, perhaps the equivalent of a short term voyage charter. On the other hand, a time charter may last for a period of months or years.

186. Under a time charter, the charterer effectively controls the commercial operation of the ship, within the terms agreed in the contract (the charter party). The owner continues to pay the operating costs and crew. He is recompensed by hire, usually agreed at a certain level per day, often paid 15 days in advance.

187. The advantage to a ship owner is that, especially with a long period time charter, he will have a degree of certainty as to the income for a period of time. Unlike with a CoA, he will not have to find intermediate cargoes. A further advantage is that, particularly with a long period time charter to a major company, the owner should have some security against, for example, a loan for the ship.

188. For the charterer, he will have the flexibility of control of a vessel for a period of time. The charterer may have different businesses in different parts of the world and as a result of controlling a ship may be able to utilise the vessel to service his contracts more efficiently than by hiring on time charter or fixing on voyage charter a number of vessels. He will have certainty regarding the price he pays to hire a ship.

189. A charterer may not wish to become a ship owner, or may not have the resources to buy a ship, but may desire to have control of a vessel because of the needs of his business. A charterer or operator may hire a vessel on a time charter basis purely on speculation that the market will rise. If he is right, then by re-letting the vessel, or taking in cargoes at a higher rate, he will earn a profit.

190. The "NYPE" form is probably the most widely used basic formats for a time charterparty, whether for a time charter-trip or for a period time charter. The standard document[92] will be altered and have additional clauses added to it, appropriate for the business.

1.6.1.3 Bareboat Charter

191. A bareboat charter is effectively a time charter with the difference that the charterer has full control of the ship. In addition to paying for the hire of the ship he also arranges the crew, maintenance, insurance and so on. Bareboat charters tend to be for significant periods of time. They are more

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[92] A copy of which is available on the BIMCO website at : http://www.bimco.dk/upload/nype_93.pdf.

related, as a general rule, to finance deals (particularly in respect of the price of a new ship) than to the freight market. Under a bareboat charter it is not unusual for a financial institution to actually own the vessel. The bareboat charterer therefore has use of a vessel as if he were the owner, but without tying up capital in the ship. That said, if the hire or freight that a bareboat charterer anticipates earning is insufficient to cover the hire that he pays to the owner, the costs of crewing and the costs of running the ship, then he will either not charter the vessel on a bareboat basis or he will risk making a loss.

192. The "BARECON" form is probably the most widely used format for a bareboat charter. The standard document[93] will be amended to suit the trade and situation for which it is required. The "BARECON" form is probably the most widely used format for a bareboat charter. The standard document[94] will be amended to suit the trade and situation for which it is required.

193. The Report has not identified any market segments in which one or other form of charter is used to a disproportionate extent, let alone exclusively. However, in two cases there is a clear bias in favour of one specific contract form:

(a) Large crude oil tankers tend to be fixed on a voyage charter basis. Some specialised tankers are fixed on a time charter basis, but many are still fixed on a voyage charter basis.

(b) In more specialised trades, such as the car carrier trade, longer term time charters are often arranged.

194. It is important to note that those seeking to move cargo will generally "price" for their own business purposes the sea transport element of the business on a per unit (per tonne or barrel if oil, per tonne for dry bulk and bagged commodities and/or goods, per car, *etc.*). By contrast, the ship owner or operator is more interested in the daily revenue available for his ship, and so will usually consider business on the basis of the available daily time charter hire rate, or equivalent when calculated from a voyage charter (or CoA) freight rate.

93 A copy of which is available on the BIMCO website at : http://www.bimco.dk/upload/barecon_2001_001.pdf.

94 *Ibid.*

Contract type used in tramp markets[95] by the head/primary charterer			
Market	**T/C %**	**Voyage Charter %**	**CoA %**
Tank – Dirty[96]	25	60	15[97]
Tank - Clean[98]			
LR1	20	60	20
LR2	25	25	50
MR	25	50	25
LPG[99]	20	10	70
Chemicals[100]	Not used	N.a	N.a
LNG	95	5	
Bulk[101]			
Iron ore	Not used	40	60
Coal	Not used	40	60
Phosphate	40	55	5
Bauxite	50	40	10
Grain	Not used	80	20
Aluminium	55	35	10
PCC[102]	30	Not used	70
Reefer[103]	80	20	Not used

195. A few owners - or, rather, commercial managers - of larger fleets of, particularly, dry bulk carriers may seek at any time to have a number of vessels fixed under each of the major types of charterparty. This is to spread the risk financially by committing some vessels on long-term time charters, some shorter term, and leaving some ships to be fixed voyage by voyage. This is relatively rare as ship owners usually have a preferred contract type. Most owners will fix their ships on the basis that they feel will at any time maximise their returns.

1.6.1.4 Pools and other horizontal arrangements

196. We deal in detail with pools and other forms of horizontal cooperation in Chapter 4 below. Although one sees references to "pooling agreements", "pool contracts" and such like, these are not

95 Based on the percentage distribution of the fleet in the various segments. However this estimate must be interpreted with caution, as a vessel which is on a time charter to one party might be on a voyage charter to another, *etc.*

96 Information based on figures from Intertanko, Oslo.

97 Here we have chosen to include state owned vessels in the CoA section.

98 Fearntank, Oslo.

99 Fearngas, Oslo. These figures are correct for all segments in this market.

100 Fearnleys have talked to sources in the Chemical market. It is extremely difficult to provide a split between voyage charters and time charter's as this is dependent on the type of product transported and the different routes which they are shipped on. To identify this would be beyond the scope of this study.

101 Fearnbulk, Oslo. Here a distinction is made between the major dry bulk commodities, as these commodities could be shipped on a number of different vessels. Providing a general measure for the different vessel sizes is not very useful, as they are all capable of transporting a wide range of commodities

102 Fearnleys PCC Department. This share is calculated from PCC owners Höegh Autoliners, EUKOR, WWL, NYK.

103 Orion Shipbrokers, Oslo.

strictly speaking a separate type of contract at all. As explained in Chapter 4, pooling arrangements usually involve a number of separate legal contracts designed to give the pool manager the relevant powers to administer and manage the pools on the members' behalf and to provide for the chartering out of the pooled vessels to the customers of the pool. The vessels themselves will be chartered out under voyage charters, CoAs, or time charters, as the case may be. Generally there will be two or more levels of chartering, e.g. a charter from the relevant owners to the pool manager, and then a sub-charter from the pool manager to the ultimate customer. Normally time charters of at least one year are used as between owners and the pool manager, with the possibility of a further sum representing profit over the year depending on how the pool has performed. Most pools offer their customers a range of contract types.

197. Chapter 4 also deals with the form of agreement known as a "co-service agreement" and cross-space charter arrangements under which shippers are able to obtain shipping services from two or more operators at the same price and on the same terms. These are used in certain specialist trades, in particular in the various chemical tanker trades and in the PCC market.

1.7 ROLE OF BROKERS

1.7.1 *Scope*

198. In this section the role of the shipbroker and his/her role in the tramp markets are described. What is the shipbrokers' duty, what service does he/she provide and how does he/she add value? Further, we outline how the brokers' role varies from segment to segment. The role of brokers in the sale and purchase process (including recycling) and newbuilding contracting will not be covered as this falls outside the scope of this Report.

1.7.2 *Definition*

199. A very brief definition of a shipbroker's tasks is:

> "The broker's task is to discover what cargoes or ships are available; what the owners/charterers want to be paid; and what is reasonable given the state of the market. With this information they negotiate the deal for their client, often in tense competition with other (ship) brokers. Brokers provide other services including post fixture processing, dealing with disputes, and providing accounting services in respect of freight, demurrage, *etc*. Some owners or shippers carry out these tasks themselves. However, this requires a staff and a management structure which only very large companies can justify. For this reason most owners and charterers use one or more brokers. Since broking is all about information, brokers tend to gather in shipping centres. London remains the biggest, with other major centres in New York, Tokyo, Hong Kong, Singapore, Piraeus, Oslo, Hamburg, *etc*."[104]

200. In short, the shipbroker covers market intelligence, brings parties together and negotiates contracts, follows up on contractual matters and assists in case of disputes.

201. The shipbroker does not "make" the market. He should know it, and facilitate his clients to agree to contract in it, but the terms of the business are agreed by the principals only[105].

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104 Stopford, Martin: Maritime Economics, Routledge, London 1997, at p 83.

105 In this report, the word " Principals" means the owner and/or operator and/or charterer who makes the decision.

1.7.3 *Development of ship broking*

202. The use of intermediaries in negotiating freight contracts in shipping has been in existence for centuries. The Baltic Exchange, the key freight "trading floor" in London, celebrated its 250th anniversary in 1994. Until modern communications rendered this largely unnecessary, ship brokers (in London – historically the main centre for shipping) used to congregate on the "floor" – a large open hall – of the Baltic Exchange. This was at set times during the week, and working day. A broker would have instructions, specific or general, from his principal, and would then "exchange" information with co-brokers and, occasionally, principals, on the Baltic Exchange. Generally, one set of brokers acted predominately for owners, and another set for charterers. Some acted for both, or placed themselves between the owners and charterers brokers. Brokers in each sector would know their counterparts, and who their competition was. For example, a broker specialising in fixing ships to the Indian Government (which until quite recently was the main charterer for cargoes into India) would know the brokers also trying to fix ships to the same charterers, and therefore who he was competing against. He would also know the owners brokers who had suitable ships for the business. Poor national and international communications meant that such a broker would, historically, not have the opportunity to work much other business as he would be concentrating on communicating with and serving his principals. The speed of communications and information supply has, over the past few years, changed the nature of and approach to ship broking.

203. Ship broking has changed over the years. In recent times the most notable change is probably the broker staying in his office. He fixes after speaking from there with his principals and other contacts. Modern telephony, as well as (until quite recently telex, plus) fax and email facilities, information from many sources, and data stored on computers, allows this. Previously, brokers would have had to physically meet to "exchange" information. Partly as a result of this change, there has been a move in some areas of the market from a "two (or three)-broker system" to a "one-broker system". Depending on the sector of the market, this change took place during the 1990s and at the beginning of this century. As outlined above, the two-broker system usually meant that one broker represented the ship-owner and another broker represented the charterer. The negotiation of a freight contract took place between the brokers, under the authority of their clients. All brokers involved in a freight contract are entitled to compensation for their successful efforts (a commission) and these costs were eventually considered high in an increasingly competitive market. The move to reduce the number of brokers in a fixture was largely led by the broker's principals. Some principals and even brokers cast doubt on whether an "extra" broker brought value to the deal. Thus, the shipping market has moved towards a regime where one broker only is usually involved in any one fixture. This was speeded by the advent of modern communications.

204. There are no rules or regulations governing this approach, however, and it is not uncommon for freight contracts to be negotiated through two, or more, brokers.

1.7.4 *Major shipbrokers and the services they provide*

205. The services of shipbrokers are widely used in every corner of the world. Some 15,000[106] companies worldwide call themselves ship brokers. A large number of these companies are involved in specialised and local markets, and are not involved in the deep sea tramp markets. Many of these companies are based in minor ports, serving the needs of local clients.

206. A better source of assessing the size of the ship broking market may be to consider the membership of the Baltic Exchange. The Baltic Exchange is a membership organisation based in London, and is at the heart of the global maritime marketplace. It provides independent daily shipping market

[106] The Shipbrokers Register, www.shipbrokers-register.org.

information, maintains professional ship broking standards and helps to resolve disputes. The Baltic Exchange's membership includes more than 500 shipbrokers, although not all of them are involved in freight brokering. Some are involved in so called FFAs (Forward Freight Agreements) and others are involved in sale and purchase brokerage. The size of a ship broking firm may be measured in a number of ways, such as the number of brokers, turnover, number of fixtures, global coverage, *etc*.

207. The following list[107] provides the names of what are probably the 10 largest ship broking companies, in alphabetic order, and where their head offices are situated:

Company	Head office
ACM	London
Braemar Seascope	London
H. Clarkson	London
Fearnleys	Oslo
E. A. Gibson	London
Howe Robinson	London
Lorentzen & Stemoco	Oslo
Mærskbroker	Copenhagen
Platou, R.S.	Oslo
Simpson Spence & Young	London

208. These ship broking companies are involved in a broad range of markets. Most of them provide chartering services, which include tankers, dry bulk carriers, container carriers, car carriers, reefers, gas carriers, *etc*., as well as sale and purchase services and newbuilding contracting services. In addition, several of them provide services for ancillary markets like FFAs, as well as brokering services for the offshore oil markets (that is: tugs, supply boats, anchor handling vessels, *etc*.).

209. While the companies listed above may be considered among the largest in total, they may not be the largest in any one specialised market. For example, Fearnleys is a major broker in the LPG chartering markets, but the company does not have any activity in reefer markets. Similarly, ACM is a major tanker broker, but does not have any activities in the dry bulk market.

210. Ship broking firms and individual brokers often specialise within specific markets as well as within geographical areas. A decision to specialise depends partly on a firm's client base. For example, if a broker focuses on small tankers in the North Sea he is unlikely to be involved in the Middle East Gulf market for VLCCs. However, if a broker specialised in the VLCC market, he would most likely follow all VLCC trades worldwide.

1.7.5 *Market intelligence*

211. This is one of the most important aspects of a broker's role. When a charterer has a shipping transport requirement he will want to know the availability of ships able to fulfil his requirement. That is, how many and which ships are in position, (able to reach the loading port for the requested dates) and which meet the minimum requirements for transporting the cargo. The broker maintains position lists for ships, usually by geographical area. Although the data may be limited to the market and size segment he specializes in, a ship broking company having, for example, a reasonably sized dry bulk chartering department should have a relatively good overview of the whereabouts of all dry bulk carriers globally.

[107] The list is based on the number of brokers, the turnover and global coverage.

212. Similarly, the broker keeps an overview of cargoes and requirements in the market.

213. Another aspect of market intelligence is the knowledge of what the "going rate" is. What is the current freight level for a specific size and requirement? What should a charterer reasonably expect to pay for a 12 month time charter for a particular type and age of ship, *etc*? Further, the broker provides his views on the market with respect to future freight rate movements. If he expects freight rates to decline in the short term, he will most likely advise the charterer to wait a few days (or longer) before fixing. If he expects an increase in rates in the short term, he will advise the charterer to fix as soon as possible, before the increase. If the broker (also) advises a ship owner, his advice will be the opposite of that provided to the charterer. A broker should adopt a neutral role when advising all parties of his view of the market.

214. Certain ship broking firms perform structured research into, and analysis of, market intelligence. Reports are published in regular market reports or tailor made studies are prepared for particular clients, and are used by brokers to provide medium and long-term market views. These are important, particularly when advising clients on whether to charter in/out vessels for period time charters, when advising on entering CoAs and in connection with the acquisition and/or disposition of ships.

1.7.6 *How are vessels fixed?*

215. There are several ways to fix a vessel. They may vary from segment to segment, but in general the following procedure takes place within all markets:

216. A charterer enters the market with a requirement. This may be openly or discreetly depending on their company policy or on how they expect their requirement to impact the market. If few ships are in position for the cargo, the charterer may opt for a more discrete approach to certain owners of vessels in position, as broadcasting a requirement may induce owners to increase their rate demands.

217. Before the negotiations start, the person or entity which has demand for sea transport will ask for an indication of the price, say in USD per tonne, which should be required in order to ship a given parcel of cargo from A to B within a given time frame. The charterer is most likely to receive incications (offers) via all his broking contacts, through whom he has marketed an order. The brokers will contact all their contacts and each broker may advance many offers. The competition is therefore not only between the charterer to fix the ship he prefers, and the owner to fix the order he likes best, but between brokers to ensure that they fix the business (rather than lose out to a competitor).

218. Usually, a ship owner or operator initiates the negotiations by making a "firm" (definite) offer to the charterer. This will normally consist of the "main" terms of the deal (see below), such as the price, date of delivery, restrictions on commodities and/or goods, *etc*. The charterer may then respond with a "counter offer" This can be in the form of declining the owner’s offer entirely and present an offer completely on the charterer's terms and conditions. The usual response is in the form of an offer on an "accept/except" basis. A counter offer or an "accept/except" basis indicates that the principal accepts all the terms and conditions offered by the other party, except for those mentioned in the counter-offer. The negotiations continue until all terms and conditions are agreed, or until the negotiations break down**.** Both parties are free to leave the negotiations at any time.

219. If an agreement is reached between the principals, the vessel is put on "subs"[108]. That is, an agreement of main terms is reached and the finalisation of the contract is only dependent on lifting of "subs" and agreeing the charterparty details. The owners cannot negotiate and enter into other contracts for their vessel that would in any way be in conflict with the contract. Charterers are equally bound to carry through the intentions of entering a firm contract.

220. For any one "order", the charterer may receive either no, few or many offers. There is no universal rule as to how many offers may be made for any one order, and all markets are in the same position in this respect. There is no typical number of offers. Many may be received, or few. And even when many are received, few may be of interest to the charterers. The state of the market, the optimism or otherwise of the owners and operators, the longer terms aims of owners, the perceived standing of the charterers, all have some influence on whether an owner or operator offers for an order.

221. A particular offer made may not be initially interesting, but after negotiation with a number of parties, that offer may end up being the most attractive to the charterers. This is for a number of reasons. The business may be very attractive to ship owners or operators, perhaps because it would position the ship to a known loading area from a region where there are usually few cargoes, or perhaps the business is historically high paying (possibly because of the nature of the cargo to be carried), or perhaps because the charterer has a very good reputation for performance. There may simply be a number of ships of the right size and type available for business on the required dates.

222. Alternatively, there may, for example, be few ships available at the appropriate time, the freight/hire ideas of the charterers may not be of interest to owners, the characteristics of the cargo may be unattractive to most owners, or there may be another reason why there is not too much interest in the charterer's order.

223. Sometimes, the charterer will not receive many offers for an order, or perhaps he will receive many but all at a lever higher than he is willing to pay. He may then seek to delay shipment of the commodities and/or goods. He may offer several cargoes, with different shipment dates, effectively creating a CoA. He may offer to "split" his cargo into two or more parcels if ships of a smaller size appear to be cheaper in the market relative to the cargo he needs to move. Occasionally, he may be able to increase the cargo size to take a cheaper (if one is available) and larger vessel. The owner may have the option of sailing his vessel to another part of the world if he does not like the business available in the first area, but the charterer also has options to deliver the commodities and/or goods at a lower price. Both are market decisions, which owners and charterers may make given the particular facts, market situation and commercial issues relevant to them at the time.

224. Negotiations may be quite swift, typically where owners and charterers know each other or, especially perhaps, for short duration business. Alternatively, they may take a very long time. Negotiations, especially for "main terms" may be concluded in a few hours, and with just a few offers and counter offers exchanged. On occasions, particularly for long-term business or when the deal is not only resting on the charter of one ship, the negotiations may take months and include many, many counter offers.

225. Nowadays, charterers often negotiate a given requirement with several owners simultaneously. Likewise, the owner will often negotiate several requirements simultaneously. This is a recent development as, historically, a client would only negotiate one cargo/ship at a time. This is partly because the concept of "subs" is relatively new and there otherwise would have been the possibility

108 The word "sub" is an abbreviation of "subject" (to agreeing all clauses).

of an owner and/or charterer fixing two pieces of business for the same vessel/cargo. Hence, if an owner makes a counter-offer to two different charterers at the same time, and both charterers accept the counter-offers made to them, then the owner could, without a "let-out" or "subject", have committed his ship to perform two pieces of business at the same time.

226. The "details" of the charterparty are all the terms and conditions not covered by the main terms. They are, in fact, usually the majority of the clauses in the charterparty. The parties will usually base the proposed fixture on a previously agreed (by one of the parties) charterparty, and then both sides should check that they are happy with all the clauses, taking into account logical alterations to include the main terms agreed. The "details" are important, and cover the obligations of one party to the other, as well as necessary situations and terms for which there is agreement between the parties in principal, but where one party or the other maybe seeks to refine the wording.

227. The procedure is quite similar for a time charter requirement. The main difference is that the vessels speed and consumption characteristics form part of the negotiations. The place of delivery and redelivery of the vessel are also key, as is the period or periods for which the charterer will hire the vessel. All are set out in the charterparty, and can only be changed later by agreement of the two parties.

228. Certain charterers put out a formal tender for the carriage of commodities and/or goods. These tend to be for CoAs. They form a very small percentage (the consultants would estimate less than 5% of total cargo movements). The format is usually that the charterer publishes his main terms (as for a non-tender CoA, voyage charter or time charter negotiation), which are perhaps a little fuller than for non-tender cargoes or business. A draft charterparty for the "details" is usually attached to the main terms, or is available by contacting the charterer. The charterer sets a specific time on a set date when all offers, which must comply with the tender terms, are to be received. Usually the charterer reserves the right not to be bound to accept the lowest or any offer. The charterer may receive many offers, few or even none. Some owners or operators may offer not in accordance with the tender terms, but the offers may still be considered by the charterers. There is usually no negotiation of the offers received. This tender process, although relatively rare, may be found more in the dry bulk sectors of the market.

229. Some vessels are represented "exclusively" by one broker, but this is not very common. In any event, the vessels will be competing against all others in their market.

230. Part of the broker's role is to ensure that all terms and conditions are agreed, and misunderstandings between the principals are avoided. The broker should also endeavour to ensure that the ship in question is correctly described, and that all clauses in the charter party (the contract) are relevant and amended to reflect the specific voyage/fixture.

231. A charter party is a contract which is voluntarily entered into by the parties. Of course, the physical attributes of the ship, the name of the owners and, in a voyage charter-party, the commodity being lifted, are immovable. Other clauses are open for negotiation. Even, for example, the name of the charterers in the charter party may be discussed and, perhaps, the parent company of a chartering division of a major company may after negotiation be agreed to be the charterers in a particular case. Ports of loading and discharging under a voyage charter may seem to be non-negotiable, but as set out elsewhere in this Report the sea transport element of a trade is just one part. The effect is that if owners are keen to avoid a certain port and the cost of loading and/or discharging (as well as getting the commodities and/or goods to and from) alternative ports is acceptable to the charterers, there may be some flexibility.

232. Although all charter party clauses are negotiable, certain clause are in practice rarely discussed. This is simply because they are necessary, tried and tested, and serve their purpose, as well as the owners and charterers in an appropriate way.

233. In the following sections the difference between voyage charters and time charters with respect to negotiable and non-negotiable terms will be discussed. Overview tables are presented at the end of sections 1.7.6.2 and 1.7.6.3.

1.7.6.1 Voyage charters (and, broadly, CoAs) – Dry Cargo

234. The terms of a voyage charter party (or a CoA) that are always negotiated, to a greater or lesser extent, are those described as the "main terms". For bulk commodities, such as iron ore, coal, grain, and fertilisers, as well as for bagged commodities and/or goods such as rice and fertilisers, the charterers will have set out in their "order" (where they make known to the market (usually via brokers) the cargo that they wish carried from A to B) their preferred key terms. They seek offers from ship owners on the basis of theses terms, but the owners are at liberty, and often do in part or in full, offer on slightly different terms, favourable to the ship owners.

235. The cargo to be carried is not negotiable – it is what it is. Terms always negotiated, or at least the terms which the parties would expect to negotiate, include the quantity of cargo (usually a set number of tons, with a "margin" of say 5%, usually in the charterers' option - or a minimum and maximum quantity), the load and discharge port (or ports), the charterers preferred dates for the vessel to arrive at the load port, the rate at which the charterers undertake to load and discharge the cargo onto and off the ship, the rate for demurrage (if the charterers take longer than they have agreed to load or discharge the ship) and dispatch (the sum to be paid by the owners if the charterers load and/or discharge the vessel faster than they have contracted to do, which is usually half the agreed demurrage rate), and the basis on which any fixture will be concluded (that is, usually the charterers' recently fixed pro-forma charter party). If precise ports are not named, the parties are likely to negotiate the load and discharge port range(s), and the load and discharge rates at all the possible load and discharge ports. Also, negotiations are often held regarding the arrangements for discharging the cargo without production of the original Bills of Lading. The charterers usually do not mention, anyway initially, their freight ideas, but the freight is always negotiated. All these terms, perhaps with the emphasis on the freight rate and the date for delivery of the ship, are negotiable.

236. Depending on the nature of the trade, the charterers and the parties involved, there may be more or less flexibility on, for example, the rate at which the charterers undertake to load and discharge the cargo. This is not usually too flexible, as the contract with the ports is likely to set a load and discharge rate, but there can be some margin. Likewise the quantity of commodities and/or goods to be carried may be varied by negotiation, but it all depends on whether, for example, a certain quantity is required by the cargo buyers, and whether the cargo is already at the load port. Sometimes negotiated is whether the agents at the load and discharge ports should be appointed by the owners or the charterers. There is usually one agent at each port, and there is a view that the party appointing the agent may be favoured if there is any dispute between the owners and charterers. Assuming that, after negotiation, these elements of a fixture are agreed then they are incorporated into the Charterparty.

237. A standard voyage charter party will therefore incorporate the agreed "main terms". The document will also include details of the owners, the charterers, and a brief description of the ship. These are facts, and are not therefore negotiated.

238. The charter party will set out the commission and/or brokerage to be paid to the brokers and/or charterers. Again, this is almost never negotiated as brokers, like owners, operators, traders and charterers prefer not to work for nothing. The charter party will also set out the condition that the vessel is required to be in on arrival at the load port for the voyage (such as, clear and ready in all respects to load a cargo of grain) and this, depending on the cargo to be carried, may be negotiated to a certain extent. Other clauses which are sometimes negotiated but which are usually considered to be fairly standard are the owners' responsibility clause, covering in particular possible damage to the commodities and/or goods under certain conditions, damage caused by

stevedores, the payment of freight clause (and the penalties for late payment), the Bills of Lading clause, and clauses covering any particular features relating to the ports where the vessel is required to trade. For example, there are certain ports (particularly in South America) where it is customary for the vessel to lie safely aground at certain states of the tide.

239. Voyage charter party (and CoA) clauses which are reviewed but rarely changed from one charter party to another (although they are revised periodically to keep them up-to-date and relevant) include a non-deviation clause (which means that the ship should proceed direct from the load port to the discharge port – unless a "part cargo" is loaded, when the owner may be allowed to carry a parcel of cargo for another charterer from and to other ports, generally on the route of the first cargo), a clause saying that the owners shall have a lien on the cargo in respect of sums due by the charterers but not paid, the charterers' right to cancel the fixture if the vessel is late for the charter on the basis of the agreed cargo loading dates, the both-to-blame collision clause, the General Average and New Jason clause, the general strike clause, the war risk clause, and the general ice clause.

240. Also open for discussion, and changed within certain parameters, is the clause governing the law and jurisdiction of the contract, and the forum for any disputes. Both charterers and owners generally prefer to agree to the law and jurisdiction of a country with a history of maritime law and experienced marine courts and arbitrators.

1.7.6.2 Voyage charters – Wet Cargo

241. The terms negotiated for the carriage of large quantity of (usually crude) oil are fewer that for dry cargo voyage charters. The main terms generally consist of the quantity of commodities and/or goods to be carried, the load and discharging ports, the loading dates, the freight rate, commission, and the charter party on which any fixture is to be based. The terms actually negotiated tend to be the freight rate and, possibly, the dates for loading the cargo. There is less negotiation as a general rule on other aspects, particularly when demand for ships is strong.

242. Smaller volumes of commodities and/or goods (below VLCC size) are negotiated on a similar basis to that described above, but for the smaller sizes there may be more flexibility in the loading dates, and the commodities and/or goods to be carried, as well as, less often, the load and discharge ports.

243. For "product" cargoes – refined oil commodities and/or goods – and chemical cargoes, a there may be further flexibility due to the nature of the product and if there are fewer ships available to lift the cargo. The flexibility is, however, limited as a rule. Particularly important in this sector may be the last three cargoes carried by a ship, as the residue left may affect the charterer's planned cargo. This means that although there may seem to be a number of vessels available to carry a particular cargo, due to their recent trading history this may not be the case.

244. The charter party for tankers will basically provide for all the aspects as for dry cargo, with logical amendments for the tanker trade.

245. In the table below we have provided an overview table on negotiable and non-negotiable terms. This table will be further elaborated in section 1.7.11 of this Report, were the terms and the procedure on how vessels are fixed is explained in greater detail.

Overview table on negotiable vs. non-negotiable terms for voyage charters				
Terms	**Non-negotiable**	**Negotiable**		
		Sometimes	Often	Always
Commission		X		
Freight Rate				X
Demurrage rate				X
Despatch rate				X
Laydays		X	X	
Laytime		X	X	
Load and discharge ports		X		
Name of charterer		X		
Preferred standard form of charter-party		X		
Rider clauses (additional clauses)				X
Shinc/Shex[109]		X		
Shippers/receivers approval (normally 24 hours)		X		
Type of commodities and/or goods	X			
Vessel age			X	X
Volume of commodities and/or goods including +/- 10%		X	X	

246. CoAs may be considered as a series of voyage charterers linked together under one contract. Thus the comments above on voyage charterers apply to CoAs. The approach to and workings of CoAs are described in section 178 of this Report.

1.7.6.3 Time Charter

247. In much the same way as for a voyage charter party, the terms for a time charter party – whether for a "trip" or a longer "period" - that are always open for negotiation are the "main terms". These terms and conditions tend to be negotiated more heavily that the equivalent voyage charter terms, depending on whether the order is for a short trip – when there is usually less flexibility from charterers as they have specific commodities and/or goods to transport – or for a period – where there maybe more scope for accommodating each sides' key requirements. Whether there is a shortage of ships, or rates are high (thus the market is in favour of the owners) is also relevant. If so, charterers may have to allow the owners to dictate key terms. The reverse is true if the market favours the charterers. There is greater scope for negotiation and compromise as, for example, whilst the charterer fixing a vessel for a short "trip" with one cargo would prefer the vessel to be delivered to him at the load port, as he is paying for the vessel per day he could take delivery of the vessel at her previous discharge port and adjust the daily rate of hire paid appropriately. This is a simple example. It may at first sight seem that paying less hire for, in the end, slightly more days

109 "Shinc" means Sundays and holidays included and "shex" means Sundays and holidays excluded.

may be the same as paying a higher daily hire rate for a shorter duration. The fact is that the risk shifts too, so that the charterer will be responsible for the vessel for longer.

248. Under a time charter, the charterers will again have set out in their "order" their preferred basis of fixing. Ship owners or operators will offer based on the order, but most often with variations. Important aspects and terms for a time charter party include the size and description of the vessel. As the charterers will have the full use of the vessel they need to know in more detail that a voyage charterer the ship's precise description. Especially important is the speed and consumption of the vessel, as the time charterers have to pay for the bunkers (fuel). Under a time charter party the owner will warrant that, at least in smooth and moderate sea and wind conditions, the vessel will perform at a certain speed and not exceed a certain consumption. Of course, this cannot really be negotiated: the speed and consumption figures are representations of performance. That said, a poor speed and/or consumption may result in a charterer declining to consider a vessel, or offering a lower hire rate. Time charter-parties contain provisions covering the underperformance of a vessel, which may be compensated for in money by the owners to the charterers, or the charterers may have the right to cancel the fixture, even if it has commenced. The quantity of bunkers that the charterers take over (buy) when the vessel is delivered to them, and the quantity left on board (sold back to the owners) when the charterers redeliver the vessel to the owners is almost always negotiated. So are the prices of bunkers, both to apply at the start and at the end of the time charter.

249. There is often a negotiation as to where and when the vessel will be placed at the service of the charterers. This may especially be so for longer period time charters. Likewise, for redelivery the parties may agree a port, an area of the world or a number of areas. For example, they may agree redelivery on dropping last outbound sea pilot at a safe port Singapore/Japan range or, in charterers option, Skaw/Passero range. The duration of a time charter is always discussed, and it may or may not be contentious. The charterer will seek the greatest flexibility, whereas the owner will want to be more certain of when he is getting his vessel back to operate himself.

250. For a trip time charter, the charterer will usually have a cargo and, assuming that the owner is willing to carry it, there should be no difficulty on this point. The practice, though, is for the charterers to be allowed to load a multitude of cargoes, except those specifically excluded by agreement. Some normally excluded commodities and/or goods may be allowed, if loaded under certain conditions. These aspects may form part of the main terms negotiation, although usually the cargo exclusions will be considered when the "details" of the charter party are considered. This is because the commodities and/or goods which most tramp owners wish to exclude are well known, and if such a cargo is to be carried it usually becomes part of the main terms negotiation. In the table below the consultants have listed various commodities and/or goods which are often excluded for a given dry bulk vessel and the reason why[110].

[110] The information in the table is taken from rider clauses of a dry bulk vessel.

Typical trading exclusions for vessels	
Trading exclusions countries or regions	Why excluded?
Iraq, Libya, Cambodia, North Korea, Turkish Occupied Cyprus, Albania, Liberia, Algeria, no direct trading between China and Taiwan	Geopolitical; war *etc*.
Cuba	USA
Scandinavia	Because if vessels sail here they have to accept regulations with respect to the payment of the crew *etc*.
Gipsy Moth restricted areas	The gipsy moth can damage the cargo.

251. Of course, the hire paid by the charterers to the owners is always negotiated. So are payments such as sums in lieu of hold cleaning, and payments in respect of communications between the vessel and the charterers.

252. The time charter party will incorporate the agreed "main terms". As for a voyage charter party, the document will include details of the owners, the charterers, and the commission and/or brokerage to be paid to the brokers and/or charterers). Again, the charter party will set out the condition that the vessel's cargo spaces are to be in on delivery to the charterers, which may be negotiated to some extent. The clause covering the responsibility for any damage caused by stevedores is often negotiated. Other clauses which are sometimes but rarely negotiated include those relating to the owners and charterers responsibilities during the charter period, the payment of hire clause (especially regarding late payment), the Bills of Lading clause, and clauses covering any particular features relating to the ports where the vessel is required to trade

253. Rarely changed clauses include a cargo lien clause in favour of the owners, provisions to cover any poor or bad stowage of cargo, a clause saying that the charterers' have the right to cancel the fixture if the vessel presents for delivery outside the agreed dates, the both-to-blame collision clause, the General Average and New Jason clause, agency, the general strike clause, the war risk clause, and the general ice clause.

254. The approach to the law and jurisdiction of the contract is the same as for voyage charters.

255. The broker's role includes having knowledge of and a good understanding of all standard clauses, as well as an understanding of the potential consequences of non-standardised clauses. His duty as a professional negotiator is to convince the two parties to agree.

256. Bareboat charters have little to do with the immediate carriage of cargo. They are not explained in detail in this section for this reason their purpose is described at a later stage.

1.7.7 *Follow-up of contractual matters*

257. When a charter party has been fully agreed by the parties, it is binding. For example, notices must be sent from the owner to the charterers (e.g. to state the estimated time of arrival to the loading port), information about the estimated intake of cargo and, in case of time charter deals, the value of bunkers the ship has onboard must be given. The charterers must send voyage orders to the ship

and owners. The timing of payments of freight/hire is governed by the charter party, and the broker should follow up with notifications to the involved parties. In case of short voyages, the ship may arrive at the discharging port before the Bills of Lading. In such cases a Letter of Indemnity is often issued to protect the owner or carrier against the release of the cargo without the original Bills of Lading. Normally the broker communicates such requirements.

258. Most of the large ship broking companies have organised this activity in operations, or "post fixture" departments. They employ people that follow up each voyage after the fixture is made.

1.7.8 *Disputes*

259. Charter parties are complex contracts. There are many issues that are open for misinterpretation as well as misunderstanding. For example, terms are usually agreed as to the financial effect of delays caused by weather and climate conditions. Such delays may give rise to demurrage claims. A common issue is whether the claim has been calculated correctly. The brokers (or his post-fixture team) are well placed to assist and run the necessary calculations. In the case of time charters, a regular issue is whether the vessel has been described correctly with respect to speed and the consumption of bunkers. Another issue in time charter parties is where a port has been declared "safe" by the charterer and the vessel grounds, or touches the bottom. The charter party will set out who bears responsibility, and provides for how such a situation may be resolved. Here, the broker evaluates the contract and recommends an approach for dispute resolution. Many of the larger ship brokering companies have quality assurance systems to provide guidelines for documentation.

1.7.9 *Remuneration*

260. Brokers are paid a success fee for the services provided when a contract is successfully concluded. Such fees are based on freight or hire earned and paid. The fee is not paid to the broker if the contract does not materialise, or if the charterer does not pay freight or hire (due to bankruptcy, cash flow problems, fraud, *etc*.).

261. The fee, called commission, is, by custom of trade, 1.25% of the gross freight under a voyage charter or CoA, adjusted for demurrage or despatch[111]. Under a time charter, it is 1.25% of the agreed hire. The fee is always paid by the ship owner and/or operator and is paid to each broker involved.

262. The percentage of the fee is rarely negotiable in most trades, but can be reduced for some long term time charters (of at least several years) or large CoAs.

1.7.10 *When are brokers not used?*

263. There is no specific market or geographical area where tramp shipping fixtures are not concluded through the use of brokers. Even in the LNG market, where (long term) fixtures have traditionally been negotiated and concluded between principals, brokers have a role. They are certainly used in spot fixing and to arrange short term employment.

264. If a charterer and ship owner have a long standing relationship, they sometimes fix without the use of brokers. However, a broker is frequently nominated (and paid commission) after the fixture has been concluded, as the support of a broker may be useful during the course of the charter-party.

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[111] Despatch is the "discount" the owners give the charterers if the charterers manage to use less time than agreed for loading and discharging. Quite often the despatch rate is half of the demurrage rate.

265. In the more industrialised segment of tramp shipping markets (e.g., car carriers, forest products, and some chemicals) the direct role of brokers may be more limited in fixing large contracts. However, the same ship owners and charterers make use of brokers for chartering in tonnage when required, or fixing spot voyages.

266. Even when fixtures are concluded without brokers actually putting the parties together and negotiating terms, they are usually used by their principals as an information source as to rates, views on the short and long term trends in the market, and other usual information. Fixtures, even when concluded between principals, are very rarely properly private. A broker should be aware when his client's chartering order or ship is no longer "open", having been fixed, and the broker will usually be able to ascertain how and at what level the "order" and vessel was covered.

1.7.11 *Examples of requirements when fixing a ship*

267. A set of requirements is usually described as the "main terms" (as mentioned earlier) of the contract. Main terms for a voyage charter are different to those for a time charter (trip), and may vary somewhat from sub-market to sub-market.

268. In the following sections, the main terms for both voyage charter and time charter are presented.

1.7.11.1 Voyage charter

269. For a voyage charter the main terms may be along the following lines (for a dry bulk market order):

(a) Acct Grainco

(b) 50,000/10% moloo wheat (sf abt. 45)

(c) 20-30 October

(d) Vancouver / Yokohama

(e) 10,000 mt wp shinc / 6,000 mt pwwd shex

(f) Dem/half despatch

(g) Sub charterers Gencon c/p proforma

(h) Sub shippers/receivers approval 24 hrs after fmt.

(i) 3.75% total here incl 2.5% addcom.

Which can be translated into:

(a) Acct Grainco: this is the name of the charterer

(b) 50,000/10% moloo wheat (sf abt. 45): this is the volume of cargo. In this case the abbreviation "moloo" means "more or less in owners option", which means that the charterer can accept a minimum of 45,000 mt carried but can guarantee only up to 55,000 mt. "sf" means the stowage factor of the cargo and is usually given in metric tonnes per cubic-feet. In this case one mt of this wheat takes up a volume of 45 cubic feet

(c) 20-30 October: these are the laydays. The ship that is fixed cannot present and start loading before the 20^{th} and must arrive before the 30^{th}

(d) Vancouver / Yokohama: these are the loading and discharging ports.

(e) 10,000 metric tonnes wp shinc / 6,000 mt pwwd shex: these are the loading and discharging terms in tonnes per day. The first figure refers to the loading port and the second to the discharging port. "wp" means "weather permitting" and refers to how time is counted. In the case of a ship loading 50,000 mt it should in theory take five days to load it. However, as grain is sensitive to water, loading usually has to stop if it rains or snows. Thus, the charterer guarantees the loading only if the weather permits. If it rains, the time does not count. Completing the loading may actually take six or seven days (or even more) but the charterer does not have to compensate the owner for this as the owner has agreed that time does not count. "pwwd", meaning "per weather working day" which is similar, but very unfavourable to the owner. This means that, in this case, if it rains for a couple of hours in the morning and loading is halted, the whole day does not count and the charterer has no obligation to compensate the owner. "shinc" and "shex" mean "Sundays and holidays included" and "Sundays and holidays excluded". The former indicates that time counts during weekends and holidays whereas the latter indicates that such time does not count. Again, it is linked to the charterer's obligation to compensate the owner if more time is used than agreed.

(f) Dem/half despatch: these are linked to the time used in loading and discharging ports and are given in terms of USD/day. The demurrage is the daily rate the charterers have to pay the owners if more time than agreed is used. Despatch is the "discount" the owners give the charterers if the charterers manage to use less time than agreed for loading and discharging. Usually the despatch rate is half of the demurrage rate, thus the charterer has an incentive to load the vessel as quickly as possible.

(g) Sub charterers Gencon c/p proforma: this is the "standard form" of charterparty that will form the basis of the fixture. In this case, the charterer use a standard voyage charter party which, in most cases, have a number of additional clauses ("rider clauses") included due to the nature of the trade. The word "sub" is an abbreviation of "subject" (to agreeing all clauses).

(h) Sub shippers/receivers approval 24 hrs after fmt: charterers normally need a reconfirmation from the shippers that the agreed quantity is available and that the nominated ship is acceptable to them, and that receivers are happy with the ship and are prepared to receive the cargo on an estimated date in the future. Other factors may also need to be approved. The charterers promise to have this information will be made from within 24 hours after fixing main terms. Only upon "lifting subs" is a valid contract is entered into. The latter varies with jurisdiction and there is a particular difference between US and English law on this point.

(i) 3.75% total here incl 2.5% addcom: this is the commission structure. The charterer demands an address commission of 2.5% (a return commission, or discount) and the broker quoting this cargo require 1.25% in commission.

270. A voyage charter order for a log or lumber carrier will follow the same approach, with the cargo type and quantity set in either tons or cubic metres, depending on the cargo.

271. For a voyage charter for a tanker (in this case a VLCC) the "order" from the charterers and the main terms may be along the following lines:

(a) Acct TankerCharterer

(b) 250,000 crude

(c) 28-30 October

(d) 72 hours laytime

(e) Kharg / East

(f) Sub charterers c/p proforma

(g) Subs 24 hrs after fmt.

(h) 2.5% total

Which can be translated into:

(a) Acct TankerCharterer: this is the name of the charterer.

(b) 260,000 crude: this is the volume of cargo. In this case an unspecified grade of crude oil, but the loading terminal; gives a guide as to the grade. The vessel will be expected to load the quantity specified.

(c) 28-30 October: these are the laydays. The ship that is fixed cannot present and start loading before the 28th and must arrive before the 30th. The "window" is tight, from the start to the finish date.

(d) 72 hours laytime: this is the period allowed to the charterers for carrying out the loading and discharging operations. If further time is used, demurrage will be due to the owners.

(e) Kharg/East: this means that the commodities and/or goods is to be loaded from the terminal at Kharg Island, Iran. The discharge port is not yet nominated (perhaps the cargo has not yet been sold) and the charterers require the option to discharge the cargo at any suitable port/terminal in the Far East.

(f) Sub charterers c/p proforma: this indicates that the charterers have their preferred "standard form" of charter-party that will form the basis of the fixture. The details of the order are less than for a dry cargo order, and the other terms will be covered in the charter party and are considered less negotiable than the equivalent in dry cargo charter parties. The word "sub" is an abbreviation of "subject" (to agreeing all clauses).

(g) Subs 24 hrs after fmt: as for a dry cargo voyage charter (see above).

(h) 2.5% total: this is the commission. How it is split is not explained, but it is likely that the charterer demands an address commission of 1.25% (a return commission, or discount) and the broker quoting this cargo requires 1.25% in commission.

1.7.11.2 Time charter

272. For a time charter trip the main terms may be along the following lines (for a dry bulk market order):

(a) Acct Grainco

(b) 50/60,000 dwt non o/a grainclean

(c) APS Vancouver 20-30 October

(d) TCT Japan/S.Korea range abt 25/35 days WOG

(e) Sub charterers NYPE c/p proforma

(f) Sub shippers/receivers approval 24 hrs after fmt.

(g) 3.75% total here incl 2.5% addcom.

Which can be translated into:

(a) Acct Grainco: this is the name of the charterer50/60,000 dwt non o/a grainclean. The requirement is for a vessel (the type is not described, but from the context she must be a bulk carrier) of 50-60,000 dwt tonnes, non overage (that is, maximum 15 years old), and ready to receive a cargo of grain

(b) APS Vancouver 20-30 October. The ship that is fixed cannot earn hire under the charterparty unless she presents for delivery, ready in all respects under the terms of the charter, on arrival (or passing) the pilot station at Vancouver not before the 20th and before the 30th. On discussing the terms, the fixture would probably be concluded on the basis of AFSPS; that is, for the avoidance of doubt, arrival (or passing) the first (from the sea) sea pilot station, at this case off Vancouver

(c) TCT Japan/S.Korea range abt 25/35 days WOG. The charterers are looking for a suitable vessel for one "time charter trip" with a duration of "about 25/35 days Without Guarantee". The vessel will be redelivered to her owners at a port, in the charterers option, in the "Japan/South Korea" range. After negotiation, this will probably be on DLOSP – dropping last outbound sea pilot.

(d) Sub charterers NYPE c/p proforma: this is the "standard form" of charter party that will form the basis of the fixture. In this case, the charterers have mentioned a standard time charterparty which, in most cases, have a number of additional clauses ("rider clauses") included due to the nature of the trade. The word "sub" is an abbreviation of "subject".

(e) Sub shippers/receivers approval 24 hrs after fmt: charterers normally need a reconfirmation from the shippers that the agreed quantity is available and that the nominated ship is acceptable to them, and that receivers are happy with the ship and are prepared to receive the cargo on an estimated date in the future. Other factors may also need to be approved. The charterers promise to have this information will be made from within 24 hours after fixing main terms. Only upon "lifting subs" is a valid contract is entered into. The latter varies with jurisdiction and there is a particular difference between US and English law on this point.

(f) 3.75% total here incl 2.5% addcom: this is the commission structure. The charterer demands an address commission of 2.5% (a return commission, or discount) and the broker quoting this cargo require 1.25% in commission.

273. Time charter orders for tankers, car and truck carriers, gas carriers and other vessels follow the same general approach, with the features of the type of vessel required set out by the charterers.

1.7.12 *List of ship brokers in relation to commodity*

274. We have listed above some of the major ship brokers. Below we list some of the brokers involved in each sub-market. It is difficult to provide a ranking (of size or by any other measure) as this can vary with time. A company may be substantial within one sector of a market, but not necessarily for the entire market. Thus, the following list provides an overview of a number of the major companies.

1.7.12.1 Oil and petroleum products

Company	Nationality
Barry Rogliano Salles	France
Matsui & Co	Japan
Fearnleys	Norway
Bassøe	Norway
Riverlake Shipping	Switzerland
ACM Shipping	UK
E.A. Gibson	UK
Galbraith's	UK
H. Clarkson	UK
Braemar Seascope	UK
Charles R. Weber	USA
Mallory Jones Lynch Flynn	USA

1.7.12.2 Forest Products

Company	Nationality
R.S. Platou Shipbrokers	Norway
Riobroker	Brazil
Lorentzen & Stemoco	Norway
Gothenburg Chartering	Sweden
Henry Nielsen Oy	Finland
CTL Westrans	Canada
SSY (Vancouver)	Canada
Beacon	New Zealand

1.7.12.3 Dry bulk

Company	Nationality
Barry Rogliano Salles	France
Braemar Seascope	UK
Frachtkontor Junge	Germany
Fearnleys	Norway
E.A. Gibson	UK
Galbraith's	UK
H. Clarkson	UK
Howe Robinson	UK
J.E. Hyde	UK
Lorentzen & Stemoco	Norway
R.S. Platou Shipbrokers	Norway
Simpson Spence & Young	UK
Skaarup Shipbrokers	USA

1.7.12.4 Chemicals

Company	Nationality
Alexia Shipping	Finland
Bergen Tanker Brokers	Norway
Eastport Maritime	USA
Frachtkontor Junge	Germany
E.A. Gibson	UK

H.Clarkson	UK
Inge Steensland	Norway
Nesttun Chartering	Norway
Quincannon	USA
Braemar Seascope	UK

1.7.12.5 Pure Car Carriers and Pure Car and Truck Carriers

Company	Nationality
Barry Rogliano Salles	France
Ernst Russ	Germany
Fearnleys	Norway
Germania Chartering	Germany
H.Clarkson	UK/Italy
Hesnes Shipping	Norway
Howard Houlder	UK
Marine Trader	Japan
Pronav	Germany
R.S. Platou Shipbrokers	Norway
Trollship	Switzerland

1.7.12.6 LPG

Company	Nationality
Barry Rogliano Salles	France
Braemar Seascope	UK
E.A. Gibson	UK
Fearnleys	Norway
H.Clarkson	UK
Inge Steensland	Norway
Lorentzen & Stemoco	Norway
Poten & Partners	USA
Braemar Seascope	UK

1.7.12.7 LNG

Company	Nationality
H. Clarkson	UK
Poten & Partners	USA
Fearnleys	Norway
Barry Rogliano Salles	France
E. A. Gibson	UK
Braemar Seascope	UK

1.7.12.8 Reefer

Company	Nationality
Baltic Union Shipbrokers	UK
Clarkson New Zealand	UK/New Zealand
Ernst Russ	Germany
Hinrichsen & Co	Germany
Ocean Reefer Services	UK

Orion Shipping	Norway

1.8 PRICE TRANSPARENCY

275. The tramp shipping market is "open". That is to say, a very large number of owners, charterers and operators are engaged in tramp shipping. Deals are concluded by parties in competition with other parties. Invariably when a contract is concluded, some parties competing for the business have "missed out". Yet, at different times, these same parties have usually had the opportunity to conclude the business because they were at some stage either party to the negotiations or had the chance to be so involved. The effect of this is that those who conclude the deal, as well as those who missed it, know exactly or very closely the terms and money at which it was concluded.

276. Many contracts concluded are, theoretically, private between the parties. In reality, there is very little privacy in the Tramp shipping market. This is for a number of reasons. In particular, in an open market those who are seeking to conclude either the fixture of a ship or the fixture of a cargo will seek the "best" (for them) sea transport deal. That is, a ship owner or ship operator will seek to maximise the revenue, whereas the charterer or cargo operator will seek to pay as little as possible. A consequence is that when an owner is seeking to fix his ship he will, as far as possible, speak with as many charterers as possible to establish what they will pay for his vessel. He seeks to maximise his revenue. The charterer will adopt a similar position in talking with ship owners and operators, in an aim to minimise the sums he pays for sea transport. Most of these discussions take place via shipbrokers. Thus owners and charterers obtain, either directly or via brokers, an informed view as to what owners and/or charterers are willing to accept/pay at any one time in their area of the market. They will likely gain knowledge of the alternatives open to both parties in terms of, for example, the number of ships competing for a cargo.

277. Shipbrokers, of course, will also learn what their principals are prepared to fix at. Shipbrokers tend to have many clients, and they also speak amongst themselves (to a certain extent). Knowledge is the shipbroker's greatest resource. A shipbroker will seek to apply the information he has gained in talking to certain owners and/or charterers by using that knowledge to try to conclude further business with other owners and charterers. If shipbrokers use accurate market knowledge effectively, this will help them to fix, and ensure that other owners and charterers (and brokers) are appraised of the levels that their competitors are discussing at any one time. This approach is multiplied many times across the world.

278. The reality is that by the simple process of conducting their business owners, operators, charterers and brokers gain knowledge of the terms and money available in "the market". They all, to a certain extent and in different ways, disseminate the information to others in the course of business.

279. A shipbroker's role can be key in this. A shipbroker sets out to conclude business between an owner/operator and a charterer so that he earns his commission. A shipbroker is only paid on the basis of a deal concluded. When he spends time negotiating a deal but fails to fix it, he does not receive a commission. To persuade his principals to use his services he must provide an added value, which he may do in a number of ways. The most obvious and perhaps, important is that he must "know" his market. That is, he must be aware of the vessels open for business or likely to become open for business within a certain timescale and in a certain sector, the cargoes and/or charterers open for such a ship within that or a similar timescale, and the general sentiment as to the owners and charterers' approach to terms and freight/hire. Shipbrokers will do this in their chosen area (for example, geographical, size or commodity) and will perhaps be specialised or have a broader view of a larger sector of the market. In any event, by talking with their client owners and client charterers, as well as others in the market, they will "know" their market. As the information they hold is of no use to them if retained, the shipbrokers will seek to use the

information to fix other business. As they talk to other clients, the knowledge circulates and the whole tramp shipping market learns of the current pricing, terms and sentiment.

280. Charterers are always keen not to pay too much for the hire of a ship or movement of a cargo. In the same way, a ship owner is always keen not to "under sell" his vessel. They both, too, speak with other players in the market to establish that the deals that they are putting together are, at least, at a commercial price. Certainly each party will seek to avoid setting a new benchmark, high rates for the charterers and low rates for the owners. This is not always easy, but each party will do their best to ensure that they achieve the most favourable rates, given what others are agreeing around them.

281. Third party organisations such as The Baltic Exchange also collect information from the market and publish some reported fixtures. In addition research departments, either part of larger ship broking organisations or independent research groups, collect data from the market and, in different ways and at different times, publish or report it.

282. Sometimes a particular charterer may need to fix a ship at a very early date and may therefore be prepared to pay a little more than the "market" rate to secure that ship, and sometimes an owner will take a little less freight/hire than the "market" rate to reposition a ship. There is, though, minimal evidence of one owner against other, or one charterer against another, expecting to receive or pay very different rates. This illustrates that, over quite a considerable period of time, the information available to those in the tramp shipping market is readily accessible and quite transparent to those involved.

1.9 ROLE OF FINANCE INSTITUTIONS

1.9.1 *Introduction*

283. Shipping is a capital intensive industry and there are many different financial institutions who are involved in either providing or arranging finance for shipping companies. These include commercial banks, export credit agencies, investment banks, private equity houses and finance lessors. In simple terms the three basic sources of finance are loans (including bonds, export credits and seller's credits), finance leases (including tax leases) and equity (either private or public). Financing structures will usually involve a combination of these various sources of funds and some deals can be highly complex as a result.

1.9.2 *Commercial bank loans*

284. The most common type of financing structure is for a ship owner to borrow a loan from one or more banks and then secure that loan against a mortgage on the ship and an assignment of the ship's earnings and insurances. The assignment of earnings is usually a key security for the bank because it will often be looking to the income stream from the relevant ship to meet the owner's debt service obligations. For this reason, in loans where the bank is looking primarily to the value of the ship for its security rather than the overall financial strength of the borrower, banks will sometimes make it a pre-condition of lending that the owner has fixed the ship under a long-term charterparty or pool agreement. Banks will regard it as a better credit risk to lend on a ship which is contracted to a good quality charterer or pool, and this may be a factor in determining the pricing of a loan (since part of the credit risk will then pass to the charterer who may be a stronger credit risk than the owner). Indeed, it is not unusual to see deals structured where the interest rate margin is set at a lower level for periods when employment for the ship has been fixed with an acceptable charterer for a period of, say, 24 or 36 months.

285. Loan gearing varies from deal to deal but it is unusual for a bank to lend more than 80% of a ship's value and indeed gearing thresholds of 65% or 70% are more common. The remainder would then have to be made up by way of equity and/or subordinated (mezzanine) debt.

286. Loan amounts can range from a matter of only a few million US dollars to well in excess of one billion US Dollars. The large amounts involved mean that shipping loans are often syndicated amongst a group of international banks with one or more banks being mandated by the ship owner to arrange the composition of the syndicate. These banks tend to be banks with dedicated shipping teams who have demonstrated a long-term commitment to the shipping finance market and who have specialist industry expertise. According to Dealogic, the top five mandated arrangers of global syndicated loans for shipping companies during 2005 were as follows:

Rank	Mandated arranger	Deal value ($) (m)	No.	% share
1.	Nordea Bank AB	9,481	55	15.3
2.	DnB NOR Bank ASA	8,807	50	14.2
3.	Citigroup	4,898	28	7.9
4.	Calyon	3,487	10	5.6
5.	HSBC	3,372	17	5.4

287. Other commercial banks who are prominent in international ship finance include HSH Nordbank AG (the world's largest ship finance lender by aggregate loan portfolio size), BNP Paribas, ING Bank, Fortis, DVB Bank, Royal Bank of Scotland, Deutsche Bank and Deutsche Schiffsbank (although this is by no means an exhaustive list).

1.9.3 *Export credit agencies*

288. Export credit agencies such as The Export-Import Bank of Korea, The Export-Import Bank of China and Eksportfinans (in Norway) provide finance to the buyers of ships constructed in those jurisdictions as a means of supporting their domestic shipbuilding industries. The terms on which this type of finance can be provided are highly regulated to avoid unlawful subsidies but these deals are generally structured as secured loans with a fixed interest rate (which contrast with the floating interest rates generally payable on commercial bank loans). It is common for export credit loans to be provided alongside commercial bank debt.

1.9.4 *Mezzanine debt*

289. Mezzanine debt is loan debt which ranks in right of payment behind any senior bank debt or export credit agency debt. It is used to bridge the gap between the senior debt and the shareholders' equity and is therefore more risky than ordinary bank debt (which is reflected in its higher pricing). There are some specialist shipping funds which provide mezzanine debt as part of their portfolios. Other sources of mezzanine debt include hedge funds.

1.9.5 *Bond issues*

290. One source of debt for larger shipping companies is the public market where funds are borrowed from investors in return for debt instruments (bonds) issued by the company. These can be traded publicly on a local securities exchange. These bonds are commonly unsecured (but can be

secured) and are arranged by the ship owner in co-operation with an investment bank who will assist in arranging their placement.

1.9.6 *Seller's credits*

291. An occasional source of finance for buyers of ships is a credit from the seller by way of a deferral of all or part of the purchase price. In the case of newbuildings, such credits are sometimes funded by way of a credit to the seller from an export credit agency, and the seller then passes on the benefit of that credit to the buyer. Seller's credits are usually secured in the same way as for a commercial bank loan (i.e. with a mortgage on the ship and an assignment of its earnings and insurances).

1.9.7 *Finance leases (including tax leases)*

292. Under these structures the financier will incorporate a subsidiary to be the registered owner of the ship and then provide funding to that subsidiary either by way of equity and/or a loan. The registered owner (*i.e.* lessor) then lets the vessel on bareboat charter to the charterer (*i.e.* lessee) who pays charter hire at a rate which includes an element which is designed to repay the underlying finance costs. Such structures will often have a built-in purchase option so that at the end of the charter period, once the underlying funding has been repaid, the lessee will have the right to purchase the vessel for a set or, even, a nominal sum.

293. The security structure for these types of financings is different to that for a loan because the financier already holds title to the ship and so it will not be granted a mortgage over the ship. However, it will often still want an assignment of the lessee's earnings as security for the lease rentals payable by the lessee and hence, for the same reasons that a commercial bank may look for there to be long-term contract cover in place for the ship, the finance lessor may equally impose a similar requirement.

294. Finance lease structures may also be used in order to take advantage of certain tax benefits. Such structures have been common in recent years in various jurisdictions (such as the United Kingdom and France) although it is true to say that tax authorities around the world have been clamping down on these structures and that they are becoming less frequent as a result. Such leasing structures are often proprietary in nature and involve complex documentation, but generally they will involve maximising tax benefits which might otherwise have been unavailable to the lessee if it were the direct owner of the ship (e.g. capital allowances which exceed the lessee's taxable profits and which could not otherwise be fully utilised for lack of sufficient taxable profits against which to set them off in full). The benefits thereby derived by the lessor can be "shared" with the lessee in the form of a reduced rate of hire (effectively providing a lower financing cost under the finance lease).

1.9.8 *Equity (either private or public)*

295. It is common for shipping groups to arrange their affairs such that each ship in the group is owned by a separate company incorporated specifically for that purpose. In such cases the owning company will be a 100% subsidiary of a group holding company who will provide the equity in full. In other cases the ship owning company may be used as a joint venture vehicle for a private group of individual or corporate investors who will contribute equity pro rata to their respective holdings. Similar structures can be used for limited partnership schemes which are discussed in further detail below in respect of German KG funds and Norwegian KS schemes.

296. On the public equity side, share capital can be raised in the public markets by way of initial public offerings and follow-on offerings. These are arranged by investment banks in the relevant

markets. NASDAQ has proved a popular exchange for listing shipping companies, as has the Oslo Stock Exchange.

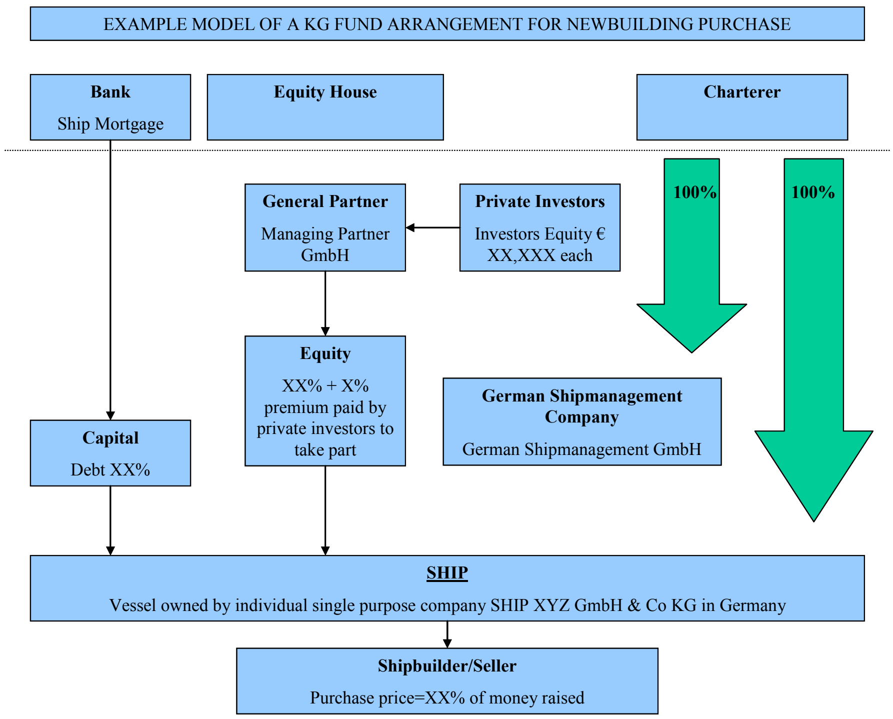
1.9.9 *KG funds*

297. KG funding is used to bring private investors in a transaction to provide the equity portion of a deal to purchase a ship. In a traditional ship finance deal the ship owner and the beneficial user are one and the same. In a KG structure the final user of the vessel is separate from the actual owner, but the user gets the full benefit of the vessel as if it was the owner through contractual means. In contrast to mortgage financing, equity in KG fund deals is provided by a third party and the level of equity the end user has to put in is much smaller or even zero. An equity house creates a fund with money from private investors and a loan from a bank, the beneficial user charters the ship on bareboat terms from the fund or via an intermediate ship owner or manager. However, the manager/ship owner has to be based in Germany and all operations must be carried out by a German company.

298. Thus, in practical terms, a foreign end-user can only time charter a vessel owned by a KG.

299. The limited liability partnership structure means that the private investors taking part in the KG are liable only for the amount they have invested. Private investors appoint a trustee from the managing company to take the day-to-day decision on their behalf.

300. The following figure shows the generalized model for KG funds:



Source: CFB Commerz Fonds (2006)

301. The KG is formed for a single purpose, the ownership of the ship, and cannot undertake any other commercial activities such as the purchase of property for rental. The KG fund will cease to exist when the ship is sold. The life span of a KG fund can range from just a few years to 15 years or more. The KG is a closed end fund, meaning that there is a limit on the number of investors that take part. Once all the shares in the limited liability partnership have been taken up, the fund is closed and no more trustee/investors take part.

302. Most of the ships are depreciated over 15-16 years with a scrap/residual value of 5-10% at the end. Under the tax authority rules, double depreciation is allowed in the first two years if the declining method of depreciation is chosen. This means that depreciation over 15 years is 6.67% per year, and double linear is 13.33%, allowing 26.66% in the first two years.

303. A KG is tax transparent. Any profit or loss flows straight through the KG and is spread out among the general partner and the investors in proportion to their stake in the KG.

304. KG finance has traditionally also been quite competitive in terms of offered time charter rates and quite flexible in cases of sales and time charter back to sellers. In the latter case, it has enabled sellers to keep control of vessels while freeing up capital for other ventures.

305. In the late 1990s, Frontline sold a number of VLCCs to KGs syndicated by Dr Peter's and we see that within the last few months Koenig & Cie have syndicated a number of KG's for tankers based on sale/charterback. The sellers were able to sell at a high price but still retain the commercial control of the vessel: more or less an off balance sheet finance deal as the time charter rate reflects the investment made. The seller could raise the price, but the time charter rate paid will reflect this higher price. As industry participants expect a softening in the tanker markets the coming few years many believe it will be harder to syndicate tanker deals as the investors see the residual value risk involved.

1.9.10 *KS*

306. K/S – "Komandittselskap" is the Norwegian type of limited partnerships. It is in many ways similar to the German KG and other forms of limited partnerships predominantly used for raising capital for single unit/single purpose companies for either ships or real estate.

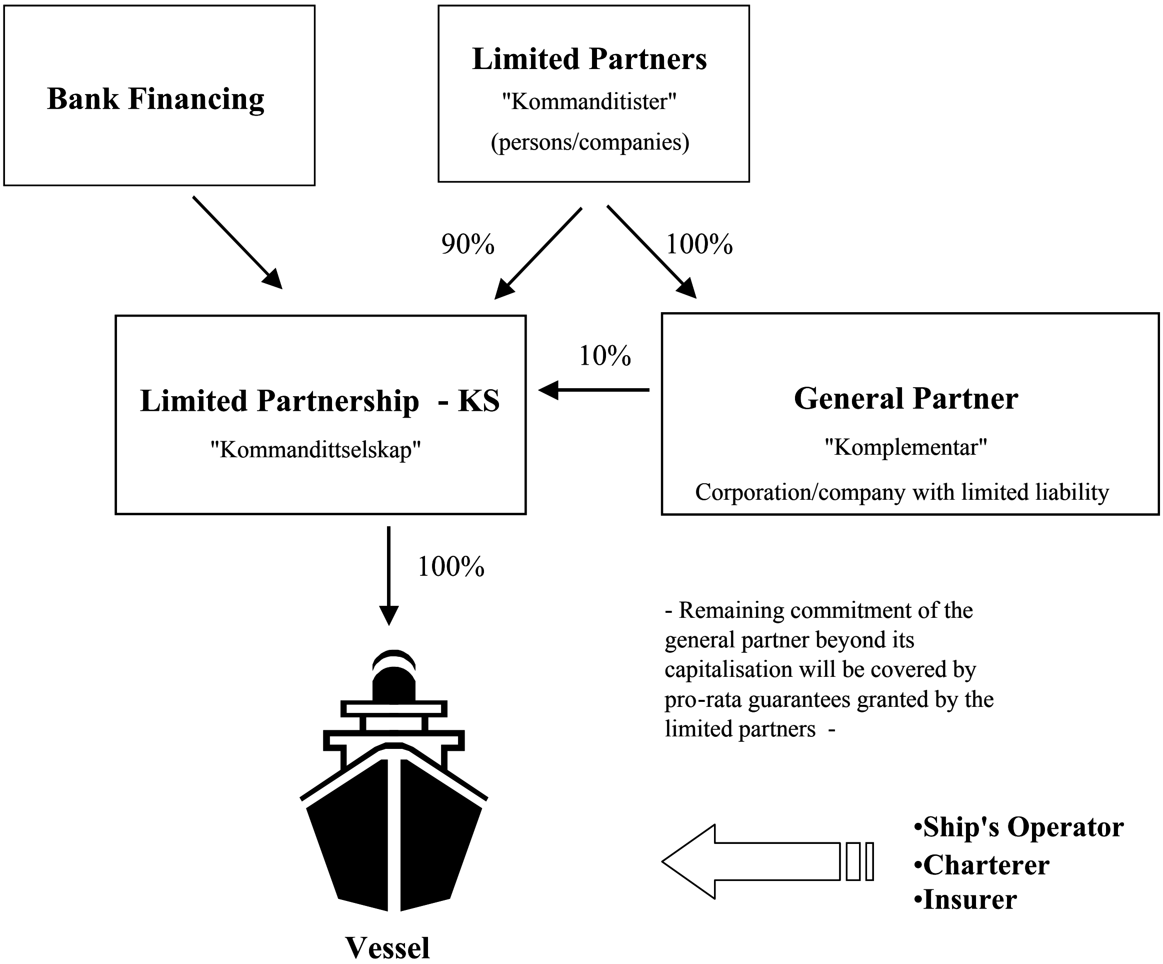
307. Norway, like other countries, has a written code (selskapslov) for general and limited partnerships. The fiscal regime is also well defined. Thus, rules and regulations are clear, transparent and predictable and partnership agreements can be made short and simple.

308. One definition of a limited partnership is: "A form of business organisation under which two or more persons associate and contribute their property or capital to carry forward some trade, business, investment or other venture to share in its control, profits and risks". A limited partnership has one general and one or several limited (also referred to as special) partners. The former actually conduct the business and have the full liability. The latter do not take part in the business, but merely invest capital with a liability limited to the amount of the actual investment or the committed capital (if there is a commitment beyond the initial investment). The agreement between the partners (the partnership agreement) setting forth the conditions and terms under which the partnership is formed, will regulate how to split the profits, how partners can vote, *etc*.

309. The main difference between a general partnership and a limited partnership is the limited partners' limited liabilities as opposed to the general partners' unlimited liabilities. This distinction is crucial.

310. Typically, the general partner is a single purpose company with limited liability sufficiently capitalised to meet the minimum legal requirement of a 10% ownership share in the KS. It is either the initiator(s) or manager of the project who owns the general partner, or it is owned by the limited partners on a pro rata basis related to the ownership percentages in the KS represented by their limited partnership shares. Thus, in a KS with ten participants, a 10% limited partner will own 9% directly in the KS and a further 10% indirectly as a shareholder in the general partner (company).

311. A schematic presentation of the KS structure where the general partner is a company owned by the limited partners on a pro rata basis is set out below:



Source: Fearnley Finance (2006)

312. The mortgage over the vessel constitutes the prime security to the lending bank.

313. In addition, the bank takes an assignment over freight revenues and insurance proceeds. It will have a "secondary" security in the uncalled/committed capital of the KS for which each partner is liable on a pro rata basis, yet limited to each partner's percentage participation. The purpose of having an uncalled capital beyond the initial requirement to get the project going is to obtain the highest possible level of financing.

314. If the vessel is not too old, *i.e.* less than ten to fifteen years, on a five years plus bareboat charter party to a “bankable” charterer, and with an operator/technical manager of a reputable standing, then 80-85% financing may be obtained. Such a level of financing requires a paid and uncalled capital (committed capital/total partnership capital), typically of 35% of the project price.[112]

315. In the unlikely event that there should be a need for working capital in the project, related to the operation of the vessel (the running is for the account of the charterer under the bare boat charter party) or for debt service, calls can be made under the available committed capital.

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112 This can however vary.

316. By statute, at least 40% of the committed capital must be paid up either at the establishment of the KS or over the ensuing two years, with at least 20% to be paid up at the beginning.

317. The committed capital can be increased over time, requiring a quorum of at least 50%.

318. The by-laws of the KS can also incorporate different quorums necessary for resolutions regarding very important matters, such as the sale of the asset ("sales trigger" clause - for instance at 25%).

319. The KS is meant for single purpose investments, as opposed to other corporate structures which duration may well exceed several generations of assets, and whose by-laws will reflect that. It is therefore not surprising that shares quoted on the stock exchanges sometimes trade at hefty discounts. The investors hardly ever get full net asset value. For the KS, it is different as the by-laws reflect the single purpose structure. When the asset is being disposed of, the partnership is liquidated and the partners receive a distribution equivalent to their share of the net proceeds.

320. Until the KS is liquidated, partnership shares can be bought and sold, and the corporate manager will create a market in the shares. Typically, the share price will reflect the estimated underlying value, less a certain discount.

321. The uncalled capital (committed beyond the called up capital) enables the KS to borrow more than what is normally obtainable solely with the vessel as collateral.

322. The KS is not a tax subject in its own right, and consequently any tax position (usually positive in the early years due to vessels' high depreciation allowances) filters through to the partners, who may get tax relief and can offset these against other taxable income. In addition, Norwegians will obtain reductions in their wealth tax bills as vessels have a low tax assessment value, usually lower than the nominal amount of the outstanding debt, thereby creating a negative wealth item in their tax declarations.

323. Through a Norwegian registered KS the grouping together of investors from various jurisdictions is easy. As revenues deriving from shipping activities organised through KS companies are taxed where the investors reside, there is no inconvenience to non-Norwegians in having their shipping investments organised through a Norwegian KS. On the contrary, it may be advantageous to foreigners to make the best of the well established Norwegian system.

2. MARKETS IN DETAIL – DEMAND ANALYSIS

2.1 INTRODUCTION

2.1.1 *Scope*

324. The analysis provided below describes the demand for commodities by their primary mode of travel, Liquid Bulk, Dry Bulk or Neo-Bulk. These modes are defined as follows:

- **Liquid Bulk:** commodities that are shipped in a liquefied state, by vessels designed to handle liquids. These include commodities such as Liquefied Natural Gas (LNG) and Animal and Vegetable Oils. Despite the fact that certain liquefied products, such as Liquefied Natural Gas (LNG), are highly specialised and move in ships that handle LNG exclusively, it is classified as moving in liquid bulk vessels because it is a liquid and must be handled as such at ports. Liquefied Petroleum Gas is included in Natural Gas data, which is classified as moving in liquid bulk vessels.

- **Dry Bulk:** commodities that are dry do not require specialised handling at ports, thus enabling homogeneous handling. These commodities move relatively unprocessed and are typically of high volume and lower value. Dry bulk includes commodities such as grain and coal. Textiles and consumer goods are transported on container vessels, which is not within the scope for this Report.

- **Neo-bulk (specialised):** commodities that the consultants classify as commodities requiring specialised shipping and handling at ports and including items such as motor vehicles and refrigerated commodities and/or goods. The vessels used to transport neo-bulk commodities are often designed to accommodate specific commodities, although commodities in the neo-bulk category vary in the degree of specialisation required[113]. The data in this section of the Report accordingly covers all shipping in the above classification.

325. This analysis details the geographical scope of each commodity and the demand characteristics of each commodity or commodity grouping. The geographical scope of each commodity is quite detailed, covering trade route details before exploring inbound and outbound EU trade. These discussions include history back to 1995 and forecasts out to 2015. Finally, analysis delves into certain demand characteristics facing commodity imports. These demand characteristics explain the influence of prices. Identification of the transport user is perhaps the most difficult information to obtain on a commodity basis. However, best efforts were made to detail the transport user and lists of major charterers are provided. Given the nature of this data, it is presented in an Annex[114]. Ports of loading and discharge, where available by commodity, are presented at the end of the demand section of this Report.

326. Speed is not the most important factor in tramp shipping because most ships in their various sectors sail at about the same speed. For example, most bulk-carriers travel at about the same speed and most refrigerated carriers travel at about the same speed. Therefore in each sector and across the market, charterers or shippers choose between equivalents, in terms of speed. In addition, charterparties of all types effectively require the ship to sail without delay. Very time sensitive commodities and/or goods tend not to travel by tramp shipping.

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113 Global Insight data for Neo-bulk traffic includes travel on General Cargo vessels.
114 Annex 5.

327. Regularity of shipping schedules does not apply in general, save fro certain segments as previously discussed, to the tramp market, and thus it does not impact the demand for commodities. It is up to the charterer to ensure that any regular volume of bulk that they want to ship has a charter contract or owned capacity so that it can be moved when need be. If schedule regularity is important, a commodity will move via liner shipping.

328. Vessel sizes used by commodity will be included in a table found at the end of the demand section of this Report.

2.1.2 *Methodology*

329. All the trade data in the demand section below is provided by the consultants' own data systems and it is in metric tonnes by mode. Thus, all reference of growth in imports or exports is based on growth in tonnage. For example, discussion of natural gas trade is based on the consultants' data for liquid bulk metric tonnes of natural gas. Because the consultants' trade data for intra-Europe is not available at the modal level, all commodities (regardless of liquid bulk, dry bulk, or neo-bulk) are discussed in terms of total metric tonnes.

330. Historic data covered here dates back to 1995. The forecast begins in 2004 for all countries except the United States, where the forecast begins in 2005.

2.2 LIQUID BULK DEMAND ANALYSIS[115]

2.2.1 *Clean Petroleum Products (CPP): Gasoline*

2.2.1.1 Geographical Scope

(a) Global Routes

331. The world's largest (in terms of tonnage) trading routes of gasoline over the past five years (average of 2000-2005) include:

United States to Mexico	= 5.9 million tonnes
Canada to the United States	= 5.7 million tonnes
Venezuela to the United States	= 4.1 million tonnes
Netherlands to Germany	= 3.6 million tonnes
United Kingdom to the United States	= 3.3 million tonnes

332. The largest routes for gasoline shipments have been fairly volatile over the last five years, but the five routes listed above have consistently ranked among the top. Each of the above routes has enjoyed strong growth since 1995, with compound annual rates ranging from 8.5% to 13.5%. The only exception is trade from the Netherlands to Germany, which declined annually at 8%.

(b) EU Inbound & Outbound

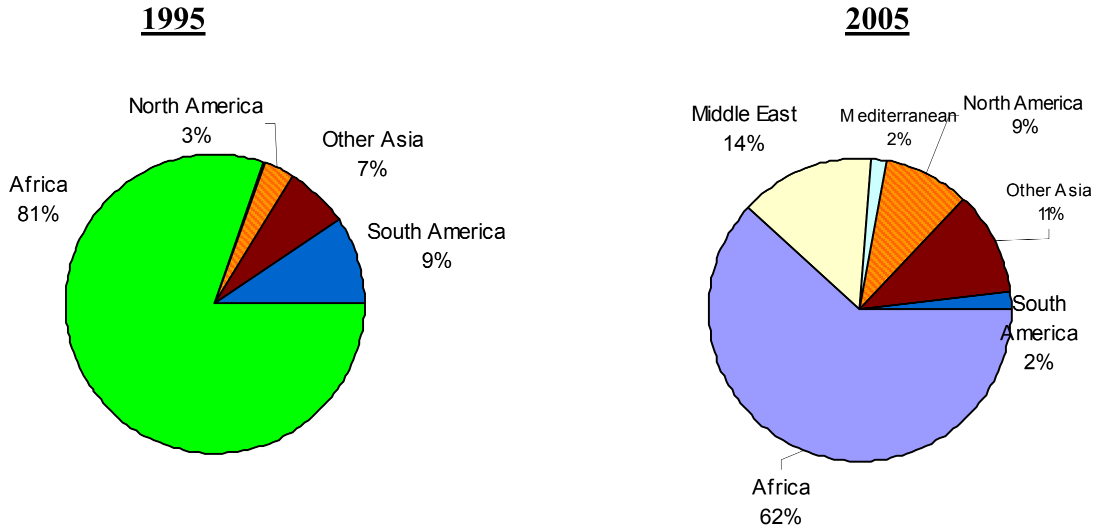
333. The figure below illustrates Africa's dominance as a supplier of motor gasoline to the EU. Africa is clearly the largest supplier in both 1995 and 2005, despite strong growth from the Middle East, and Asia.

[115] Because this data did not come from the Global Insight World Trade Service, forecasts are not available. The IEA data may also capture pipeline tonnage.

Gasoline Tonnage Inbound to the EU25

	1995	2005
Africa	370,000	1,153,000
Japan	2,000	0
Middle East	0	271,000
Mediterranean	0	31,000
North America	14,000	172,000
Other Asia	32,000	206,000
South America	43,000	38,000

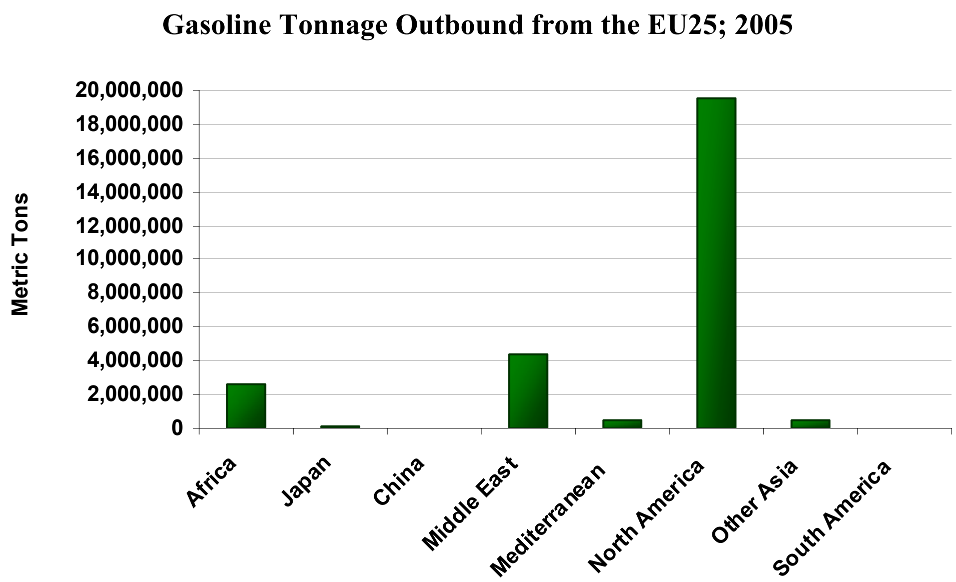
Gasoline Tonnage Inbound to the EU25; 1995, 2005



334. The destinations for Europe's gasoline exports are concentrated in North America, Middle East, and Africa.

Gasoline Tonnage Outbound from the EU25

	1995	2005
Africa	899,000	2,643,000
Japan	29,000	104,000
China	0	1,000
Middle East	1,597,000	4,416,000
Mediterranean	277,000	468,000
North America	4,823,000	19,557,000
Other Asia	219,000	434,000
South America	168,000	1,000



(c) Intra-Europe Trade Routes

335. The largest (in terms of tonnage) intra-Europe trading routes of gasoline over the past five years (average of 2000-2005) include:

Scandinavia to Northwest Europe	= 2.1 million tonnes
Northwest Europe to the Baltics	= 341,000 tonnes
Northwest Europe to Scandinavia	= 230,000 tonnes

2.2.1.2 Demand Characteristics

336. Demand for motor gasoline has long believed to have been inelastic but scholars are beginning to agree that a small amount of elasticity does exist. However, demand for this commodity remains strong in industrialized countries (namely the United States) and will gain strength in countries where the number of gasoline-consuming automobiles increases.

337. Motor gasoline is considered to be a clean petroleum product and thus, is transported in clean tankers.

2.2.2 *Clean Petroleum Products (CPP): Naptha*

2.2.2.1 Geographical Scope

(a) Global Routes

338. The world's largest (in terms of tonnage) trading routes of Naphthaover the past five years (average of 2000-2005) include:

Netherlands to Germany	= 5.8 million tonnes
Korea to Japan	= 4.8 million tonnes
United Arab Emirates to Japan	= 3.4 million tonnes
Saudi Arabia to Korea	= 3.1 million tonnes
Kuwait to Japan	= 3.0 million tonnes

339. The largest routes for Naphtha shipments have been fairly volatile over the last five years, but the five routes listed above have consistently ranked among the top. Each of the above routes has experienced moderate growth since 1995, with compound annual rates hovering around 3.2% to 4.7%.

(b) EU Inbound & Outbound

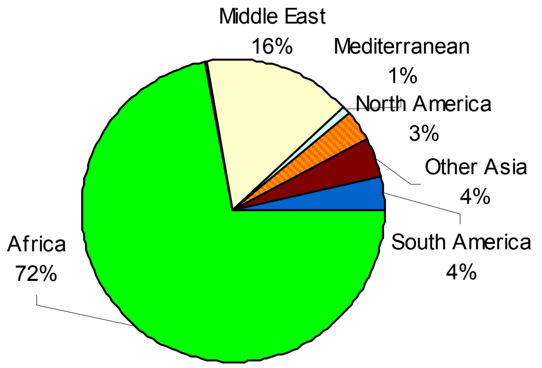
340. The figure below illustrates Africa's dominance as a supplier of Naphtha to the EU. Africa is clearly the largest supplier in both 1995 and 2005, despite strong growth from the Mediterranean.

Naphtha Tonnage Inbound to the EU25

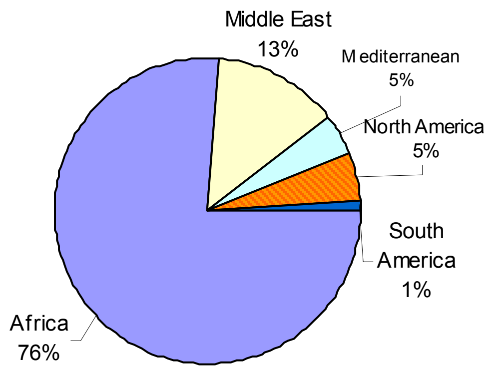
	1995	2005
Africa	7,387,000	5,004,000
Japan	22,000	16,000
Middle East	1,641,000	862,000
Mediterranean	90,000	307,000
North America	330,000	328,000
Other Asia	428,000	1,000
South America	370,000	67,000

Naptha Tonnage Inbound to the EU25; 1995, 2005

1995



2005

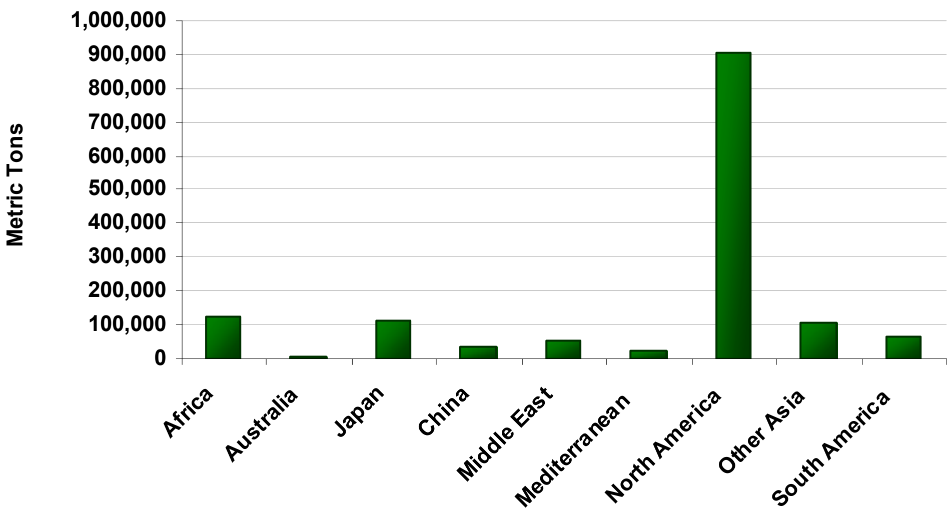


341. The destinations for Europe's Naphtha exports are concentrated in North America, Middle East, and Africa.

Naphtha Tonnage Outbound from the EU25

	1995	2005
Africa	87,000	123,000
Australia	3,000	3,000
Japan	7,000	110,000
China	15,000	38,000
Middle East	76,000	51,000
Mediterranean	9,000	23,000
North America	413,000	907,000
Other Asia	229,000	109,000
South America	9,000	65,000

Naphtha Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

342. The largest (in terms of tonnage) intra-Europe trading routes of Naphtha over the past five years (average of 2000-2005) include:

Scandinavia to Northwest Europe = 1.4 million tonnes
Northwest Europe to Scandinavia = 390,000 tonnes
Black Sea to the Mediterranean = 77,000 tonnes

2.2.2.2 Demand Characteristics

343. Naphtha is formed in petroleum refineries as an intermediate product from the distillation of crude oil. Naphtha is used as a feedstock for producing a high octane gasoline component and is also used in the petrochemical and chemical industries for producing olefins[116] and solvents.

344. Naphtha demand is fuelled largely by growth in the petrochemical industry and is expected to see strong demand from China in the near term.

116 For example poluethylene and polypropylene.

345. Naphtha is a clean oil product and thus, requires transport in clean oil tankers.

2.2.3 *Clean Petroleum Products (CPP): Kerosene Jet Fuel*

2.2.3.1 Geographical Scope

(a) Global Routes

346. The world's largest (in terms of tonnage) trading routes of kerosene jet fuel over the past five years (average of 2000-2005) include:

Netherlands to Germany	= 3.1 million tonnes
Korea to the United States	= 1.7 million tonnes
Saudi Arabia to the United Kingdom	= 1.2 million tonnes
Venezuela to the United States	= 1.2 million tonnes
Kuwait to the United Kingdom	= 965,500 tonnes

347. The largest routes kerosene jet fuel shipments have been fairly stable over the last five years, with strong growth coming on the Korea to the United States and the Saudi Arabia to United Kingdom routes.

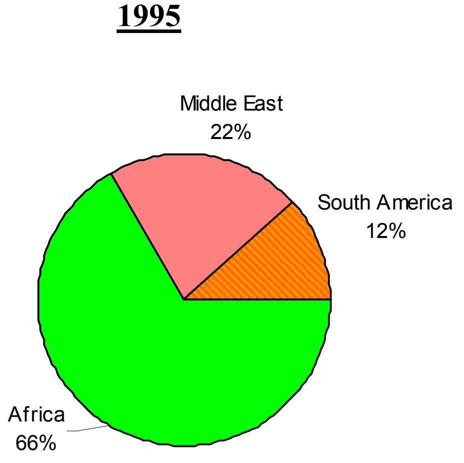
(b) EU Inbound & Outbound

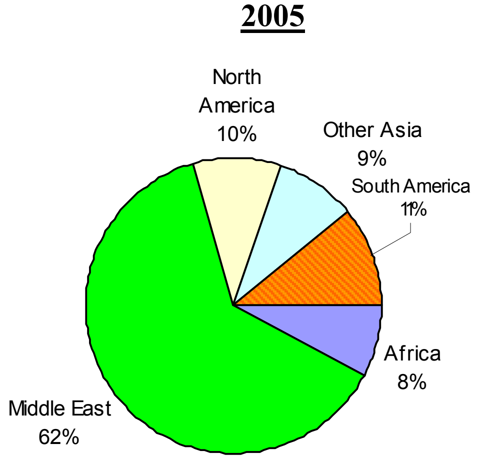
348. The figure below illustrates Asia and North America's dominance as a supplier of kerosene jet fuel to the EU. Supplies are no longer dominated by Africa but are dominated by the Middle East with significant tonnage coming from South America, North America and Asia.

Kerosene Jet Fuel Tonnage Inbound to the EU25

	1995	2005
Africa	649,000	942,000
Middle East	213,000	7,455,000
North America	0	1,158,000
Other Asia	0	1,088,000
South America	113,000	1,280,000
Norway	259,000	131,000

Kerosene Jet Fuel Tonnage Inbound to the EU25; 1995, 2005



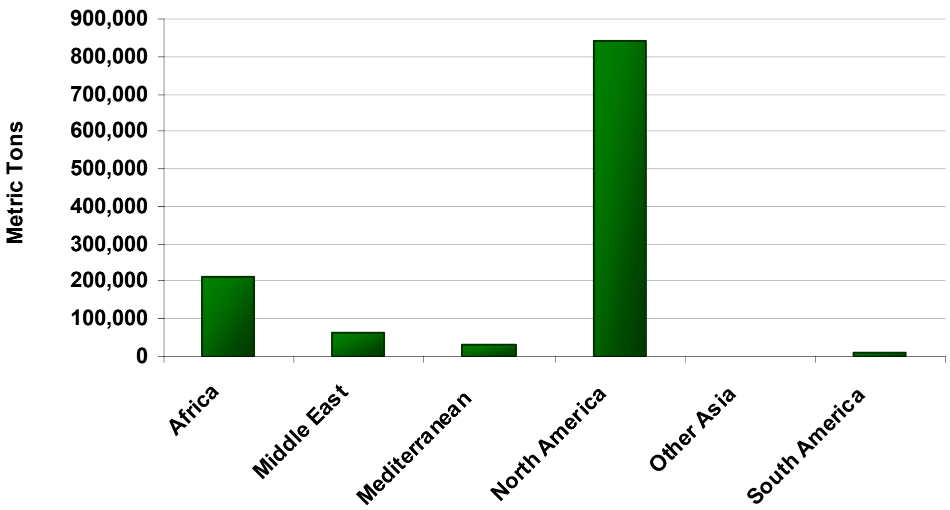


349. The destinations for Europe's kerosene jet fuel exports are concentrated in Africa, North America, and the Middle East.

Kerosene Jet Fuel Tonnage Outbound from the EU25

	1995	2005
Africa	286,000	211,000
Middle East	118,000	64,000
Mediterranean	63,000	34,000
North America	334,000	841,000
Other Asia	249,000	0
South America	0	10,000

Kerosene Jet Fuel Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

350. The largest (in terms of tonnage) intra-Europe trading routes of kerosene jet fuel tonnage over the past five years (average of 2000-2005) include:

Scandinavia to Northwest Europe = 105,000 tonnes
Northwest Europe to Scandinavia = 86,000 tonnes
Mediterranean to the Black Sea = 37,000 tonnes

2.2.3.2 Demand Characteristics

351. Demand for jet fuel (kerosene type) is strongly influenced by air travel demand. Airlines are in the practice of passing higher fuel costs onto consumers through surcharges and the market has proven to be fairly indifferent to higher fuel costs.

352. Jet fuel is classified as a clean petroleum product and is transported in clean tankers.

353. Clean condensates are also classified as clean petroleum products but bilateral trade data for this commodity is unavailable. Major exporters consist of Russia, the United Kingdom, Algeria,

Malaysia, the Middle East, Nigeria, Indonesia and Egypt. Major importers include the EU, the United States, Japan, South Korea, China, and South and Southeast Asia.

354. The clean condensates market operates on a CoA, time charter and voyage charter basis. This market is dominated by a few large trading houses, like Vitol and Glencore and the oil majors Shell, BP, Chevron *etc.*

355. The oil companies produce their own products, and sometimes own their own vessels,[117] whereas the trading houses buy large volumes from oil majors on an FOB basis, and based on their market knowledge they resell this oil in another market at a profit. Thus, a part of the market is arbitrage driven.

356. The ship owner is likely to have agreements with a large number of oil companies and/or traders.

357. Time charters could last anything from 15-20 days[118] to 5 years.[119] The typical distribution is 40% one-year deals, 30% three-year deals and 30% four to five year deals.

358. The following are examples of time charter arrangements:

i) Ordinary one year t/c – Flat rate of USD 25,000 per day

ii) One year t/c with profit split – Rate USD 24,000 per day + a 50:50 split if the average of the t/c equivalent exceeds USD 25,000 on the index route Singapore/Yokohama. Thus, if the average of the index route in the period is USD 22,000 then the ship owner receives USD 24,000 per day. If the average rate is USD 30,000 per day, then the ship owner receives USD 27,000 per day.[120]

359. For all the above mentioned contracts, the charterer typically gets an option to extend the contract by one extra year at the expiration date. This option comes at a cost for the charterer, as the new rate given at contract extension, is somewhere in the range of USD 500 – 1,000 higher than the rate for the basis period.

2.2.4 *Dirty Petroleum Product: Crude Oil*

2.2.4.1 Geographical Scope

(a) Global Routes

360. The world's largest (in terms of tonnage) trading routes of crude oil over the past five years (average of 2000-2005) include:

Western Africa to the United States	= 78.8 million tonnes
Persian Gulf[121] to Japan	= 77.8 million tonnes
Venezuela to the United States	= 76.6 million tonnes
Saudi Arabia to the United States	= 76.5 million tonnes
Mexico to the United States	= 76.5 million tonnes

117 Such as BP and Shell.
118 The US Defence Department can typically hire a vessel on time charter for 10-20 days or 30-50 days.
119 In exceptional cases time charters could be as long as 8 years.
120 USD 6,000 profit split 50:50 is equivalent to USD 3,000 to the ship owner.
121 Not including Saudi Arabia.

361. The largest routes for crude oil shipments have been very stable over the last five years, with the United States and Japan ranking as the largest importers of crude oil. After achieving annual growth of 10.2% between 2005 and 2015, the Persian Gulf to China route is expected to become the largest crude oil trade route with 120.1 million tonnes shipped in 2015. Persian Gulf and Western Africa to India will also witness strong growth rates of 10.0% and 9.7% annually over the forecast period.

(b) EU Inbound & Outbound

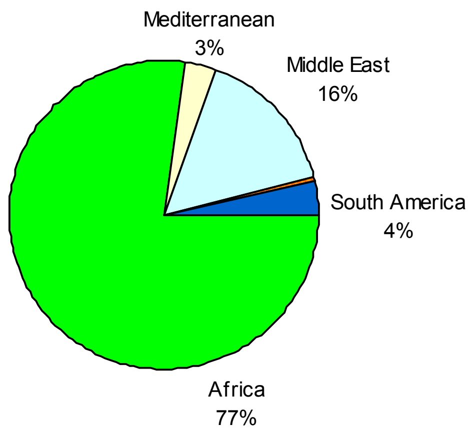
362. The figure below illustrates Africa's dominance as a supplier of crude oil to the EU. Africa is clearly the largest supplier in both 1995 and 2005, despite strong growth from North America.

Crude Oil Tonnage Inbound to the EU25

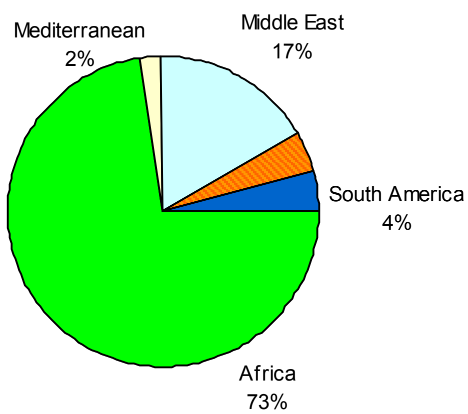
	1995	2005
Africa	236,029,865	221,370,985
Australia	78,948	9,527
Mediterranean	10,046,366	6,078,894
Middle East	48,295,666	51,541,609
North America	551,254	12,689,707
Other Asia	42,098	33,293
South America	10,977,131	13,066,152

Crude Oil Tonnage Inbound to the EU25; 1995, 2005

1995



2005

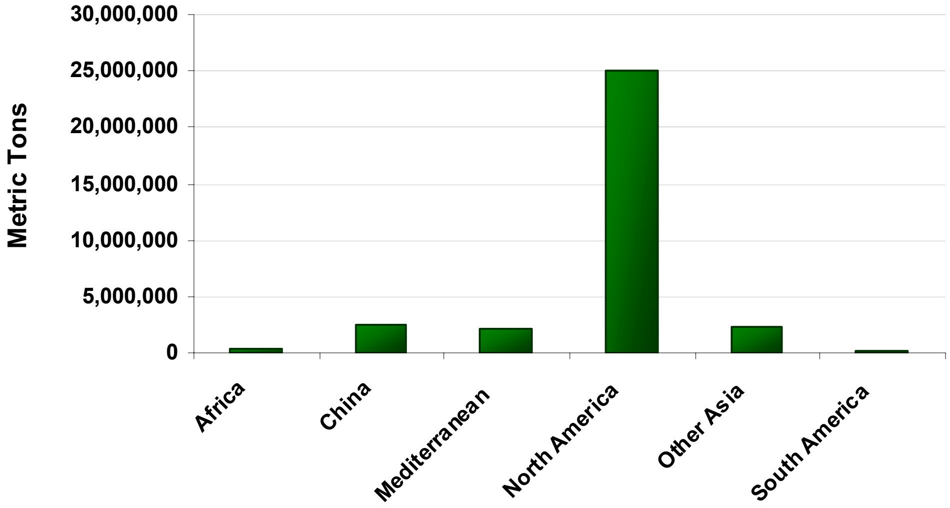


363. The destinations for Europe's crude oil exports are concentrated in North America

Crude Oil Tonnage Outbound from the EU25

	1995	2005
Africa	1,639,208	372,028
China	211,098	2,491,878
Mediterranean	2,502,923	2,218,908
North America	28,275,705	25,028,925
Other Asia	41,809	2,254,102
South America	808,510	97,810

Crude Oil Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

364. The largest (in terms of tonnage) intra-Europe trading routes of crude oil over the past five years (average of 2000-2005) include:

Black Sea to the Mediterranean	= 9.1 million tonnes
Mediterranean to Scandinavia	= 752,000 tonnes
Scandinavia to the Mediterranean	= 158,000 tonnes

2.2.4.2 Demand Characteristics

365. At an aggregate level, oil is traded globally and as such the prices are set on global markets. Thus, the raw price of the commodity has little influence where an importer will purchase oil from. However, transport costs will influence the source country. Since longer distances translate to higher costs than shorter distances (unless there is a supply shock to the market), importers will often import their oil from close destinations. It is for this reason, that the United States is a key importer of oil from Venezuela, and Japan imports from South Korea. Demand for oil has a low price elasticity, implying that prices must change substantially for there to be a change in demand.

366. First, crude tanker products are driven by the oil majors that need to supply their refineries located around the world with crude oil. Additionally, there is a minor share of arbitrage trades, driven by traders. The market is primarily voyage charter orientated, but both CoAs and time charters are used.

367. With respect to CoAs, the ship owner typically has to show his vessel position list to the charterer and if the charterer is able to accept a cargo that gives him less than three days of off hire, and then the ship owner must accept the cargo. If accepting the cargo yields an off hire period of more than three days, then the ship owner does not have to accept the cargo.

368. A spot vessel is typically fixed 3-6 weeks before it will load its new cargo.

369. Big oil majors that have a number of vessels on a time charter basis, can (like in the LNG and LPG markets) relet their vessels in the spot market, and cover their own transportation demand by hiring

another vessel. This is profitable when the shipping cost per barrel is lower than the alternative, which is to use the existing vessel for transportation. For instance, if one has a small lot that needs to be transported from A to B, (a load that is too small to fill its VLCC), then the company can relet its VLCC in the spot market and charter a Suezmax for its own cargo.

2.2.5 *Dirty Petroleum Product: Fuel Oil*

2.2.5.1 Geographical Scope

(a) Global Routes

370. The world's largest (in terms of tonnage) trading routes of fuel oil over the past five years (average of 2000-2005) include:

Russia to the Netherlands = 4.9 million tonnes
Estonia to the Netherlands = 3.3 million tonnes
Venezuela to the United States = 3.2 million tonnes
Brazil to the United States = 2.3 million tonnes

371. The largest routes of fuel oil shipments have been fairly volatile over the last five years, but the above routes have consistently remained among the top routes with the exception of Brazil to the United States. Strong growth between 1995 and 2005 was enjoyed along the Brazil-United States route, as well as the Russia and Estonia to the Netherlands routes.

(b) EU Inbound & Outbound

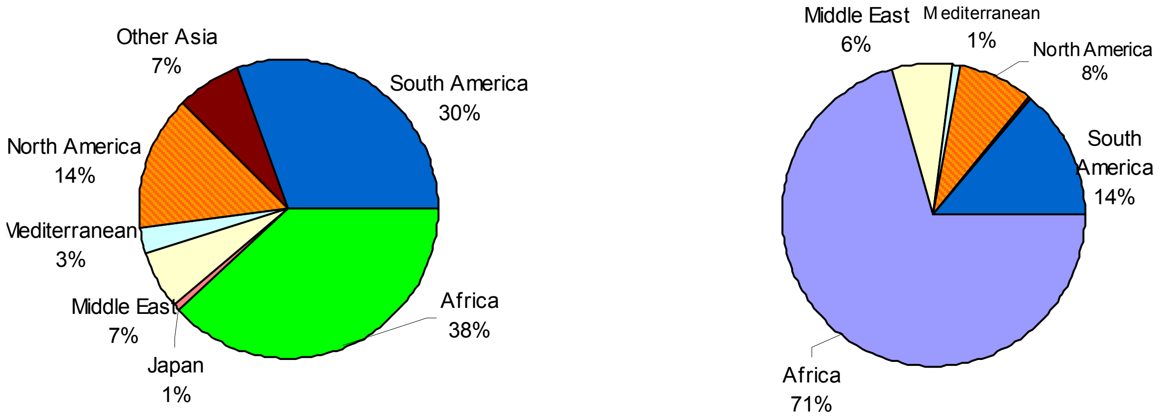
372. The figure below illustrates Africa's dominance as a supplier of fuel oil to the EU. Africa has gained market shares over the last five years at the expense of South and North America.

Fuel Oil Tonnage Inbound to the EU25

	1995	2005
Africa	4,743,000	2,722,000
Japan	78,000	0
Middle East	810,000	245,000
Mediterranean	354,000	30,000
North America	1,781,000	308,000
Other Asia	878,000	15,000
South America	3,784,000	536,000

Fuel Oil Tonnage Inbound to the EU25; 1995, 2005

1995 **2005**

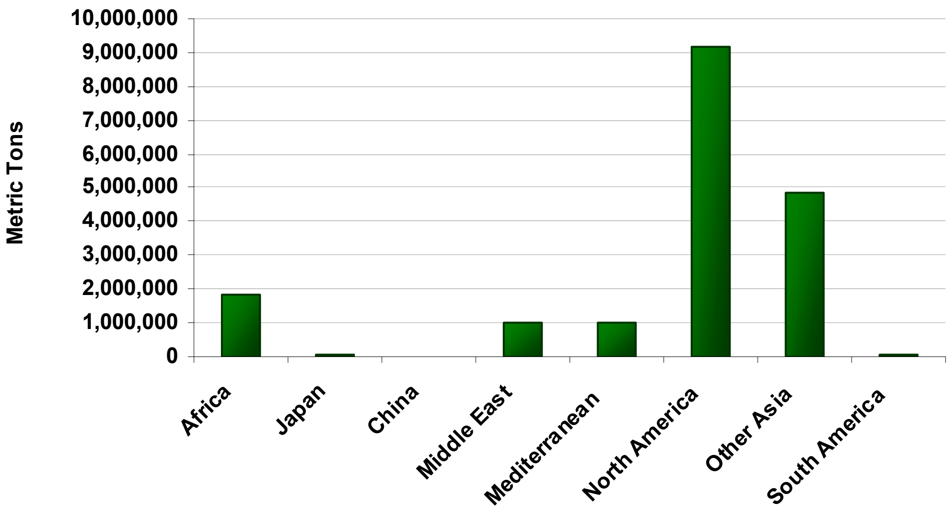


373. The destinations for Europe's fuel oil exports are dominated by North America, with strong share coming from Asia.

Fuel Oil Tonnage Outbound from the EU25

	1995	2005
Africa	1,168,000	1,820,000
Japan	0	72,000
China	0	17,000
Middle East	180,000	991,000
Mediterranean	80,000	1,029,000
North America	1,445,000	9,191,000
Other Asia	4,000	4,838,000
South America	0	65,000

Fuel Oil Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

374. The largest (in terms of tonnage) intra-Europe trading routes of fuel oil tonnage over the past five years (average of 2000-2005) include:

Scandinavia to Northwest Europe = 2.2 million tonnes
Northwest Europe to Scandinavia = 1.4 million tonnes
Scandinavia to the Mediterranean = 288,000 tonnes
Scandinavia to Spain & Portugal = 187,000 tonnes

2.2.5.2 Demand Characteristics

375. Fuel oil is used in the manufacturing industry to produce heat and power. In addition to its use in the manufacturing sector, this commodity is also used by consumers for home heating. In the short term, fuel oil is demand inelastic but becomes elastic in the longer term as manufacturers and consumers can switch to other products.

376. Fuel oil is considered a dirty petroleum product and as such, is transported in dirty oil tankers.

377. Dirty condensates are also classified as dirty oil products but bilateral trade data for this commodity is unavailable. Major exporters consist of Russia, United Kingdom, Algeria, Malaysia,

the Middle East, Nigeria, Indonesia and Egypt. Major importers include the EU, the United States, Japan, South Korea, and China.

2.2.6 *Dirty Petroleum Product: Gas & Diesel Oil*

2.2.6.1 Geographical Scope

(a) Global Routes

378. The world's largest (in terms of tonnage) trading routes of gas and diesel oil over the past five years (average of 2000-2005) include:

Netherlands to Germany = 8.6 million tonnes
Netherlands to Belgium = 5.9 million tonnes
Canada to the United States = 4.9 million tonnes
Russia to France = 3.1 million tonnes
Venezuela to the United States = 2.8 million tonnes

379. The largest routes for gas and diesel oil shipments have been fairly stable over the last five years, with strong growth coming on the Russia to France route. Growth is varied for the five routes above with 5.2% and 5.0% annual growth between 1995 and 2005 on the Canada to United States and Netherlands to Belgium routes. Conversely, growth on the Netherlands to Germany route declined at an annual 2.0%.

(b) EU Inbound & Outbound

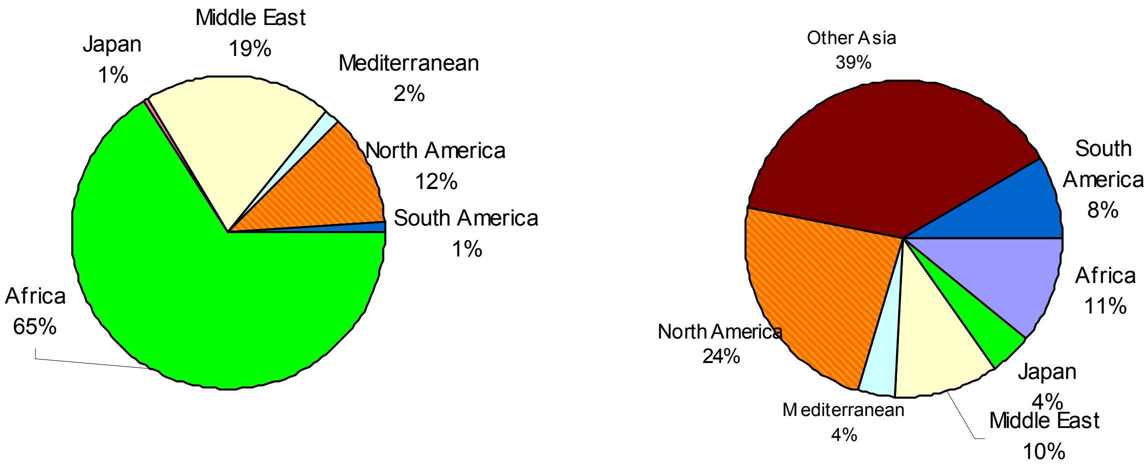
380. The figure below illustrates Asia and North America's dominance as a supplier of gas and diesel oil to the EU. Africa lost market shares between 1995 and 2005 while Asia and North America gained share. Norway is also a significant supplier, supplying 2 million tonnes in 2005.

Gas & Diesel Oil Tonnage Inbound to the EU25

	1995	**2005**
Africa	1,972,000	842,000
Japan	16,000	342,000
Middle East	582,000	797,000
Mediterranean	46,000	306,000
North America	345,000	1,794,000
Other Asia	2,000	2,954,000
South America	30,000	650,000

Gas & Diesel Oil Tonnage Inbound to the EU25; 1995, 2005

1995 **2005**

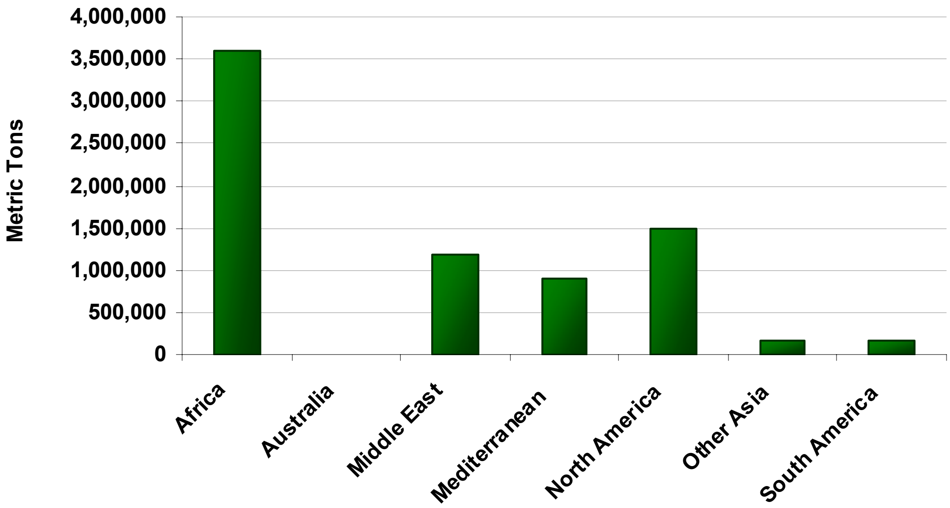


381. The destinations for Europe's gas and diesel oil exports are concentrated in North America, Middle East, and Africa.

Gas & Diesel Oil Tonnage Outbound from the EU25

	1995	**2005**
Africa	1,467,000	3,588,000
Australia	10,000	10,000
Middle East	1,413,000	1,188,000
Mediterranean	285,000	891,000
North America	1,037,000	1,496,000
Other Asia	2,028,000	170,000
South America	153,000	172,000

Gas & Diesel Oil Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

382. The largest (in terms of tonnage) intra-Europe trading routes of gas and diesel oil tonnage over the past five years (average of 2000-2005) include:

Scandinavia to Northwest Europe = 3.6 million tonnes
Scandinavia to the Mediterranean = 656,000 tonnes
Northwest Europe to the Baltics = 538,000 tonnes

2.2.6.2 Demand Characteristics

383. Gas and diesel oil are refined from crude oil and have low demand elasticity in the short term. This commodity is considered a clean oil product and requires transport in clean petroleum tankers.

2.2.7 *Liquefied Natural Gas (LNG)*

2.2.7.1 Geographical Scope

(a) Global Routes

384. The world's largest (in terms of tonnage) trading routes of LNG over the past five years (average of 2000-2005) include:

Indonesia to Japan = 32.4 million tonnes
Malaysia to Japan = 26.1 million tonnes
Northern Africa to France = 11.8 million tonnes
Persian Gulf to Japan = 17.9 million tonnes
Persian Gulf to South Korea = 17.0 million tonnes

385. While LNG shipments from Indonesia to Japan have been the largest route since at least 1995, annual growth will decline at 0.5% per year between 2005 and 2015. The Persian Gulf will replace Indonesia as the largest exporter, with the Persian Gulf to South Korea and Japan becoming the first and third largest routes in 2015 with 27.3 and 21.8 million tonnes exported in 2015.

(b) EU Inbound & Outbound

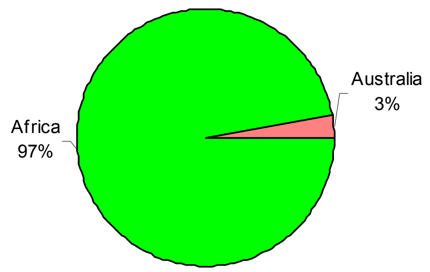
386. The figure below illustrates that at the majority of LNG imports into the EU are concentrated in Africa and Australia. While other suppliers are expected to come online, Africa and Australia have and will continue to supply the majority of LNG tonnage to the EU. Inbound growth between 2005 and 2015 is expected to be slow with growth from Africa expected at 0.5%. Africa will continue to remain the dominant supplier to the EU by 2015 with over 27 million metric tonnes exported to the EU25.

LNG Tonnage Inbound to the EU25

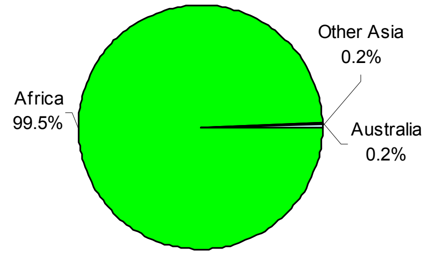
	1995	**2005**
Africa	10,456,121	26,379,322
Australia	288,778	63,993

LNG Tonnage Inbound to the EU25; 1995, 2005

1995



2005



(c) Intra-Europe Trade Routes

387. The UK is a major producer of natural gas, but it moves by pipeline and is thus, excluded from this analysis.

388. Norway currently has a small LNG terminal with an annual capacity of 12,000 tonnes and exports its LNG to Sweden.[122] Plans are currently underway to construct a larger LNG terminal that will provide significant LNG tonnage to the United States upon its completion, slated for late 2007 or early 2008. Research conducted by the consultants suggests that what little intra-Europe trade of LNG exists is transported by pipeline and not via LNG vessels.

2.2.7.2 Demand Characteristics

389. The market for natural gas is driven by consumer usage during cold weather periods. Historically, demand for natural gas increases when oil prices escalate, as users switch from oil to natural gas. However, depletion of natural gas supplies have led to price increases of natural gas prices despite high oil prices, making the two goods less substitutable.

390. Natural gas is produced from dedicated gas fields and is transported in vessels specially designed for the carriage of LNG or is transported in pipelines. The natural gas suppliers are often state owned oil companies such as Sonatrach and Petrobras, oil majors like Shell and consortia such as Nigeria LNG, which is a joint venture between Nigeria Petroleum and three international oil majors.

391. LNG shipping is the most capital intensive segment of the shipping industry with special installations required for liquefaction, storage, refrigeration, loading, unloading and regasification of natural gas. The high capital costs make financing institutions reluctant to finance both LNG ships and terminals without long term contracts. Thus, both supply contracts and shipping contracts for LNG are on a long term basis. Supply and time charter vessel contracts for natural gas typically have up to 20 years duration.

392. LNG tanker owners that have a number of vessels on a time charter basis, can (like in the oil and LPG markets) relet their vessels in the spot market, and cover their own transportation demand by

122 http://www.eoearth.org/article/North_Sea,_Europe.

hiring another vessel. This is profitable when the shipping cost is lower than the alternative, which is to use the existing vessel for transportation.

393. An LNG vessel is typically bought on the basis of a long term contract, although some vessels are also built on a speculative basis. There is a growing arbitrage spot market, which is used if the natural gas prices in one country are very high. In this case, a vessel travelling between Trinidad and the US could perform one spot trip to the country with the high prices as the higher prices make a longer journey profitable.

2.2.8 *LPG*

2.2.8.1 Geographical Scope

(a) Global Routes

394. The world's largest (in terms of tonnage) trading routes of LPG over the past five years (average of 2000-2005) include:

Saudi Arabia to Japan	= 5.2 million tonnes
Persian Gulf[123] to Japan	= 4.7 million tonnes
UAE to Japan	= 4.3 million tonnes
Australia to Japan	= 2.4 million tonnes
Indonesia to Japan	= 2.1 million tonnes
North Africa to Turkey	= 1.8 million tonnes

395. LPG (propane and butane) shipments to Japan represent five of the six largest routes between 2000 and 2005. This has generally been the case since 1995, but Australia to Japan and North Africa to Turkey have emerged recently has major routes. Annual growth will be slow along the major LPG routes between now and 2015. LPG exports from Saudi Arabia to Japan will decline at 1.5% per annum between 2005 and 2015, while the Persian Gulf to Japan will only grow at 1.2% annually over this forecast period. Saudi Arabia is expected to export just over six million tonnes to Japan in 2015, making it the largest route in the future.

(b) EU Inbound & Outbound

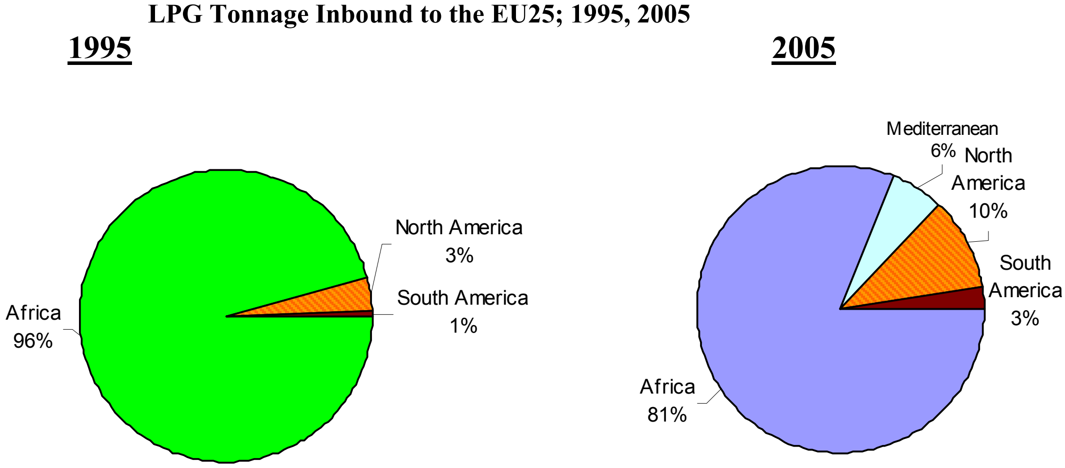
396. The figure below illustrates Africa's dominance as a supplier of LPG to the EU. Africa is clearly the largest supplier in both 1995 and 2005, despite strong growth from the Middle East, North America and South America. Africa will continue to remain the dominant supplier to the EU by 2015 with over 38 million metric tonnes exported to the EU25.

123 Bahrain, Iraq, Iran, Kuwait, Oman, Qatar, and Yemen.

LPG Tonnage Inbound to the EU25

	1995	2005
Africa	1,387,306	3,759,377
Australia	0	1,562
Japan	16	0
Mediterranean	772	272,320
North America	49,079	480,644
Other Asia	608	3,771
South America	9,267	120,646

LPG Tonnage Inbound to the EU25; 1995, 2005



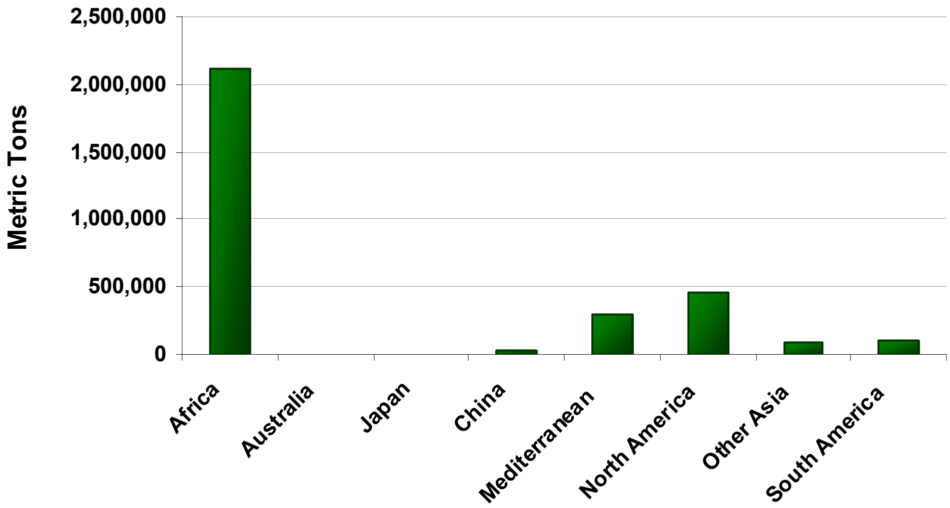
397. The destinations for Europe's LPG exports are concentrated in Africa, North America and the

398. Mediterranean. EU exports to Africa are expected to experience growth of 0.7% between 2005 and 2015, while exports to China will grow at 11.2% per year over the forecast horizon.

LPG Tonnage Outbound from the EU25

	1995	2005
Africa	533,201	2,119,869
Australia	27	434
Japan	301	414
China	34,092	29,526
Mediterranean	98,186	302,803
North America	102,989	455,213
Other Asia	32,153	86,268
South America	22,657	108,180

LPG Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

399. The largest (in terms of tonnage) intra-Europe trading routes of LPG over the past five years (average of 2000-2005) include:

Scandinavia to Northwest Europe = 2.1 million tonnes
Northwest Europe to Scandinavia = 697,000 tonnes
Baltics to Northwest Europe = 462,000 tonnes

400. These routes will retain their positions as the largest routes for intra-Europe LPG trade through to 2015, with exports from Scandinavia to Northwest Europe reaching 2.8 million tonnes in 2015, after growing at a compound annual growth rate of 3.4% between 2005 and 2015.

2.2.8.2 Demand Characteristics

401. LPG is used by residential/commercial customers for heating, as a factor of production, as fuel for cars, for further refining, and inputs to chemicals and agriculture. Thus, growth in demand for these markets drives demand for LPG tankers.

402. LPG: Propane and butane gases are removed during the oil production process and in the production of natural gas. LPG's primary use is household fuel, distributed through pipelines or in bottles and approximately 25% of global LPG demand requires sea transportation. Additionally, LPG is used as a refinery feed stock (octane booster) in the US. When pricing is competitive, LPG is also used as a petrochemical feedstock and for power generation.

2.2.9 *Ethylene*

2.2.9.1 Geographical Scope

(a) Global Routes

403. The world's largest (in terms of tonnage) trading routes of Ethylene over the past five years (average of 2000-2005) include:

Turkey to the United States	= 88,000 tonnes
Japan to South Korea	= 72,000 tonnes
Italy to the United States	= 50,000 tonnes

404. Ethylene shipments from Turkey to the United States have been the largest route since at least 1995, growing at 8.4% annually between 1995 and 2005. Annual growth along this route will slow to 2.3% per year between 2005 and 2015. This mix of top routes is not expected to change in the future. Turkish shipments to the United States will remain the largest route, with 116,000 tonnes of ethylene exported in 2015.

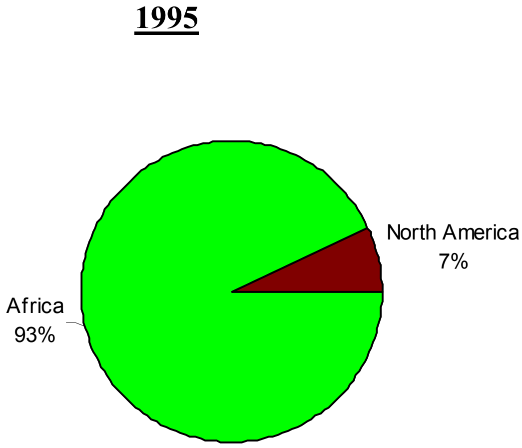
(b) EU Inbound & Outbound

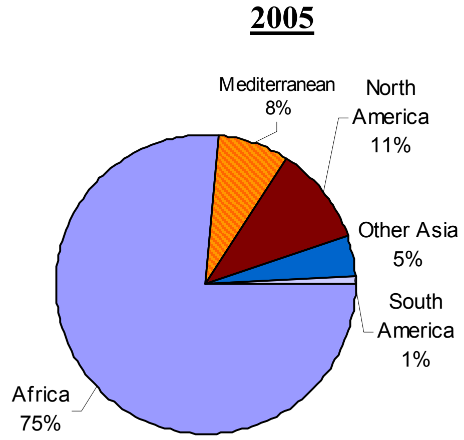
405. The figure below illustrates the emergence of new suppliers of ethylene to the EU. Africa is clearly the largest supplier in both 1995 and 2005, after growing at an annual rate of 3.6% over those 10 years. Inbound growth between 2005 and 2015 is expected to be slow with growth from Africa expected at 0.5%. Africa will continue to remain the dominant supplier to the EU by 2015 with 57,000 metric tonnes exported to the EU25.

Ethylene Tonnage Inbound to the EU25

	1995	2005
Africa	37,882	53,940
Mediterranean	0	5,378
North America	2,855	7,436
Other Asia	0	3,306

Ethylene Tonnage Inbound to the EU25; 1995, 2005



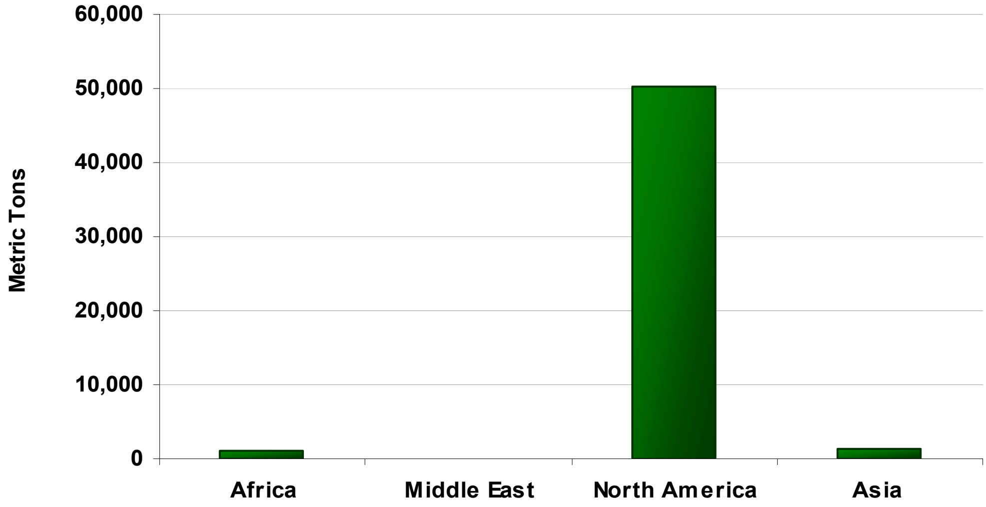


406. The destinations for Europe's ethylene exports are concentrated in North America but have declined in volumes exported since 1995. EU ethylene exports to North America are expected to experience growth of 1.5% between 2005 and 2015 to reach 58,000 tonnes in 2015. Exports to China are expected to grow at 11.9% annually over the forecast horizon but will only reach 2,900 tonnes in 2015.

Ethylene Tonnage Outbound from the EU25

	1995	2005
Africa	0	1,182
Middle East	9,094	0
North America	219,511	50,150
Asia	2,246	1,237

Ethylene Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

407. The largest (in terms of tonnage) intra-Europe trading routes of Ethylene over the past five years (average of 2000-2005) include:

Scandinavia to Northwest Europe = 475,000 tonnes
Black Sea to the Mediterranean = 115,000 tonnes
Northwest Europe to the Baltics = 59,000 tonnes

408. These routes will retain their positions as largest routes for Ethylene through to 2015, with exports from Scandinavia to Northwest Europe reaching 695,000 tonnes in 2015, after growing at a compound annual growth rate of 0.9% between 2005 and 2015. Exports from Northwest Europe to the Baltics will grow the fastest at 2.7% (CAGR).

2.2.9.2 Demand Characteristics

409. Ethylene is considered a petrochemical and is often used to stimulate ripening in fruits and vegetables and is an input to fertiliser production. As such, growth in transport of unripened produce as well as fertiliser demand growth helps fuel demand for ethylene.

2.2.10 *Animal & Vegetable Oils (HS 1502-1516)*

2.2.10.1 Geographical Scope

(a) Global Routes

410. Asian countries dominate animal and vegetable oil imports in tonnage terms. The world's largest (in terms of tonnage) trading routes of animal and vegetable oils over the past five years (average of 2000-2005) include:

Malaysia to China	= 2.0 million tonnes
Indonesia to India	= 1.6 million tonnes
Malaysia to India	= 1.5 million tonnes
Argentina to India	= 1.1 million tonnes
Malaysia to Pakistan	= 1.0 million tonnes
Indonesia to China	= 611,000 tonnes

411. The key trade routes for animal and vegetable oils have changed over the last ten years. In 1995, exports from Brazil to China were the third highest with 845,000 tonnes exported. Taken as an average of 2000 through to 2005, this route only witnessed an annual average of 315,000 tonnes. With 512,000 tonnes shipped from Brazil to China in 2005, this route witnessed the 14th highest amount of tonnage for this commodity. China's imports from Brazil have partially been replaced by imports from Argentina, which grew from 37,000 in 1995 to 822,000 in 2005. Those routes representing the largest amount of tonnage as an annual average between 2000 and 2005 is not expected to change in the future, with the top six routes listed above remaining as such. Argentine exports to India will enjoy the fastest growth between 2005 and 2015 at a compound annual rate of 7.8% expected between 2005 and 2015.

(b) EU Inbound & Outbound

412. Animal and vegetable oil tonnage inbound to the EU25 has experienced more shifts between 1995 and 2005 than oil and natural gas. The figure below illustrates these shifts. Other Asia[124] is clearly the largest supplier in both 1995 and 2005, and gains market shares throughout the ten-year period. Gains in Other Asia come at a 14% market share loss for North America and a 5% loss for Africa. Inbound growth[125] between 2005 and 2015 from Other Asia is expected to slow from 4.2% growth between 1995 and 2005 to only 1.0% between 2005 and 2015. North America's growth will turn positive in the forecast period, but only to 0.8% growth. Inbound growth will be fastest from Australia (albeit at smaller tonnage levels) with future expected annual growth of 4.4%.

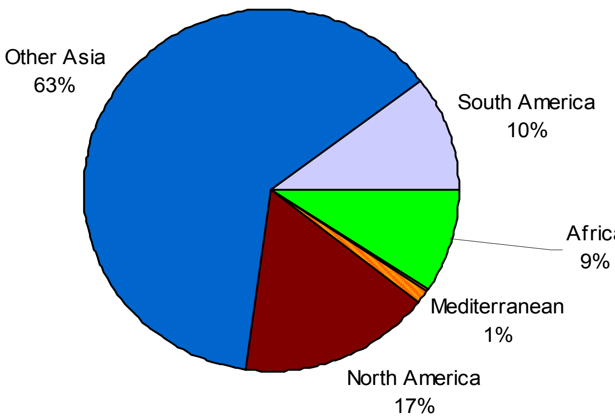
124 Other Asia includes Asia less China, Japan and Australia.
125 Compound Annual Growth (CAGR).

Animal & Vegetable Oil Tonnage Inbound to the EU25

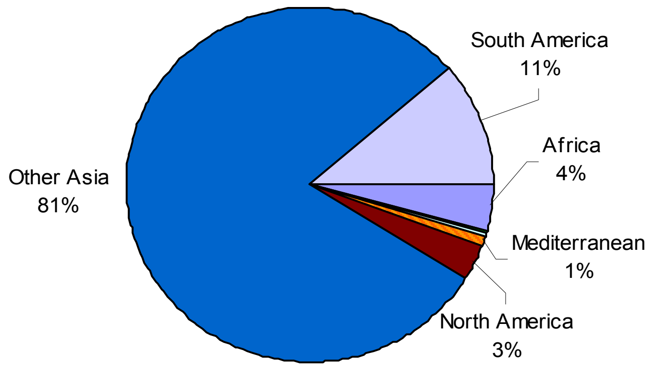
Africa	307,292	161,253
Australia	4,153	8,470
China	6,038	7,792
Japan	1,346	3,273
Mediterranean	31,662	35,442
North America	551,401	131,732
Other Asia	2,080,999	3,132,127
South America	343,953	445,915

Animal & Vegetable Oil Tonnage Inbound to the EU25; 1995, 2005

1995



2005

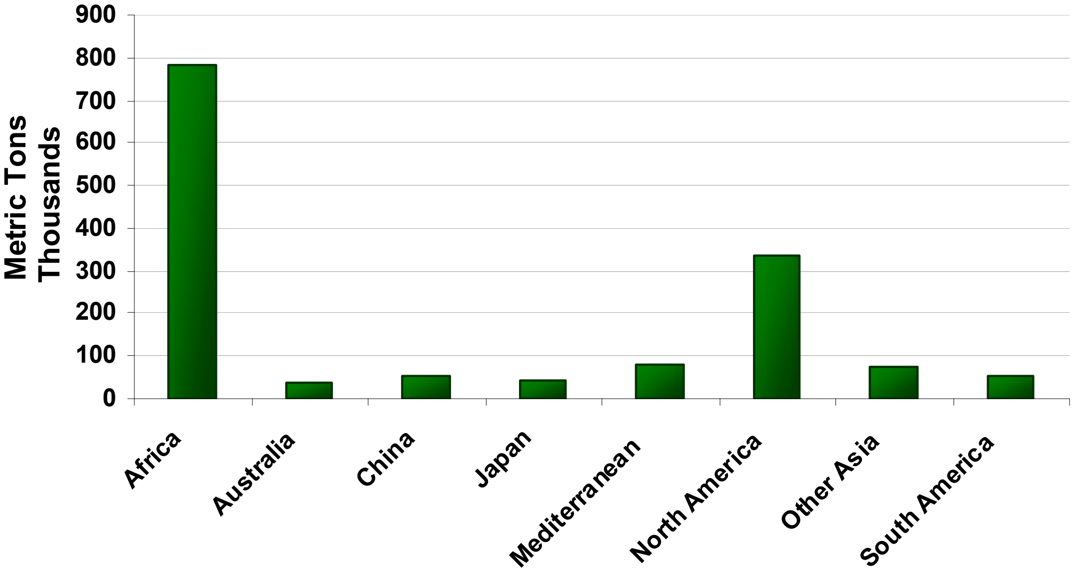


413. The destinations for Europe's animal and vegetable oil exports are concentrated in Africa and North America. Animal and vegetable oil exports to these markets are expected to experience growth of 3.1% and 1.7% for Africa and North America, respectively between 2005 and 2015. While Africa and North America will continue to remain the dominant recipients of EU animal and vegetable oil exports, rapid growth in Other Asia (2.7%) will bring the levels of exports to Other Asia near levels achieved by North America in 2015.

Animal & Vegetable Oils Outbound from the EU25

Africa	786,311	782,120
Australia	16,910	36,040
China	300,047	53,095
Japan	22,683	40,775
Mediterranean	120,797	77,954
North America	145,879	333,977
Other Asia	197,574	74,148
South America	50,480	55,013

Animal & Vegetable Oils Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

414. The largest (in terms of tonnage) intra-Europe trading routes of animal and vegetable oils over the past five years (average of 2000-2005) include:

Northwest Europe to the Baltics	= 517,000 tonnes
Northwest Europe to Scandinavia	= 321,000 tonnes
Northwest Europe to the Black Sea	= 173,000 tonnes
Scandinavia to Northwest Europe	= 129,000 tonnes

415. These routes will retain their positions as the four largest routes through to 2015, with exports from Northwest Europe to the Baltics reaching 865,000 tonnes in 2015, after growing at a compound annual growth rate of 2.8% between 2005 and 2015.

2.2.10.2 Demand Characteristics

416. Animal and vegetable oils tend to be price elastic. Thus, the raw price of the commodity, as well as the transportation costs influence how much is consumed and where an importer will purchase from. However, many vegetable oils are traded on global markets. Therefore, the prices are global and not very unique to the producing country. This is particularly the case with soybean and palm oils. The result is that transport costs may override the commodity price in terms of where the commodity is imported from.

417. Vegetable oil transport is primarily driven by growth in the food industry, as well as population and the number of households in the long run. Animal oils are inputs to animal food, soap and pharmaceuticals products. These oils are transported in new coated product tankers or in old dedicated tankers. No further information is available regarding the demand characteristics for this commodity.

2.2.11 *Inorganic Chemicals, incl. Ammonia (HS 2801-2851)*

418. US petrochemical production has rebounded after plunging nearly 10% in 2005. With natural gas prices set to move higher and oil prices remaining around $70/barrel, the consultants see petrochemical prices trending slightly upward through to 2007. Price fluctuations due to short-lived inventory swings are likely, and a trough is expected in 2008-10, when several new plants currently under construction in the Middle East and Asia are due to come on-stream.

2.2.11.1 Geographical Scope

(a) Global Routes

419. Caribbean exports of inorganic chemicals to the United States dominate global inorganic chemical trade in tonnage terms, shipping nearly 16% more tonnage than the next largest route, South Korea to China. The world's largest (in terms of tonnage) trading routes of inorganic chemicals over the past five years (annual average of 2000-2005) include:

Caribbean to United States	= 1.8 million tonnes
North Africa to India	= 949,000 tonnes
South Korea to China	= 836,000 tonnes
Japan to China	= 603,000 tonnes
China to South Korea	= 601,000 tonnes

420. The key trade routes for inorganic chemicals have not changed over the last 10 years and will only change slightly in the next ten years. By 2015, South Korean exports to China will become the largest trade route with 3.9 million tonnes shipped from South Korea to China. Chinese exports of inorganic chemicals to South Korea will grow to the fifth largest route after enjoying 6.7% compound annual growth between 2005 and 2015.

421. The largest (in terms of tonnage) intra-Europe trading routes of inorganic chemicals over the past five years (average of 2000-2005) include:

Northwest Europe to Scandinavia	= 2.2 million tonnes
Scandinavia to Northwest Europe	= 2.0 million tonnes
Black Sea to the Mediterranean	= 1.1 million tonnes

422. These routes will retain their positions as the three largest routes through to 2015, with exports from Northwest Europe to Scandinavia reaching 2.3 million tonnes in 2015. Strong growth will be seen along the Baltics to Northwest Europe route, which will see compound annual tonnage growth of 3.0% between 2005 and 2015. Tonnage along this route will reach 1.0 million in 2015.

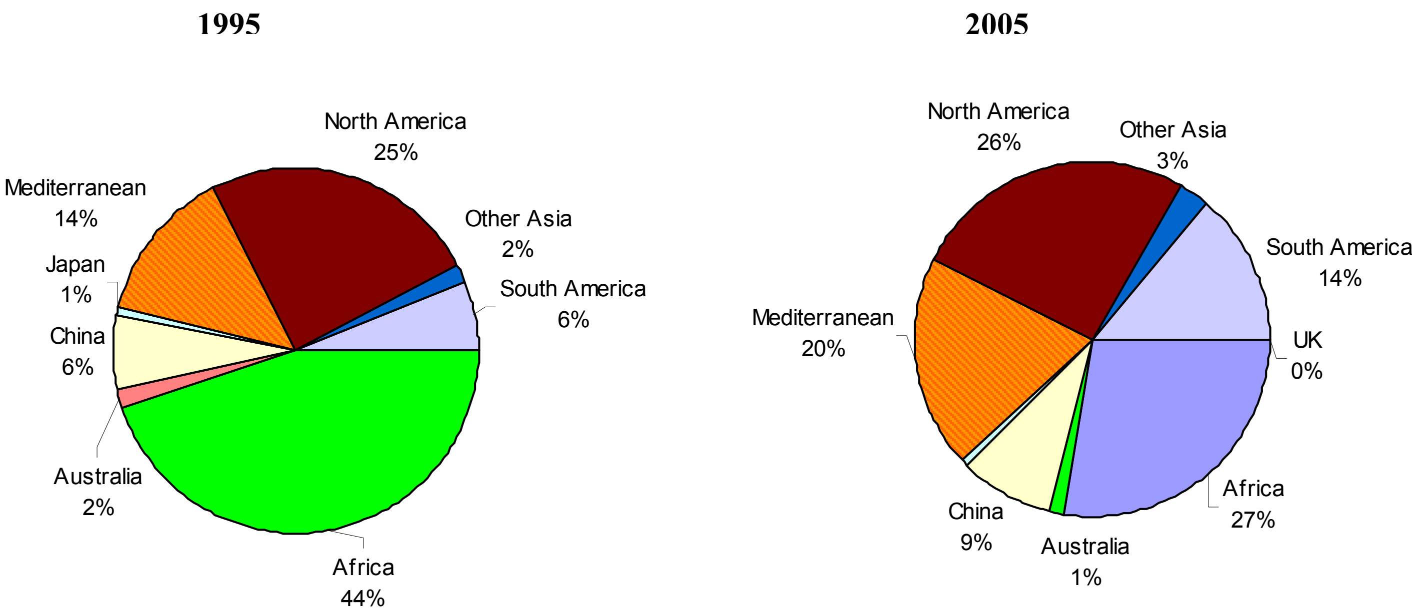
(b) EU Inbound & Outbound

423. The figure below illustrates the volatility found in inorganic chemicals inbound to the EU25. Tonnage from Africa into the EU25 declined steadily between 1995 and 2005, falling by a compound annual 4.4% over the ten-year stretch. With Africa's decline came the emergence of South America, China and the Mediterranean. Africa will continue to decline over the forecast period (2005-2015) at a CAGR of -2.1% while the fastest growth will come from China and Other Asia at 5.5% and 4.1% (CAGR), respectively.

Inorganic Chemical Tonnage Inbound into the EU25

	1995	2005
Africa	1,093,104	699,639
Australia	44,424	29,330
China	155,277	220,758
Japan	17,763	12,416
Mediterranean	331,941	495,430
North America	603,536	654,839
Other Asia	39,118	67,315
South America	149,109	353,468

Inorganic Chemical Tonnage Inbound into the EU25; 1995, 2005



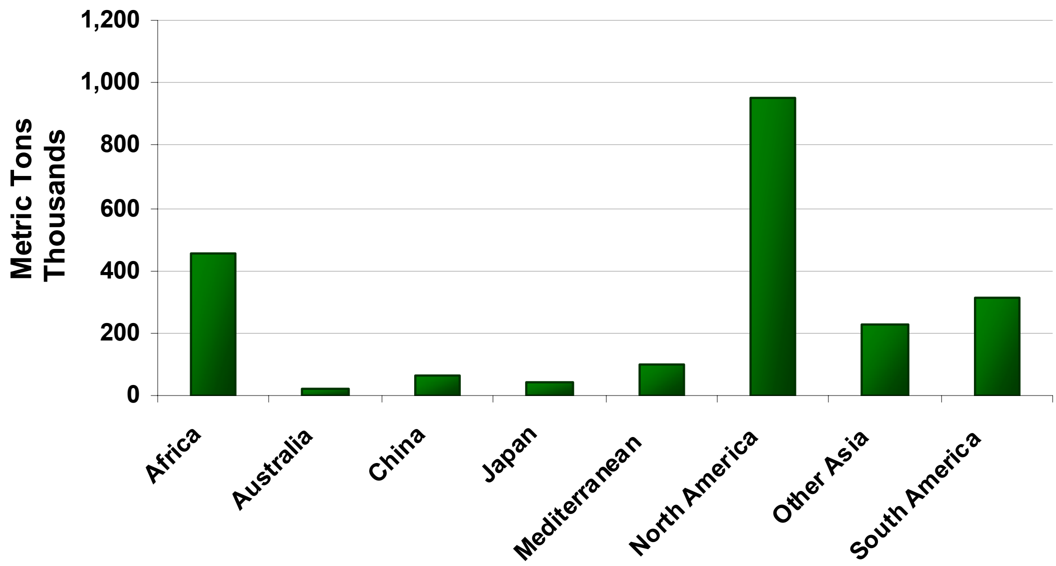
424. The destinations for Europe's inorganic chemical exports are concentrated in North America, Africa, and to a lesser extent, South America. Inorganic chemical exports to these markets are expected to experience growth of 0.2%, -0.7%, and 0.6% (CAGR) for the aforementioned markets, respectively between 2005 and 2015. While North America and Africa will continue to remain the dominant recipients of EU inorganic chemical exports, China's annual growth[126] (CAGR) of 10.2% will make China-EU the route to watch.

126 Where China's annual growth refers to growth in imports of inorganic chemical tonnage from the EU.

Inorganic Chemical Tonnage Outbound from the EU25

	1995	2005
Africa	428,473	455,769
Australia	54,912	19,022
China	4,761	66,137
Japan	49,295	44,222
Mediterranean	80,202	102,127
North America	817,905	954,922
Other Asia	260,157	224,352
South America	294,791	312,186

Inorganic Chemical Tonnage Outbound from the EU25; 2005



(c) Intra-Europe

425. The largest (in terms of tonnage) intra-Europe trading routes of inorganic chemicals over the past five years (average of 2000-2005) include:

Northwest Europe to Scandinavia = 2.2 million tonnes
Scandinavia to Northwest Europe = 2.0 million tonnes
Black Sea to the Mediterranean = 1.1 million tonnes

426. These routes will retain their positions as the three largest routes through to 2015, with exports from Northwest Europe to Scandinavia reaching 2.3 million tonnes in 2015. Strong growth will be seen along the Baltics to Northwest Europe route, which will see compound annual tonnage growth of 3.0% between 2005 and 2015. Tonnage along this route will reach 1.0 million in 2015.

2.2.11.2 Demand Characteristics

427. Inorganic chemicals tend to be price elastic and are not globally traded. Thus, the raw price of the commodity, as well as the transportation costs influence where an importer will purchase from and how much is purchased.

428. No further information is available regarding the demand characteristics for this commodity.

2.2.12 *Organic Chemicals (HS 2901-2942, 3507)*

2.2.12.1 Geographical Scope

(a) Global Routes

429. While Asian imports of organic chemicals dominate global organic chemical trade in tonnage terms, exports from South Korea to China dwarf the other trade routes. Additionally, the largest tonnage flow of organic chemicals is intra-Asia.

430. The world's largest (in terms of tonnage) trading routes of organic chemicals over the past five years (annual average of 2000-2005) include:

South Korea to China	= 5.3 million tonnes
Japan to China	= 3.5 million tonnes
Saudi Arabia to Taiwan	= 2.4 million tonnes
Taiwan to China	= 1.9 million tonnes
Japan to South Korea	= 1.7 million tonnes

431. The key trade routes for organic chemicals have changed somewhat over the last ten years. Namely, Saudi Arabia emerged as an exporter to Taiwan during this period, exporting only 286,000 tonnes to Taiwan in 1996 and 3.1 million in 2005.[127] Additionally, exports from Japan to South Korea, United States to South Korea and Japan to Taiwan routes were three of the largest routes in 1995, but have since fallen to the bottom half of the top 10 routes. In 2015, the top four routes listed above will retain their position, but exports from the United States to South Korea will become the fifth largest route after enjoying compound annual growth of 9.0% between 2005 and 2015.

432. The largest (in terms of tonnage) intra-Europe trading routes of organic chemicals over the past five years (average of 2000-2005) include:

Scandinavia to Northwest Europe	= 925,000 tonnes
Northwest Europe to Scandinavia	= 920,000 tonnes
Baltics to Northwest Europe	= 516,000 tonnes

433. These routes will retain their positions as the three largest routes through to 2015, but Northwest Europe to Scandinavia will become the largest route with 1.3 million tonnes exported in 2015.

(b) EU Inbound & Outbound

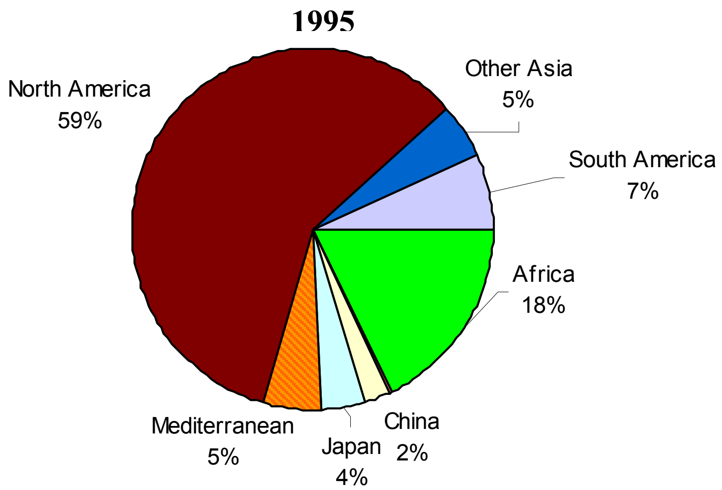
434. The figure below displays the modest shifts the origin regions supplying organic chemicals to the EU25 between 1995 and 2005. North America's share of tonnage into the EU25 declined steadily between 1995 and 2005, but grew at a compound annual rate of 2.8% over the 10-year stretch. Africa gained market share over the period with a growth rate of 10.6% over the last 10 years of history. Africa will only grow at 1.0% between 2005 and 2015, but faster compound annual growth (10.9%) will come from Other Asia.

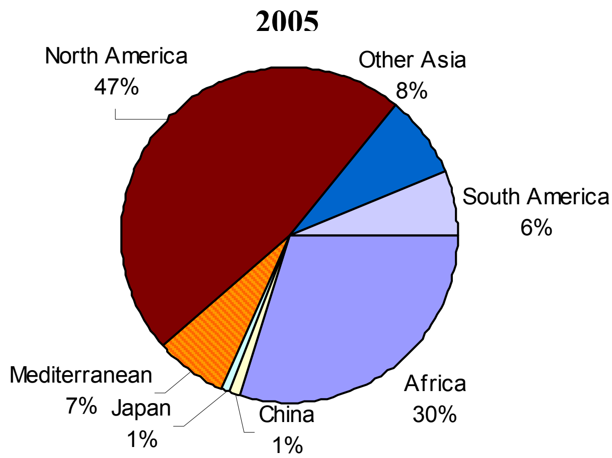
[127] Because the list shown takes the largest routes over a 5 year average, the Saudi Arabia to Taiwan route does not rank in the top 5 over the 2000-2005 period.

Organic Chemical Tonnage Inbound to the EU25

	1995	2005
Africa	483,667	1,325,252
Australia	1,284	1,969
China	66,697	58,139
Japan	99,863	26,267
Mediterranean	144,497	319,199
North America	1,595,675	2,111,509
Other Asia	131,713	364,571
South America	179,422	268,354

Organic Chemical Tonnage Inbound to the EU25; 1995, 2005

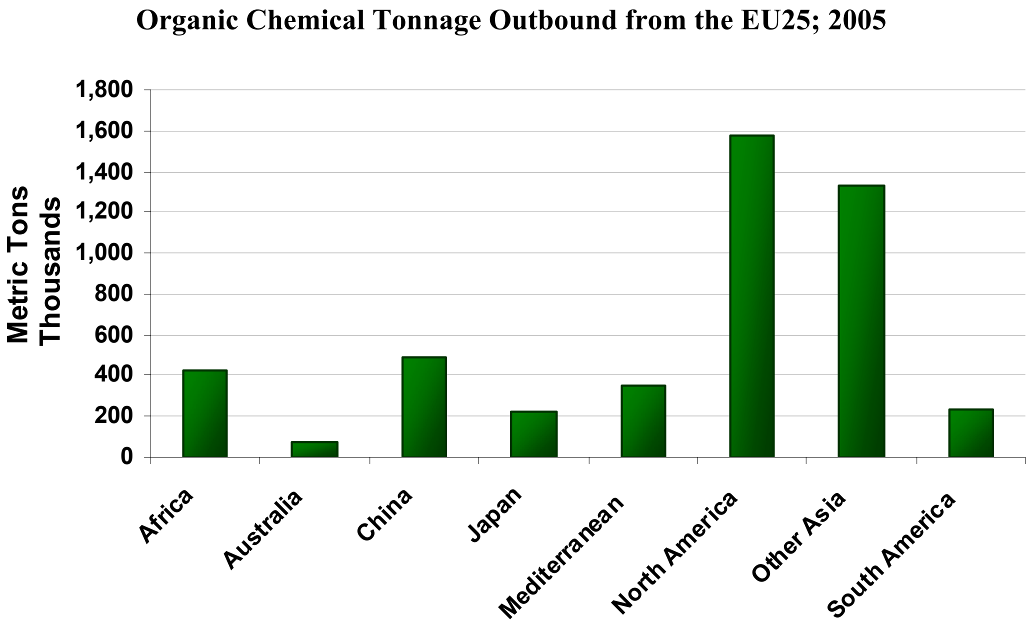




435. As indicated by the graph below, the destinations for Europe's organic chemical exports are concentrated in North America, Other Asia and China. Growth of organic chemical exports to these markets is expected to be strong with compound annual growth rates as high as 11.4% for China and 5.8% for Other Asia expected between 2005 and 2015. The more mature market of North America will experience a moderate growth rate of 3.6% over the forecast horizon.

Organic Chemical Tonnage Outbound from the EU25

	1995	2005
Africa	269,796	429,555
Australia	60,029	71,405
China	170,155	492,204
Japan	210,081	219,709
Mediterranean	192,787	348,325
North America	1,740,423	1,577,064
Other Asia	1,122,258	1,331,421
South America	241,514	236,287



(c) Intra-Europe Trade Routes

436. The largest (in terms of tonnage) intra-Europe trading routes of organic chemicals over the past five years (average of 2000-2005) include:

Scandinavia to Northwest Europe	= 925,000 tonnes
Northwest Europe to Scandinavia	= 920,000 tonnes
Baltics to Northwest Europe	= 516,000 tonnes

437. These routes will retain their positions as the three largest routes through to 2015, but Northwest Europe to Scandinavia will become the largest route with 1.3 million tonnes exported in 2015.

2.2.12.2 Demand Characteristics

438. Organic chemicals tend to be price elastic and are not globally traded. Thus, the raw price of the commodity, as well as the transportation costs influence where an importer will purchase from and how much is purchased.

439. Ethylene is not transported unless there are operational disturbances with the factories which use ethylene as input, and these problems could be caused by maintenance, production delays *etc.* whereby the ethylene is shipped and used as a factor of production elsewhere.

440. No further information is available regarding the demand characteristics for this commodity.

2.3 DRY BULK DEMAND ANALYSIS

2.3.1 *Grain (HS 1001-1008)*

441. HS codes 1001-1008 include wheat, rye, barley, oats, corn, rice, grain, buckwheat, millet, and cereals, with the major commodities being wheat, corn and rice.

442. U.S. wheat exports have declined during the past two seasons and are expected to decline nearly 10% during 2006. Conversely, one of the few countries that is expecting a larger crop in 2006 is

China, although its wheat production typically does not affect the world market. Unsurprisingly, world wheat stocks are expected to fall to 128 million tonnes, down from 151 million tonnes two years ago.

443. The dramatic expansion in ethanol production and capacity has created a huge corn demand engine. Industrial and food demand for corn is expected to increase 300 million bushels in 2005 to nearly 3 billion bushels. Given the huge planned expansion to ethanol production capacity, corn used for food and industrial purposes is expected to increase 500 million bushels during 2006. US corn exports increased significantly during 2005 as demand grew and competition from feed wheat was reduced around the world.

2.3.1.1 Geographical Scope

(a) Global Routes

444. Grain imports are very global with the United States serving as the major exporter along the heaviest volume routes. Grain shipments from the United States to Japan dwarf all other bilateral trade movements, with total tonnes being 82% larger than tonnage along the second largest route.

445. The world's largest (in terms of tonnage) trading routes of organic chemicals over the past five years (annual average of 2000-2005) include:

United State to Japan	= 19.1 million tonnes
China to South Korea	= 6.8 million tonnes
United States to Mexico	= 6.5 million tonnes
United States to Egypt	= 6.3 million tonnes
United States to Taiwan	= 5.6 million tonnes

446. The United States has been the largest grain exporter over the last ten years, with China emerging as a key exporter to South Korea only recently, and replacing much of the grain supplied by the United States up to and including the late 1990's. The largest five routes listed above will retain their positions through to 2015, with grain exports from the United States to Japan reaching 18.0 million tonnes in 2015.

447. The largest (in terms of tonnage) intra-Europe trading routes for grain over the past five years (annual average of 2000-2005) include:

Black Sea to the Mediterranean	= 1.5 million tonnes
Scandinavia to Northwest Europe	= 868,000 tonnes
Northwest Europe to Scandinavia	= 644,000 tonnes

448. These routes will remain the largest three intra-Europe grain trading routes through to 2015, with exports from the Black Sea to the Mediterranean expected to continue its dominance over other routes with 1.8 million tonnes shipped in 2015.

(b) EU Inbound & Outbound

449. The majority of grain tonnage flowing into the EU25 comes from North America.[128] However, the figure below illustrates the origins of EU grain in both 1995 and 2005, where it becomes evident that North America's dominance as the supplier for EU demand is waning as South America becomes a larger supplier. The Africa and Other Asia exporters gained footing as exporters to the

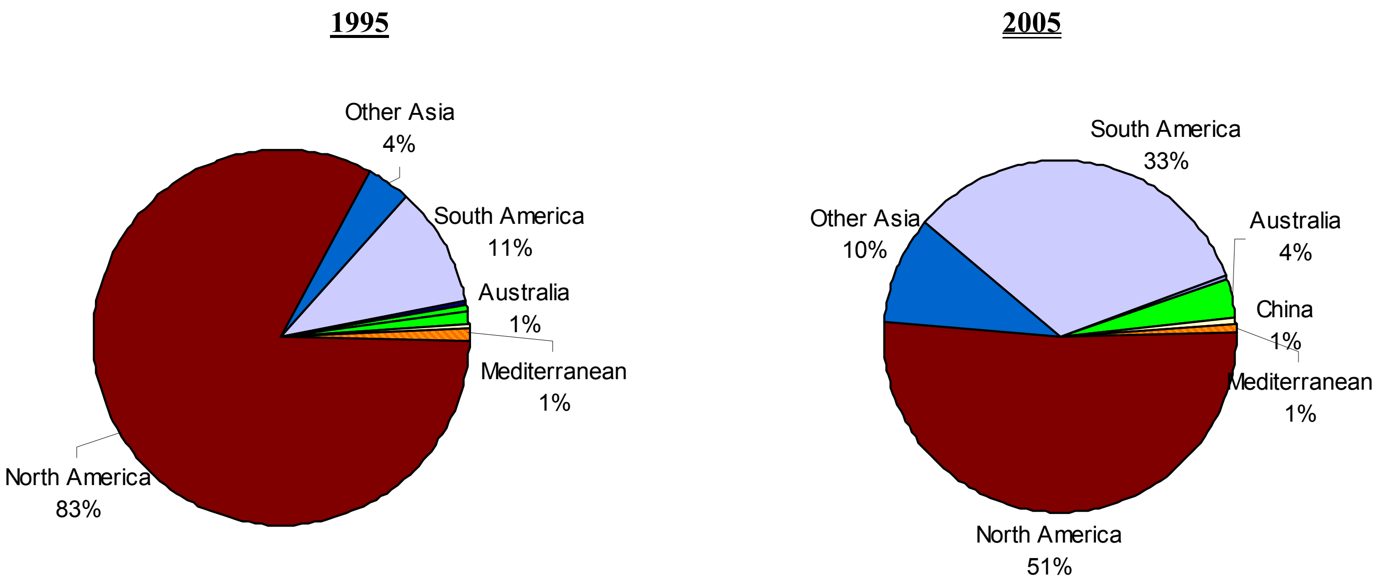
128 Analysis does not include EU grain production for EU consumption.

EU over the last 10 years. Even with annual growth (CAGR) of 1.8% between 2005 and 2015, North America will continue to be the largest supplier of grain tonnage to the EU25 and with growth of 1.2% (CAGR); South America will maintain a convincing hold on the second place spot in 2015.

Grain Tonnage Inbound to the EU25

	1995	2005
Africa	46,320	10,037
Australia	109,759	260,777
China	36,694	47,138
Japan	101	283
Mediterranean	119,692	42,782
North America	8,105,939	3,611,109
Other Asia	379,214	682,485
South America	993,925	2,333,941

Grain Tonnage Inbound to the EU25 by Region; 1995, 2005

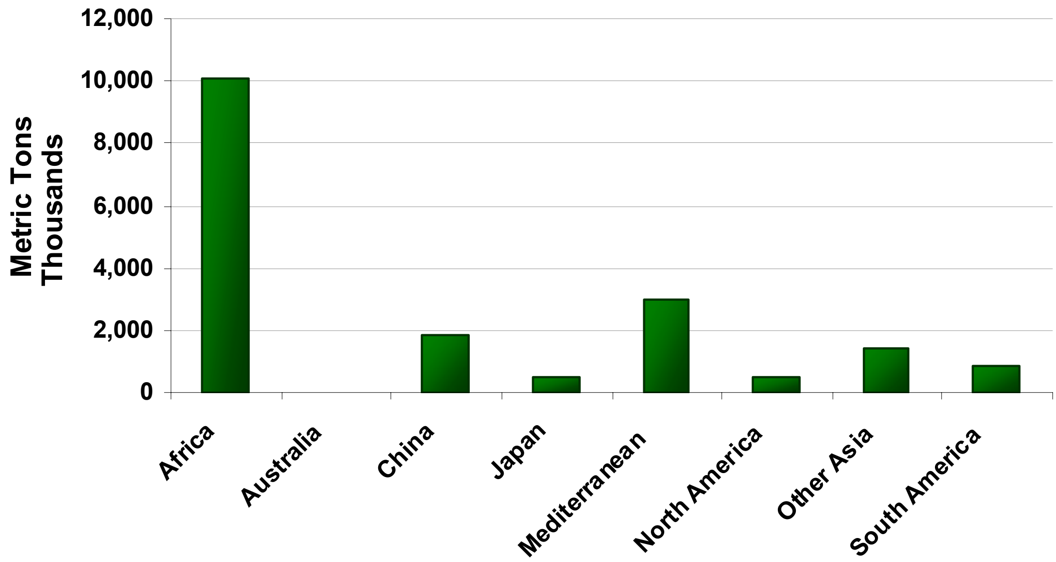


450. As indicated by the graph and the table below, the destinations for Europe's grain exports are concentrated in Africa and will remain as such through to 2015 while grain exports to the region grow at a compound annual rate of 1.7%. EU grain exports to China will post the highest growth rate over the ten-year forecast period with a moderate rate of 1.9% (CAGR)

Grain Tonnage Outbound from the EU25

	1995	2005
Africa	7,786,220	10,057,167
Australia	41,715	4,496
China	3,629,419	1,815,505
Japan	255,833	463,264
Mediterranean	600,845	2,971,450
North America	187,857	522,277
Other Asia	1,412,084	1,391,327
South America	1,044,425	881,010

Grain Tonnage Outbound from the EU25 by Region; 2005



(c) Intra-Europe Trade Routes

451. The largest (in terms of tonnage) intra-Europe trading routes for grain over the past five years (annual average of 2000-2005) include:

Black Sea to the Mediterranean = 1.5 million tonnes
Scandinavia to Northwest Europe = 868,000 tonnes
Northwest Europe to Scandinavia = 644,000 tonnes

452. These routes will remain the largest three intra-Europe grain trading routes through to 2015, with exports from the Black Sea to the Mediterranean expected to continue its dominance over other routes with 1.8 million tonnes shipped in 2015.

2.3.1.2 Demand Characteristics

453. Grain is globally traded and prices are set in the global market. As a result, the price of the commodity by producing country is not a large factor. In the short-run, grain prices will be lower in regions where there is a surplus and higher in regions where there is a shortage. Determinations on which country grain will be imported from are made based on the transportation costs. Since transportation costs are typically higher the further the distance travelled, grain imports are likely

to be from a nearby country. However, this does not hold true in all cases considering that Brazil is one of the largest global grain producers.

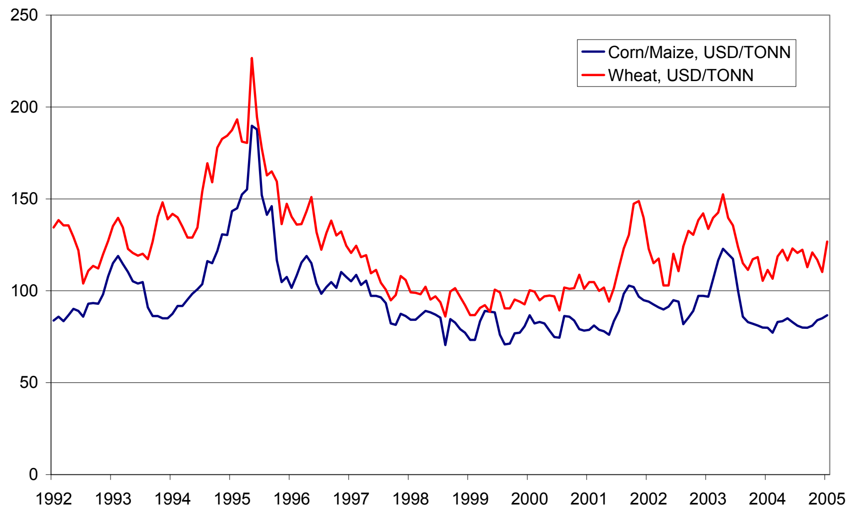
454. Grain is relatively price inelastic. While substitution between grain products may occur under a sudden change in prices, aggregate grain demand does not change substantially.

455. Sea transport of grain is not managed in the same careful way as the industrial commodities coal, iron ore, bauxite, phosphate and alumina. Because the trade is seasonal and fluctuates with the harvest in the exporting and importing regions, shippers rely heavily on the spot market, using the ships that are available. These fluctuations are not predictable, so planning transport is very difficult and complex.

456. To load cargoes of 70,000 tonnes involves careful scheduling of input barges or box cars from many different sources, often at the height of the season. Discharging can be equally hazardous since there are all the problems of ensuring the prompt arrival of a multitude of barges and coasters, and penalties for faulty consignment and demurrage charges grow more rapidly with large cargoes. For this reason it is more difficult to introduce large ships into the grain trade than into the iron ore trade.

457. There are a few old Capesizes which are trading grain, but these are cleaned and dedicated to transport grain. They are, opposed to the rest of the market, trading on long term contracts and transport grain out of Mississippi, USA. The majority of the grain is transported with Panamaxes and Handysize vessels.

Grain Prices



Source: CBOT / Fearnleys (2006))

2.3.2 *Sugar (HS 1701-1703, 0409)*

2.3.2.1 Geographical Scope

(a) Global Routes

458. Brazil dominates the world's sugar export market, supported in part by the Caribbean and Central America. However, sugar importers are quite diverse. The world's largest (in terms of tonnage) trading routes of sugar over the past five years (annual average of 2000-2005) include:

Brazil to Russia	= 3.1 million tonnes
Caribbean to Russia	= 1.7 million tonnes
Brazil to Western Africa	= 1.4 million tonnes
Brazil to Other Arabian Gulf	= 1.0 million tonnes
Brazil to UAE	= 865,000 tonnes
Central America to United States	= 826,000 tonnes

459. Brazil has been the largest sugar exporter over the last ten years. Exports of sugar from Thailand previously represented some of the world's largest sugar shipment routes. However, Thailand's exports have trailed in recent years, particularly to Japan, where exports to Japan reached 1.1 million tonnes in 1996, before experiencing significant volatility and falling to 382,000 tonnes in 2005. Australian exports to Japan are expected to grow at a compound annual growth rate of 22% between 2005 and 2015, making that route the second largest route in 2015 with over 5.2 million tonnes shipped. No other major shifts in routes are expected among the largest routes.

460. The largest (in terms of tonnage) intra-Europe trading routes for sugar over the past five years (annual average of 2000-2005) include:

Baltics to Northwest Europe	= 279,000 tonnes
Mediterranean to the Black Sea	= 166,000 tonnes
Northwest Europe to the Baltics	= 157,000 tonnes
Northwest Europe to the Black Sea	= 156,000 tonnes
Northwest Europe to Scandinavia	= 124,000 tonnes

461. These routes will remain the largest intra-Europe sugar trading routes through to 2015, with exports from the Baltics to Northwest Europe expected to remain the largest route, despite negative growth of 4.7% between 2005 and 2015. Exports on this route are expected at 230,000 in 2015.

(b) EU Inbound & Outbound

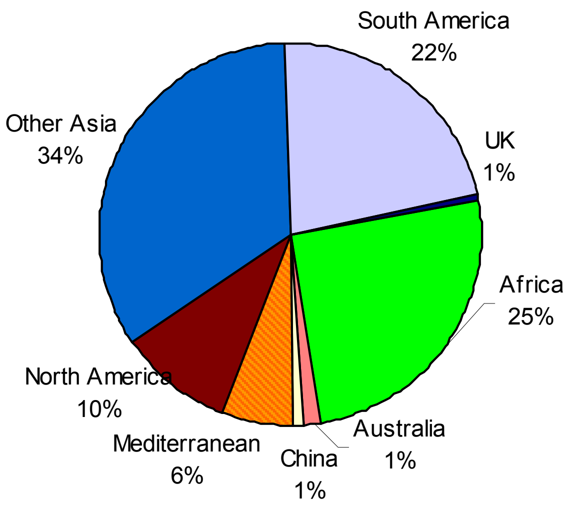
462. Sugar tonnage flowing into the EU25 comes from a stable and diverse set of origin regions. Other Asia, South America, and Africa maintain the first to third place spots in terms of total market share in both 1995 and 2005. South America's share is not surprising, considering that Brazil is the largest sugar exporter in the world. North America also maintains moderate market share, and will continue to do so with expected growth (CAGR) of 6.1% between 2005 and 2015. Though not representing significant tonnage in either 1995 or 2005, Australia is expected to become a major supplier to the EU25 over the next ten years. South America is expected to become the largest supplier to the EU25 by 2015 with forecasted annual growth of 16.0% (CAGR).

Sugar Tonnage Inbound from the EU25

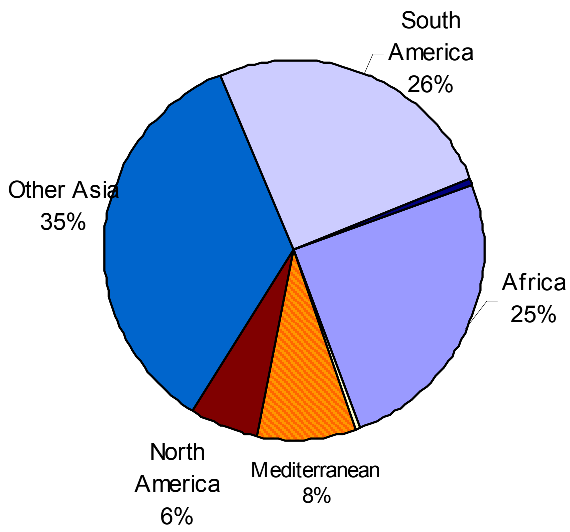
	1995	2005
Africa	1,237,367	1,047,714
Australia	70,144	3,719
China	43,611	12,416
Japan	106	187
Mediterranean	291,132	346,845
North America	473,903	243,558
Other Asia	1,669,872	1,452,333
South America	1,082,093	1,071,381

Sugar Tonnage Inbound to the EU25; 1995, 2005

1995



2005

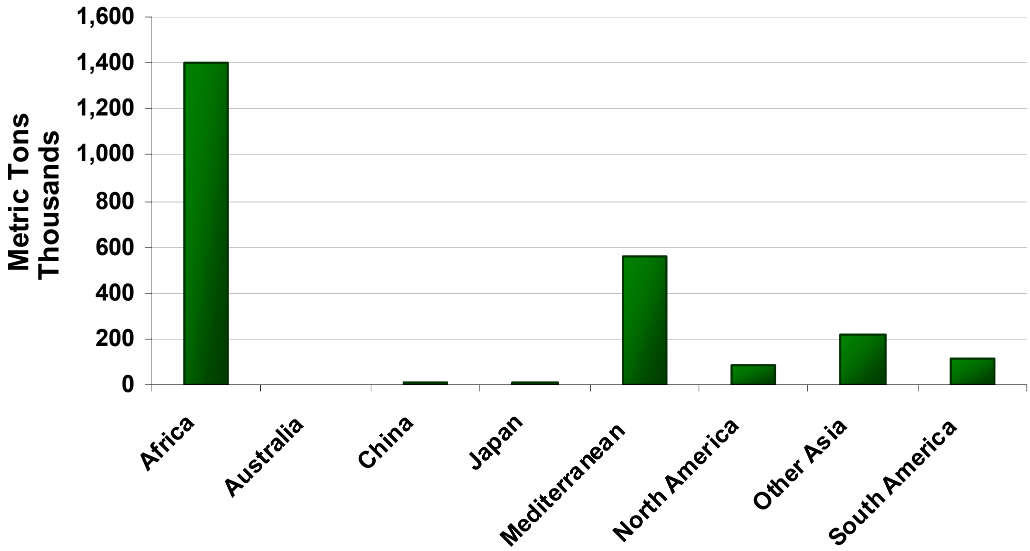


463. As indicated by the graph and the table below, Europe's sugar exports are concentrated in Africa and will remain as such through to 2015, despite the forecasted growth rate of -8.6% (CAGR) for sugar exports to the region. The declining growth in sugar exports to Africa is mitigated by expectations of negative compound annual growth rates in the EU's sugar exports to all regions. This negative growth forecast is partially due to a recent WTO ruling under which the EU will have to reduce its sugar subsidies. The result will be lower EU sugar exports in the years ahead. Reduction of EU production will pave the way for Brazil to gain an even greater foothold on the global sugar trade.

Sugar Tonnage Outbound from the EU25

	1995	2005
Africa	1,929,912	1,402,579
Australia	1,738	2,183
China	867	5,737
Japan	18,331	13,629
Mediterranean	446,070	560,040
North America	26,338	82,883
Other Asia	148,815	215,049
South America	38,339	109,116

Sugar Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

464. The largest (in terms of tonnage) intra-Europe trading routes for sugar over the past five years (annual average of 2000-2005) include:

Baltics to Northwest Europe	= 279,000 tonnes
Mediterranean to the Black Sea	= 166,000 tonnes
Northwest Europe to the Baltics	= 157,000 tonnes
Northwest Europe to the Black Sea	= 156,000 tonnes
Northwest Europe to Scandinavia	= 124,000 tonnes

465. These routes will remain the largest intra-Europe sugar trading routes through to 2015, with exports from the Baltics to Northwest Europe expected to remain the largest route, despite negative growth of 4.7% between 2005 and 2015. Exports on this route are expected at 230,000 in 2015.

2.3.2.2 Demand Characteristics

466. Sugar is globally traded and contract prices are set in the global market. As a result, the price of the commodity by producing country is not a large factor. Determinations on which country sugar will be imported from are made based on the transportation costs.

467. Sugar demand is relatively price inelastic. While chemical and corn sweetener substitutes exist, they no not replace the global demand for sugar, particularly in India.

468. Sugar consists of three trades, raw sugar (which is shipped loose in bulk), refined sugar (which is generally shipped in bags) and molasses (which is a by product of sugar refining and shipped in tankers).

469. No further information is available regarding the demand characteristics for this commodity.

2.3.3 *Oil Seeds & Soy Beans (HS 1201-1208)*

2.3.3.1 Geographical Scope

(a) Global Routes

470. Exports and imports of oil seeds and soy beans are fairly global although exports are primarily concentrated in Brazil, Argentina, and the United States. The world's largest (in terms of tonnage) trading routes of oil seeds and soy beans over the past five years (annual average of 2000-2005) include:

United States to China	= 7.5 million tonnes
Brazil to China	= 6.4 million tonnes
Argentina to China	= 4.2 million tonnes
Brazil to the Netherlands	= 3.1 million tonnes
United States to Japan	= 3.1 million tonnes

471. Exports to China have grown substantially over the last ten years, as is consistent with economic growth experienced by China. As such, trade along those routes has grown to become very significant in terms of global oil and soy bean shipments. Over the next ten years, the above routes will remain the largest trade routes for this commodity. However, exports from the United States to Japan will be replaced by exports from Canada to Japan as the fifth largest trade route. United States shipments to Japan will still post 2.0 million tonnes in 2015, but Canada will supply 3.2 million tonnes in the same year. Also emerging as a key route in the future is Brazilian exports to Germany. Volume on this route is expected to grow at a compound annual growth rate of 2.0% between 2005 and 2015. This growth will propel volume to reach 2.6 million tonnes in 2015 (making it the sixth largest route in the same year).

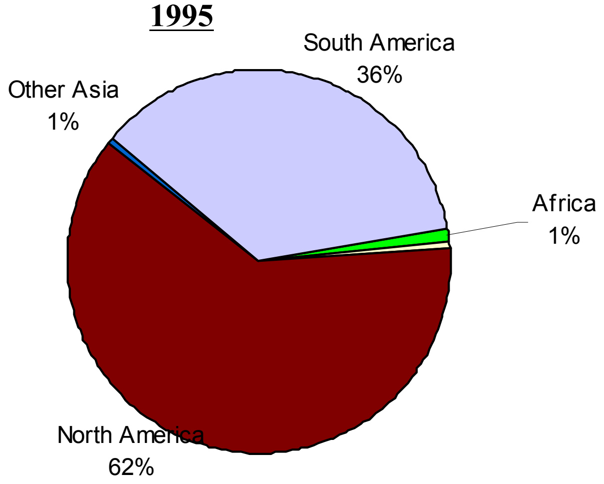
(b) EU Inbound & Outbound

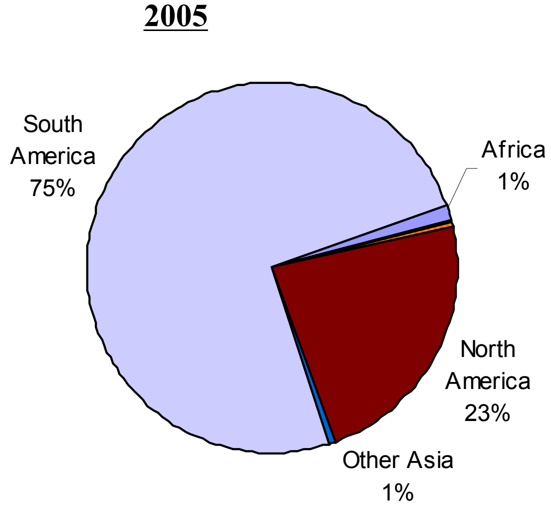
472. Oil Seed tonnage flowing into the EU25 is concentrated in North and South America for 1995 though to 2005. As the figure below indicates, the two regions switch places in terms of their dominance over the 10-year period, with South America holding 75% of the market in 2005. Although South America is only expected to grow at 0.7% annually (CAGR) between 2005 and 2015, it will continue to supply the highest level of oil seed tonnage to the EU25 by 2015. While its levels will remain low, Other Asia will demonstrate the fastest growth over the forecast horizon with annual growth of 6.7% expected over the forecast horizon.

Oil Seed Tonnage Inbound to the EU25

	1995	2005
Africa	174,075	266,963
Australia	8,266	23,542
China	84,290	6,416
Japan	27	0
Mediterranean	28,596	35,759
North America	10,581,159	4,136,209
Other Asia	120,084	103,282
South America	6,194,390	13,373,062

Oil Seed Tonnage Inbound to the EU25; 1995, 2005

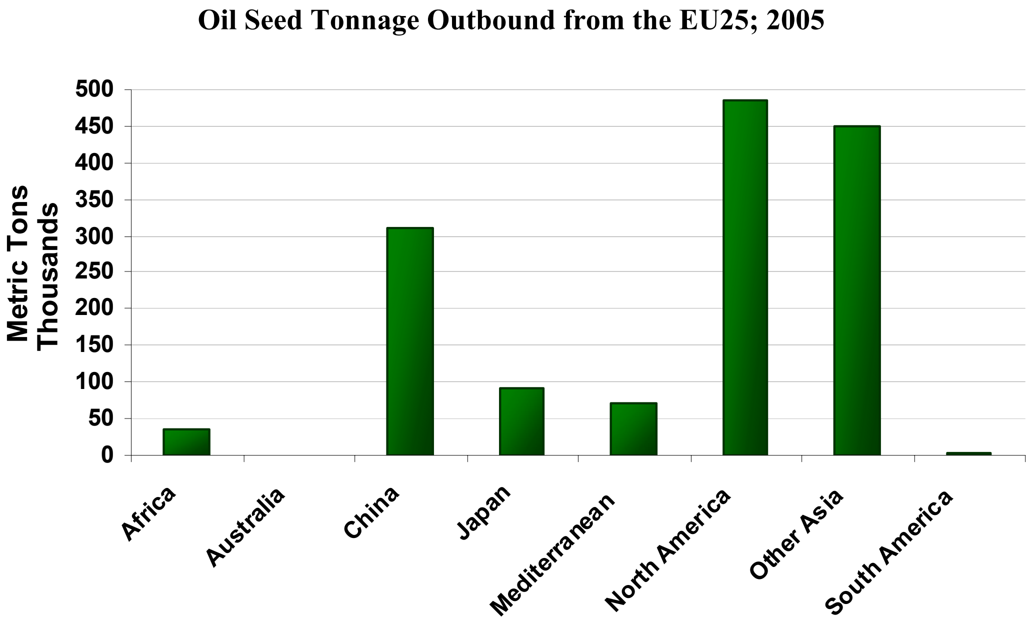




473. As indicated by the graph and the table below, Europe's oil seed exports are spread between North America, Other Asia, and China. These three regions will also represent the largest recipients of the EU's oil seed exports in the future, but by 2015, Other Asia and China will have surpassed North America. These regions each will have the strongest growth in receipts of EU oil seed exports with China and Other Asia growing at 10.4% and 6.4% (CAGR), respectively between 2005 and 2015. North America will demonstrate a moderate growth rate of 4.3% over the same period.

Oil Seed Tonnage Outbound from the EU25

	1995	2005
Africa	129,620	35,314
Australia	180	75
China	2,466	309,829
Japan	455	90,828
Mediterranean	46,876	71,312
North America	124,179	483,744
Other Asia	25,421	449,690
South America	592	1,648



(c) Intra-Europe Trade Routes

474. The largest (in terms of tonnage) intra-Europe trading routes of oil seeds and soy beans over the past five years (annual average of 2000-2005) include:

Northwest Europe to Scandinavia	= 323,000 tonnes
Black Sea to the Mediterranean	= 217,000 tonnes
Black Sea to Northwest Europe	= 186,000 tonnes
Baltics to Northwest Europe	= 175,000 tonnes

475. While these routes will remain the top four routes though to 2015, their order will change slightly. Exports from the Black Sea to the Mediterranean will become the largest route in 2015, with 505,000 tonnes exported in 2015. This route will witness compound annual growth of 3.6% between 2005 and 2015. The Northwest Europe to Scandinavia route is more mature, with annual growth of only 0.5% expected between 2005 and 2015.

2.3.3.2 Demand Characteristics

476. Oil seeds and soy beans are globally traded and prices are set in the global market. As a result, the price of the commodity by producing country is not a large factor. Like grain, oil seeds and soy bean prices tend to be lower in regions where domestic production is in surplus and higher in regions where there is a deficit. Determinations on which country oil seeds and soy beans will be imported from are made based on the transportation costs.

477. As with most agriculture products, demand is price inelastic. Therefore, while wild swings in global prices will impact farmers' incomes, it does not significantly impact demand.

478. Oil seeds and soy beans are transported both in containers and dry bulk vessels.

479. No further information is available regarding the demand characteristics for this commodity.

2.3.4 *Animal Feed (HS 1213-1214, 1802, 2302-2309)*

2.3.4.1 Geographical Scope

(a) Global Routes

480. Exports of animal feed tonnage are dominated by Brazil and Argentina while imports are concentrated in Europe. The world's largest (in terms of tonnage) trading routes of animal feed over the past five years (annual average of 2000-2005) include:

Brazil to France	= 3.6 million tonnes
Argentina to Italy	= 2.6 million tonnes
Argentina to Spain	= 2.3 million tonnes
Argentina to Denmark	= 1.5 million tonnes
Argentina to the Netherlands	= 1.4 million tonnes

481. Exports from the United States and Brazil to Spain ranked in the top 5 largest routes for animal feed shipments in 1995 but drop to the 14^{th} and 27^{th} largest routes in 2005. Likewise, exports from Argentina to Spain and Denmark grew at compound annual growth rates of 20.8% and 9.1%, respectively between 1995 and 2005, to reach their ranks in the top 5 routes in the world. Over the next 10 years, the above routes will remain the largest trade routes for this commodity, with exports from Brazil to France reaching 4.6 million tonnes in 2015.

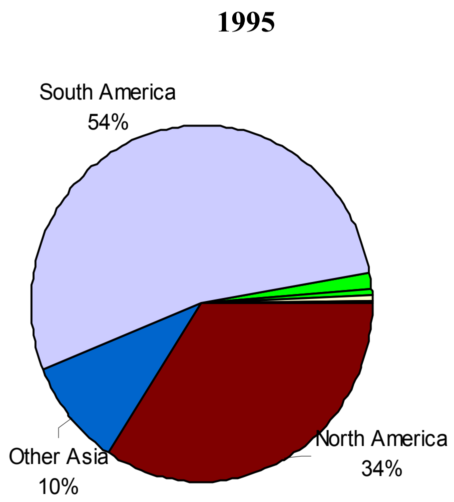
(b) EU Inbound & Outbound

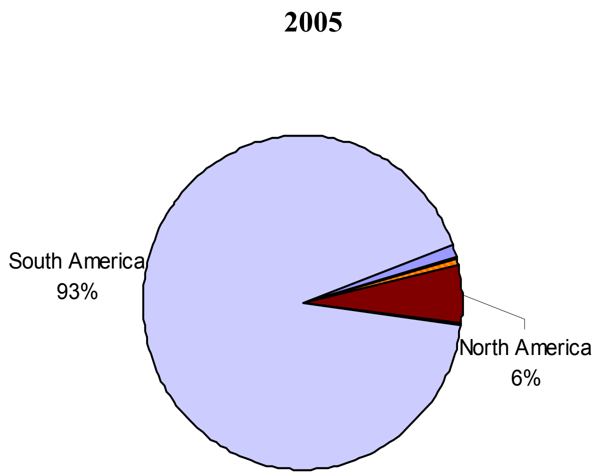
482. Animal feed tonnage inbound to the EU25 primarily originated from South America, North America and Other Asia in 1995. By 2005, however, Other Asia diminished in importance leaving South and North America as the primary suppliers of Animal Feed to the EU. While Other Asia will make up some ground by 2015, with annual growth of 2.7% (CAGR) expected between 2005 and 2015, South and North America will remain the largest suppliers. South America is expected to witness annual growth of 1.6% while North America will see -0.3% growth (CAGR) over the forecast horizon.

Animal Feed Tonnage Inbound to the EU25

	1995	**2005**
Africa	433,275	338,374
Australia	116,220	40,695
China	244,063	311
Japan	1,233	0
Mediterranean	61,823	131,231
North America	10,254,067	1,506,169
Other Asia	2,922,281	76,934
South America	16,116,317	25,078,052

Animal Feed Tonnage Inbound to the EU25; 1995, 2005



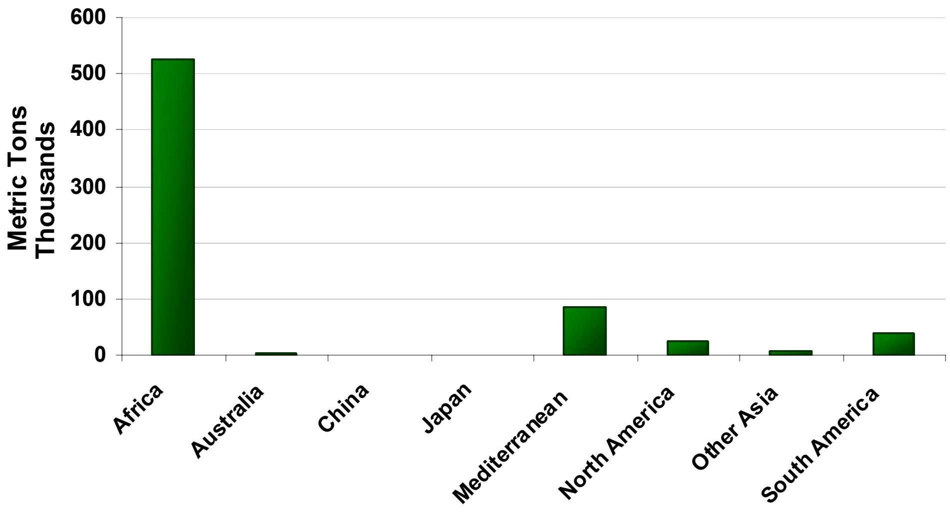


483. The majority of EU's animal feed exports are sent to Africa, but the Mediterranean and South America also received significant tonnages in 2005. With annual growth (CAGR) of 2.9% in animal feed receipts by the Mediterranean, this region will maintain the 2nd place spot for EU animal feed exports in 2015. At slower growth of 1.9% (CAGR), Africa will continue to receive the largest amount of animal feed tonnage from the EU in 2015.

Animal Feed Tonnage Outbound from the EU25

	1995	2005
Africa	686,703	524,358
Australia	1,245	2,783
China	8,909	13
Japan	29,928	31
Mediterranean	179,940	83,846
North America	47,776	24,145
Other Asia	216,246	7,986
South America	17,148	40,155

Animal Feed Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

484. The largest (in terms of tonnage) intra-Europe trading routes of animal feed over the past five years (annual average of 2000-2005) include:

Northwest Europe to the Baltics	= 1.4 million tonnes
Northwest Europe to Scandinavia	= 1.4 million tonnes
Black Sea to the Mediterranean	= 221,000 tonnes

485. These three routes will remain the largest three routes though to 2015. Exports from Northwest Europe to the Baltics are expected to reach 2.7 million tonnes in 2015, after enjoying annual growth of 3.5% (CAGR) between 2005 and 2015.

2.3.4.2 Demand Characteristics

486. Animal feed is globally traded and prices are set in the global market, as it is a subset of the larger coarse grain market. As a result, the price of the commodity by producing country is not a significant factor. Determinations on which country the commodity is imported from are made based on the transportation costs.

487. Meat and dairy producers, the typical purchasers of animal feed, are sensitive to changing prices of animal feed. However, few substitution choices make animal feed relatively price inelastic.

488. Because animal feed is a subset of the grain market, it is shipped in a similar fashion, that is, it is transported in Panamaxes and Handysize vessels. However, while the users of grain can be quite diverse, only farmers drive demand for animal feed. Meat and dairy production do not exhibit strong seasonality, and thus, the demand for animal feed is fairly constant.

489. No further information is available regarding the demand characteristics for this commodity.

2.3.5 *Coal (HS 2701-2704)*

490. Along with iron ore, coal is the largest (volume terms) commodity traded in the bulk shipping market. Chinese demand for coal will rise astronomically over the next 20 years, while demand from the United States and India will also witness strong growth.[129] Europe is a large importer of coal, with Germany spurring much of the demand.[130] The effects of the drought across Europe must soon raise the problem of lack of cooling water for many nuclear plants-with gas at high prices and no real constrain on carbon it must be expected that coal will meet the short-fall. It is considered that if there are short-term difficulties in supply then it is likely to arise as a result of operational infrastructural problems rather than a fundamental lack of capacity. Capacity expansion plans exist around the world such that, in theory, it is thought that there will be more than adequate capacity to meet future demand levels.

2.3.5.1 Geographical Scope

(a) Global Routes

491. Exports of coal tonnage are dominated by Australia with much of the world's consumption (imports) of coal stemming from Asia and the United States. The world's largest (in terms of tonnage) trading routes of coal over the past five years (annual average of 2000-2005) include:

Australia to Japan	= 88.4 million tonnes
China to South Korea	= 26.8 million tonnes
China to Japan	= 23.6 million tonnes
Australia to South Korea	= 22.3 million tonnes
Australia to India	= 16.7 million tonnes
Colombia to the United States	= 13.1 million tonnes

492. While Australia-Japan trade of coal dwarfed all other routes even in 1995, Australian exports were joined by the United States. The United States exported 16.6 and 13.1 million tonnes of coal to Italy and the Netherlands, respectively in 1995, before declining in production in the late 1990's. The routes listed above will continue to be major routes in the future, though some shifting within them will occur. Exports from Australia to India will jump to the second largest route with 45.7 million tonnes shipped in 2015, compared with 98.4 million tonnes shipped from Australia to Japan in 2015. Colombia to the United States will also surpass China to Japan trade in 2015, with annual growth of only 0.7% (CAGR) expected between 2005 and 2015.

(b) EU Inbound & Outbound

493. As seen in the figure below, coal tonnage inbound to the EU25 was dominated by North American supply in 1995, but became almost evenly distributed between North America, Africa, and Australia by 2005. In fact, North American coal tonnage into the EU fell by an annual 6.7% (CAGR) between 1995 and 2005 and is expected to continue falling (albeit more slowly) by an annual 4.1% (CAGR). Africa and Australia coal tonnage into the EU should fare slightly better over the forecast period with projected rates of 1.1% and 0.9% (CAGR), respectively.

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[129] Macqueen, Julian. "Burning Questions." Lloyd's Shipping Economist. December 2005. Pp 16-18.

[130] Germany receives a large share of its imports from South Africa.

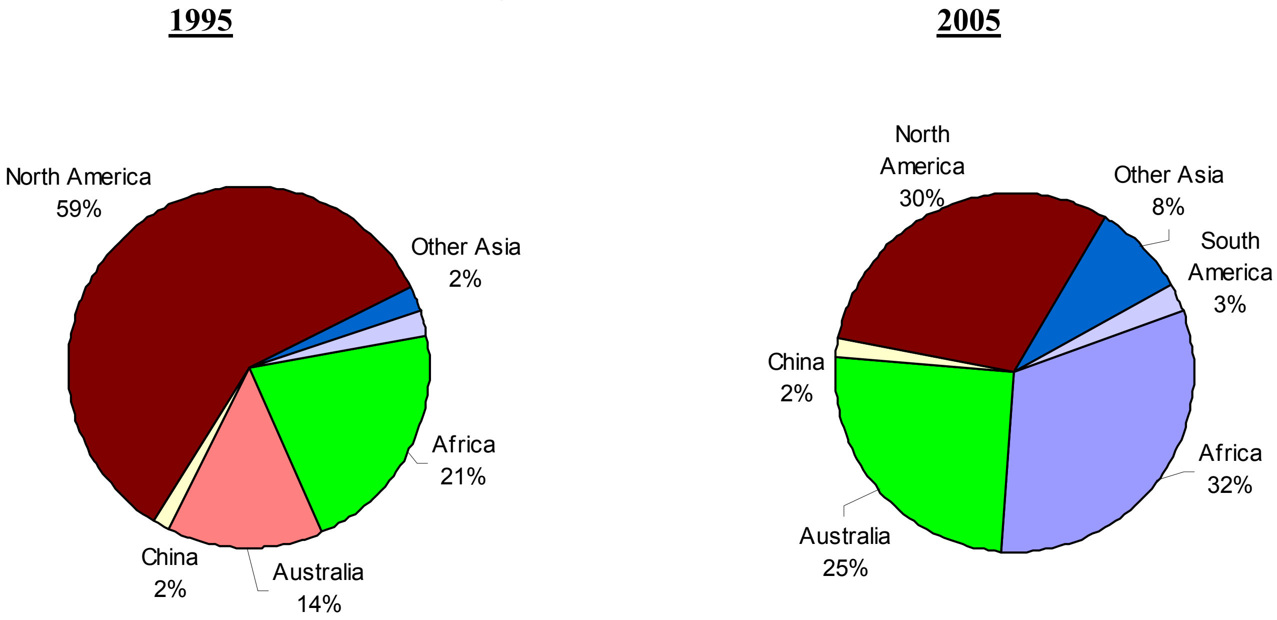
Coal Tonnage Inbound to the EU25

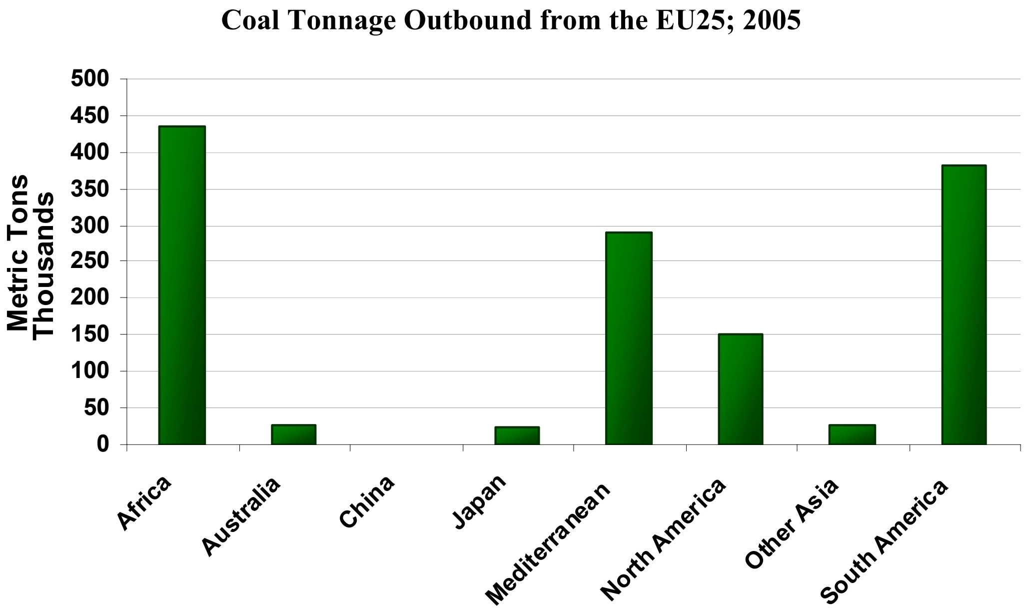
	1995	2005
Africa	27,187,859	39,367,250
Australia	17,913,623	31,222,132
China	2,299,475	2,042,182
Japan	0	806
Mediterranean	0	34,819
North America	75,635,354	37,729,447
Other Asia	3,017,340	10,527,782
South America	2,797,454	3,273,308

Coal Tonnage Outbound from the EU25

	1995	2005
Africa	85,489	435,016
Australia	20,144	25,389
China	0	646
Japan	28,742	22,356
Mediterranean	33,061	289,542
North America	1,414	149,930
Other Asia	28,165	27,140
South America	949,484	380,806

Coal Tonnage Inbound to the EU25; 1995, 2005





(c) Intra-Europe Trade Routes

495. The largest (in terms of tonnage) intra-Europe trading routes of coal over the past five years (annual average of 2000-2005) include:

Baltics to Northwest Europe	= 15.3 million tonnes
Black Sea to the Mediterranean	= 3.6 million tonnes
Black Sea to Northwest Europe	= 2.5 million tonnes

496. These three routes will remain the largest three routes though to 2015, with the Baltics to Northwest Europe route maintaining its dominance. Exports from the Baltics to Northwest Europe are expected to reach 17.3 million tonnes in 2015, despite annual growth of 0.5% (CAGR) between 2005 and 2015.

2.3.5.2 Demand Characteristics

497. Coal is globally traded and prices are set in the global market. As a result, the price of the commodity by producing country is not a large factor. Determinations on which country the commodity is imported from are made based on the transportation costs.

498. Coal is strongly price elastic in the long term due to several substitute products available on the global market

499. Coal is used both as an input to steel mills and power stations. The main demand drivers in this market are steel mills, power station owners and big trading houses like Glencore.

500. Coal that is sold to steel mills is bought and sold as an input to steel production, and will typically have a more industrial focus than the coal sold for power stations, as power stations could use gas or oil in place of coal. Thus, the coal that is imported by the steel mills is typically bought using contracts with a duration of ten year or more, whilst coal used for power generation is typically sold more on a spot and/or less than one year basis. Given the difference in contract types used, steel mills will tend to use long term freight contracts to cover their transportation needs, using primarily Capesize and Panamax vessels, rather than using traders. The standard freight contract will typically be spot or have a maximum duration of one year, as coal prices are negotiated on a yearly basis. However, it is not unusual that power stations will cover some of their transportation needs using contracts with a duration up to five or ten years.

501. There could also be regional price differences which make arbitrage trade profitable, and that is why big trading houses like Glencore exist. They typically buy coal FOB and control their own vessels using time charter contracts.

2.3.6 *Briquettes, Lignite, Peat & Coke (HS 2701-2702, 2704)*

2.3.6.1 Geographical scope

(a) Global routes

502. Exports of briquettes and coke tonnage are dominated by China with much of the world's consumption (imports) of briquettes and coke stemming from Asia, and the United States. The world's largest (in terms of tonnage) trading routes over the past five years (annual average of 2000-2005) include:

China to Japan	= 2.0 million tonnes
China to India	= 1.4 million tonnes
Japan to the United States	= 1.3 million tonnes
China to the United States	= 1.3 million tonnes
China to Brazil	= 1.2 million tonnes

503. The China to the United States route will jump to the largest route in 2015 with 2.6 million tonnes, after posting compound annual growth rates of 11.2% between 2005 and 2015. Exports from Japan to the United States will fall to the 7th largest route, replaced by exports from Australia to Germany (1.2 million tonnes in 2015) and China to Germany (1.1 million tonnes in 2015).

(b) EU Inbound & Outbound

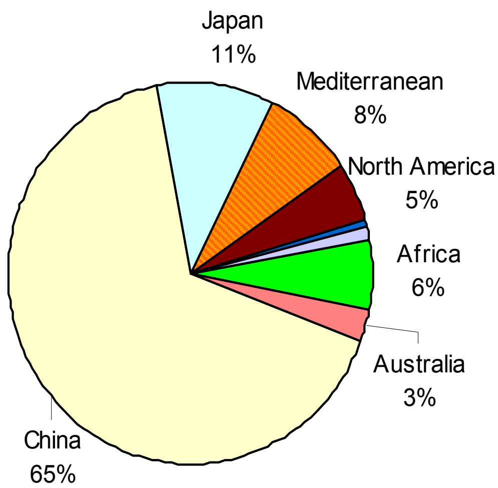
504. The majority of EU's briquettes, lignite, peat and coke tonnage imports were from China in 1995 and 2005. China import tonnage of this commodity grouping into the EU grew by 3.9% (CAGR) between 1995 and 2005 but will slow to 0.2% between 2005 and 2015. Despite this slowdown in growth, China will remain the largest supplier to the EU.

Briquettes, Lignite, Peat, Coke Tonnage Inbound to the EU25

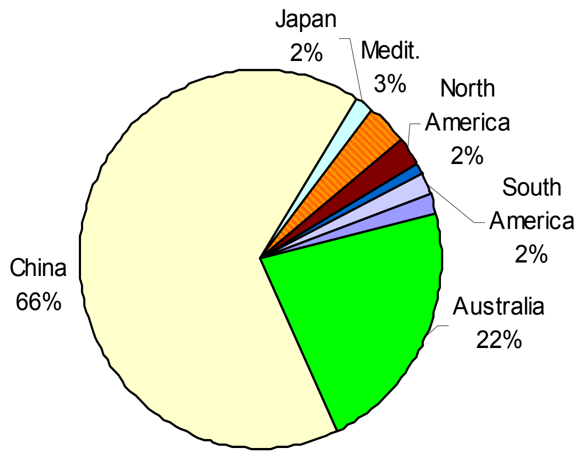
	1995	2005
Africa	234,919	99,815
Australia	104,915	1,275,637
China	2,618,323	3,842,197
Japan	417,618	100,199
Mediterranean	311,227	201,369
North America	197,219	142,822
Other Asia	29,621	56,493
South America	38,814	110,601

Briquettes, Lignite, Peat, Coke Tonnage Inbound to the EU25; 1995, 2005

1995



2005

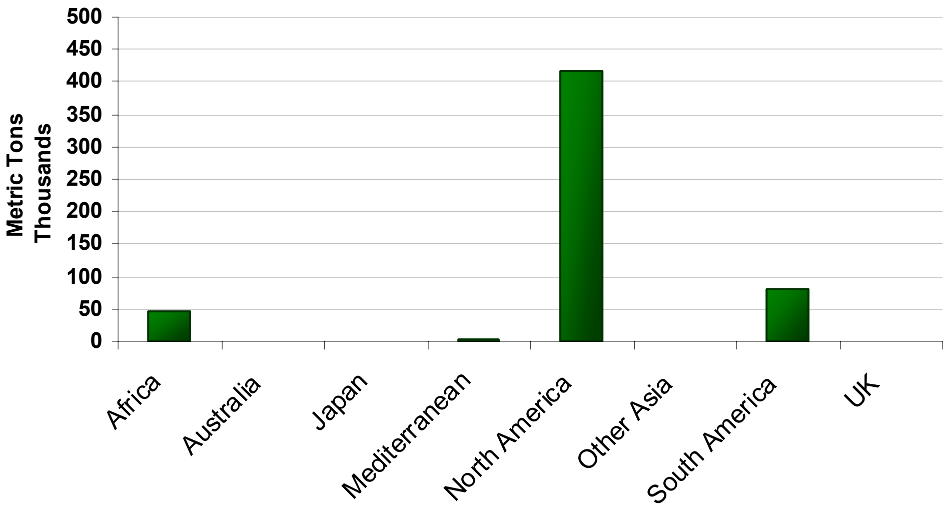


505. Briquettes, lignite, peat and coke tonnage outbound to the EU25 was dominated by South America in 1995, but diminished in significance by 2005, being replaced by North America. After falling by an annual 17.6% (CAGR) between 1995 and 2005, South America still maintained its 2nd place position in 2005, but is not expected to witness any growth between 2005 and 2015. North America will be the only region with positive growth in tonnage imports of this commodity grouping from the EU between 2005 and 2015, with growth of 8.9% (CAGR).

Briquettes, Lignite, Peat, Coke Tonnage Outbound from the EU25

	1995	2005
Africa	26,503	44,789
Australia	0	549
Japan	19	685
Mediterranean	2,579	3,772
North America	38,333	415,304
Other Asia	649	1,040
South America	553,057	79,921
Africa	85,489	435,016

Briquettes, Lignite, Peat, Coke Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

506. The largest (in terms of tonnage) intra-Europe trading routes of briquettes and coke over the past five years (annual average of 2000-2005) include:

Baltics to Northwest Europe	= 3.2 million tonnes
Black Sea to Northwest Europe	= 420,000 tonnes
Northwest Europe to Scandinavia	= 406,000 tonnes

507. These three routes will remain the largest three routes though to 2015, with the Baltics to Northwest Europe route maintaining its dominance. Exports from the Baltics to Northwest Europe are expected to reach 3.4 million tonnes in 2015, despite annual growth of 0.2% (CAGR) between 2005 and 2015.

2.3.6.2 Demand Characteristics

508. A variety of substitutes for these products lead to fairly elastic prices for peat, lignite, and coke. Further, homogeneity between goods make its trade price competitive such that the country with the lowest prices will drive demand.

509. No further information is available regarding the demand characteristics for this commodity.

2.3.7 *Copper (HS 7401, 2603), Alumina (HS 2818), Bauxite (HS 2606), Zinc (HS 2608), Lead (HS 2607), Nickel (HS 2604, 7501) & Other Ores (HS 2601-2603, 2613-2615)*

510. Global copper consumption growth remains sluggish due to high prices, but is beginning to grow faster primarily because of Chinese consumption growth. In part, the decline in consumption growth reflects a transfer of production to China, but high prices are forcing material substitutions. Piping markets are the most imperilled, although even in wiring applications and in other uses for copper (like radiators), other metals are starting to find an opening, even though prices for metals like aluminium are also quite high. Despite current weakness, the consumption growth forecast remains healthy, principally because of China.

511. Zinc fundamentals continue to be excellent from a producer perspective as supply is falling significantly below global demand levels. Global consumption growth has slowed since the middle of 2005, and is now barely positive; however, it is still exceeding production output, which to April

2006, was actually down slightly in year-over-year (y/y) terms. In a significant development for prices, China, a major exporter of refined zinc, became a large net importer in the fourth quarter of 2005. China, the United States and Japan are the world's largest consumers of Zinc, followed by Germany, South Korea, Italy, France, Taiwan, Belgium, India and the UK.

512. With rebounding stainless steel production, nickel has shifted back into deficit in 2006. Chinese stainless production has rebounded and is complemented by stronger production rates in Europe. Nickel mine production is seeing the signs of a long awaited expansion, with several large projects in development that will shift the market to surplus around 2008. Japan consumes 17% of the world's nickel followed in consumption by the United States, Taiwan, Germany, South Korea and China. Russia, Canada and France remain the world's largest suppliers.

2.3.7.1 Geographical Scope

(a) Global Routes

513. Imports of ores are dominated by Asia, while exports are supplied by Australia, Brazil, India and South Africa, among other smaller players. The world's largest (in terms of tonnage) trading routes of ores over the past five years (annual average of 2000-2005) include:

Australia to China	= 71.2 million tonnes
Brazil to China	= 45.9 million tonnes
Australia to Japan	= 75.9 million tonnes
India to China	= 27.2 million tonnes
South Africa to China	= 14.8 million tonnes
Australia to South Korea	= 24.8 million tonnes

514. Australian shipments to Japan have historically been the largest route with 60.9 million tonnes shipped in 1995, compared to 27.4 million tonnes shipped from Brazil to Japan along the 2nd largest route. No major shifts are expected between now and 2015 as the top routes listed above will remain the largest 10 years from now. Australian shipments to China will top the list 221.3 million tonnes shipped in 2015, while exports from Brazil to China will top 152.0 million tonnes.

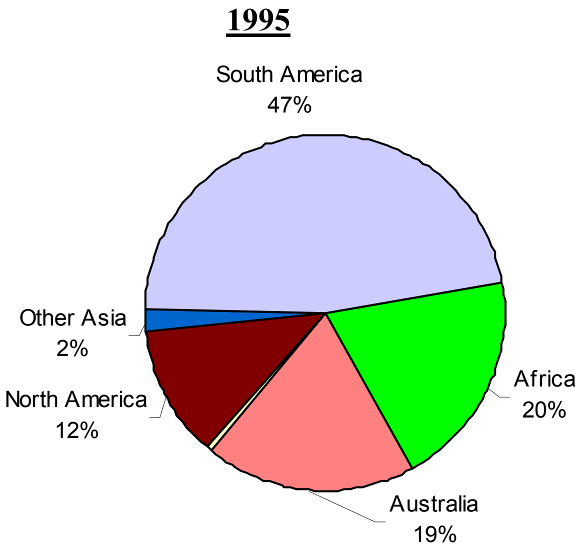
(b) EU Inbound & Outbound

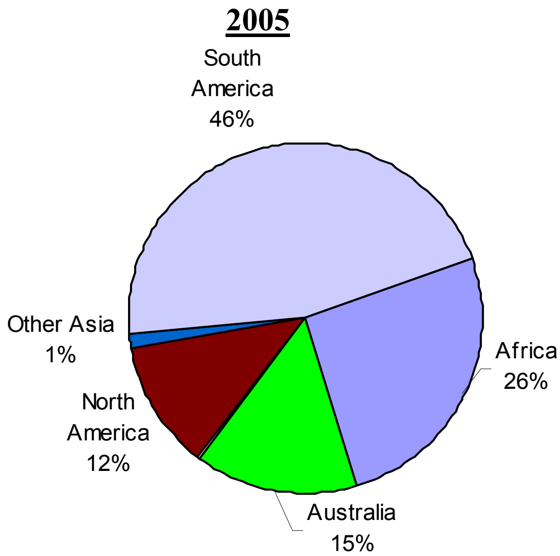
515. As seen in the figure and the table below, ore tonnage inbound to the EU25 was dominated by South American supply in both 1995 and 2005. Although Australia lost some market share to Africa over the aforementioned 10-year period, the key suppliers to the EU25 remained constant. South America will continue to be the largest supplier of copper and ore tonnage to the EU in 2015, even with a projected compound annual growth rate of 1.2% (2005-2015). Other Asia will be the fastest growing supplier to the EU with an anticipated growth rate of 3.3% (CAGR) over the forecast period.

Ores Tonnage Inbound to the EU25

	1995	2005
Africa	27,903,521	28,936,906
Australia	26,513,924	16,782,263
China	571,636	389,960
Japan	1,921	2,223
Mediterranean	71,982	76,939
North America	17,064,335	13,004,983
Other Asia	2,688,819	1,498,129
South America	66,059,376	51,636,236

Ores Tonnage Inbound to the EU25; 1995, 2005

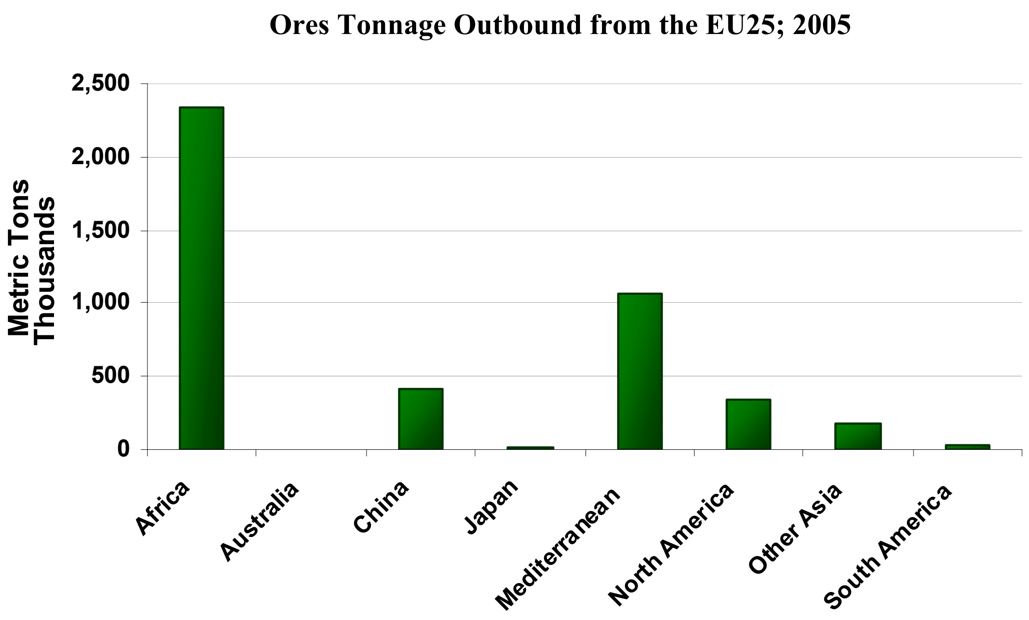




516. The majority of EU's ore exports were sent to Africa and the Mediterranean in 2005. Tonnage from the EU25 into these regions will witness compound annual growth rates of 1.2% and -0.8%, respectively between 2005 and 2015. China and Other Asia will gain significant tonnage with compound annual growth rates of 3.6% and 2.3% (respectively) expected for the forecast period.

Ores Tonnage Outbound from the EU25

	1995	2005
Africa	1,971,904	2,331,438
Australia	7,191	4,347
China	156,474	410,740
Japan	53,510	10,216
Mediterranean	477,714	1,072,268
North America	332,077	337,798
Other Asia	1,282,258	181,933
South America	155,523	25,227



(c) Intra-Europe Trade Routes

517. The largest (in terms of tonnage) intra-Europe trading routes of ores over the past five years (annual average of 2000-2005) include:

Scandinavia to Northwest Europe	= 8.1 million tonnes
Scandinavia to the Mediterranean	= 1.0 million tonnes
Mediterranean to the Black Sea	= 617,000 tonnes

518. These three routes will remain the largest three routes though to 2015, with the Scandinavia to Northwest Europe route maintaining its dominance. However, exports from Scandinavia to Northwest Europe will experience negative compound annual growth of 1.0% between 2005 and 2015. As a result, exports from Scandinavia to Northwest Europe will fall to 6.0 million tonnes in 2015.

519. Intra-Europe ores trade mostly fell between 1995 and 2005 with growth along most routes posting negative growth rates. Ore tonnage from Scandinavia to the Northwest coast of Europe (including Northern France) dominated intra-Europe trade flow for this commodity in 1995 and 2005. Despite the fact that tonnage from Scandinavia to the Northwest coast of Europe will experience a negative compound annual growth rate of -1.0% between 2005 and 2015, this route will continue to dominate intra-Europe ores in 2015. Trade of this commodity grouping will witness negative growth between 2005 and 2015 across all routes, with the exception of exports from the Baltics to Northwest Europe, which will grow at 1.6% annually over this period (CAGR).

2.3.7.2 Demand characteristics

520. The ores market involves a multitude of competing countries such that prices for these goods are competitive where demand for the goods is influenced by the price in the exporting country. While prices tend to be elastic, their elasticities are low.

521. Both bauxite and alumina are inputs to the making of aluminium and thus, their demand characteristics are similar. The trade in bauxite and alumina follows the features of oil, iron ore and coal, but with some special features. It is generally possible to optimise the shipping operation by using vessels of Panamax size or above. The bauxite and alumina trade, however, does not

generally favour the use of vessels of Panamax size and over, since these commodities have a high value, need to be stored under cover and the quantities of raw material needed by a smelter are too small to encourage bulk deliveries. An aluminium smelter producing 100,000 tons of metal per annum would require 200,000 tons of alumina, hardly a sufficient volume to justify the use of Panamax bulk carriers.

522. No further information is available regarding the demand characteristics for this commodity grouping.

2.3.8 *Fertilisers (HS 3102-3105)*

2.3.8.1 Geographical Scope

(a) Global Routes

523. Exports of fertiliser tonnage are dominated by Russia and are supported by Canada. The world's largest (in terms of tonnage) trading routes of fertilisers over the past five years (annual average of 2000-2005) include:

Russia to Brazil	= 2.8 million tonnes
Russia to Central America	= 1.3 million tonnes
Canada to China	= 1.4 million tonnes
Israel to Brazil	= 1.1 million tonnes
Canada to Brazil	= 878,000 tonnes

524. Significant shifts in the largest shipping routes for fertiliser tonnage have occurred since 1995. Canada's exports to China represented the largest route in 1995 with 1.9 million tonnes shipped. Other major routes in 1995 included CIS West to China, CIS West to India and South Korea to Thailand. With the exception of Canada to China, each of these routes became surpassed with volume along other routes in 2005. The major routes between 2000 and 2005, as shown above, will continue to be the top routes in 2015. Exports from Russia to Brazil more than double exports from Russia to Central America, the next largest route, with 4.2 million tonnes exported in 2015.

(b) EU Inbound & Outbound

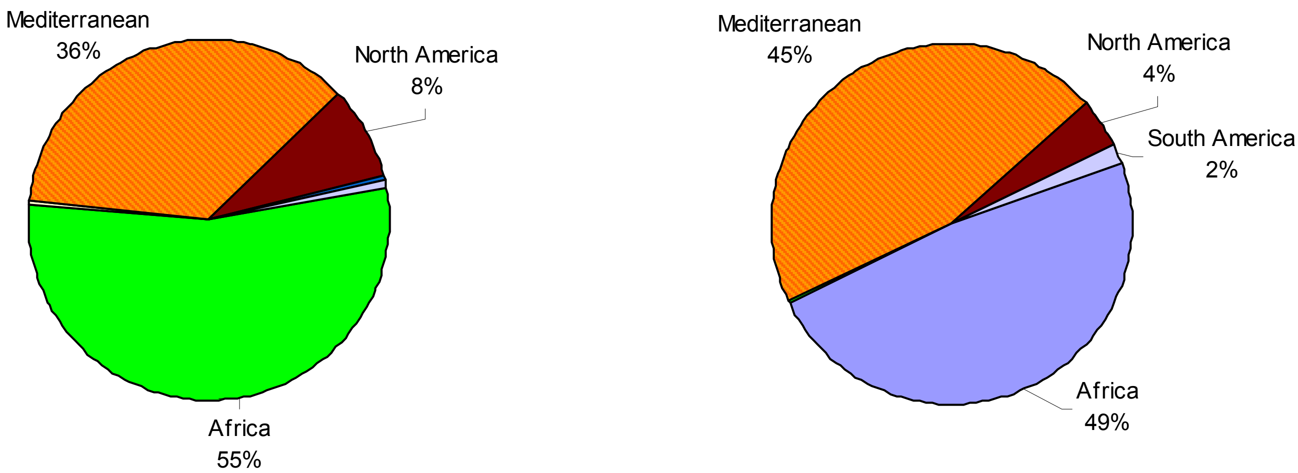
525. As is displayed in the figure and the table below, fertiliser tonnage inbound to the EU25 was primarily shipped from Africa in 1995, but was more evenly split between Africa and the Mediterranean by 2005. Africa will continue to be the largest supplier of fertiliser tonnage to the EU in 2015, closely followed by tonnage from the Mediterranean, despite negative compound annual growth rates of -0.9% and -1.1% expected between 2005 and 2015 for each region, respectively. EU imports of fertiliser from Australia will demonstrate the fastest growth with 2.4% (CAGR) projected. It is important to note, however, that this growth is on the back of low levels of tonnage.

Fertiliser Tonnage Inbound to the EU25

	1995	2005
Africa	2,277,127	1,755,391
Australia	559	2,240
China	3,107	3,709
Japan	3,357	94
Mediterranean	1,522,658	1,642,357
North America	344,475	156,731
Other Asia	6,622	5,446
South America	38,966	55,617

Fertiliser Tonnage Inbound to the EU25; 1995, 2005

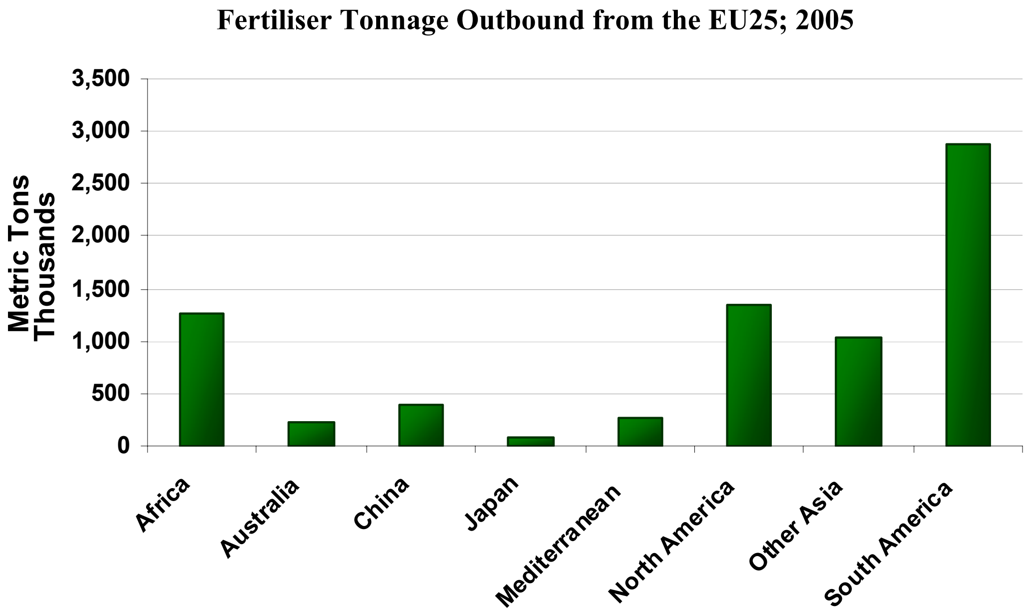
1995 **2005**



526. The majority of the EU's fertiliser exports were sent to South America in 2005. Tonnage from the EU25 into this region will witness 2.2% annual growth (CAGR) between 2005 and 2015. The strongest growth over the forecast horizon will come from fertiliser exports to Australia, with a compound annual rate of 2.8% expected.

Fertiliser Tonnage Outbound from the EU25

	1995	2005
Africa	856,533	1,257,617
Australia	99,225	221,604
China	911,274	397,482
Japan	200,482	83,677
Mediterranean	219,714	277,038
North America	1,221,146	1,341,322
Other Asia	2,645,990	1,045,103
South America	1,411,793	2,880,446



(c) Intra-Europe Trade Routes

527. The largest (in terms of tonnage) intra-Europe trading routes of fertilisers over the past five years (annual average of 2000-2005) include:

The Baltics to Northwest Europe	= 3.6 million tonnes
Black Sea to the Mediterranean	= 1.5 million tonnes
Scandinavia to Northwest Europe	= 1.2 million tonnes

528. Fertiliser tonnage from the Baltics to Northwest Europe was the largest intra-Europe trade flow for this commodity in both 1995 and 2005. Despite the fact that tonnage from the Baltics to Northwest Europe will experience a small compound annual growth rate of 0.6% between 2005 and 2015, this route will continue to represent the largest intra-Europe volume of fertiliser in 2015. Trade of this commodity grouping will witness the strongest growth between 2005 and 2015 in exports from Northwest Europe to the Baltics (the mirror trade of the route discussed above), with compound annual growth of 3.2%.

529. The Scandinavia to Northwest Europe route will fall out of the top three largest routes in 2015 after witnessing negative growth of 3.0% per year (CAGR) between 2005 and 2015. While the other two routes above will remain large, the 3rd largest route will become exports from Northwest Europe to Scandinavia with 875,000 tonnes in 2015.

2.3.8.2 Demand Characteristics

530. Fertiliser prices tend to be unique to the country of origin. As a result, decisions of where to import the commodity from are determined both by the raw price of the commodity, as well as the transportation costs. Fertilisers are consistent with most agricultural products in that they are price inelastic. Substitutes can only be made within different types of fertilisers, and the product must continue to be purchased by farmers regardless of price.

531. No further information is available regarding the demand characteristics for this commodity.

2.3.9 *Phosphates & Crude Fertilisers (HS 2510, 3101, 3102, 3104)*

2.3.9.1 Geographical Scope

(a) Global Routes

532. Exports of crude fertilisers and phosphates are chiefly supplied by North Africa and China. The world's largest (in terms of tonnage) trading routes of crude fertilisers and phosphates over the past five years (annual average of 2000-2005) include:

Other Mediterranean to India	= 1.1 million tonnes
Northern Africa to the United States	= 724,000 tonnes
Northern Africa to Spain	= 988,000 tonnes
Northern Africa to Mexico	= 798,000 tonnes
China to India	= 654,000 tonnes

533. Exports from China to India grew substantially between 1995 and 2005, exporting only 136,000 tonnes in 1995 and 585,000 tonnes in 2005. Exports from the United States to China were large with 945,000 tonnes shipped in 1995. Only slight shifts will occur within the top routes by 2015. Most of the top routes listed above will remain, but with only 609,000 tonnes exported by Northern Africa to Mexico in 2015, this route will fall out of the top 5 largest routes. Shipments from China to South Korea will become more significant with the 4th highest shipments (841,000 tonnes exported from China to South Korea).

(b) EU Inbound & Outbound

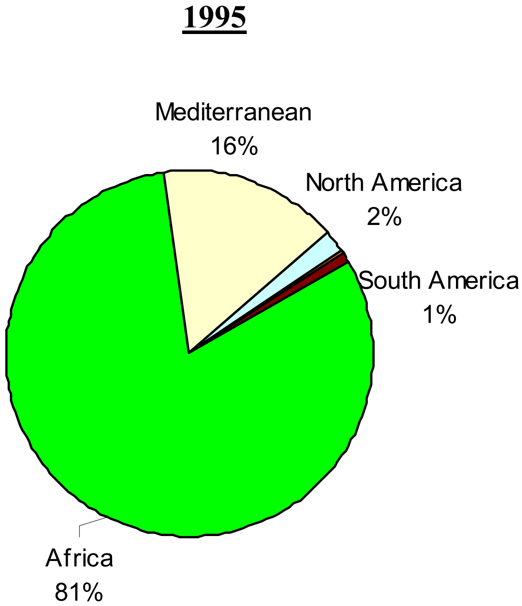
534. Phosphates and crude fertiliser tonnage inbound to the EU25 was fairly stable in terms of origin between 1995 and 2005. The figure below illustrates that while the Mediterranean lost market share over this 10-year period, Africa strengthened its position as the primary supplier of phosphates to the EU. Inbound growth[131] between 2005 and 2015 is expected to be weak for all regions supplying the commodity to the EU. In fact, no region is expected to change by greater or less than 1% per year between 2005 and 2015.

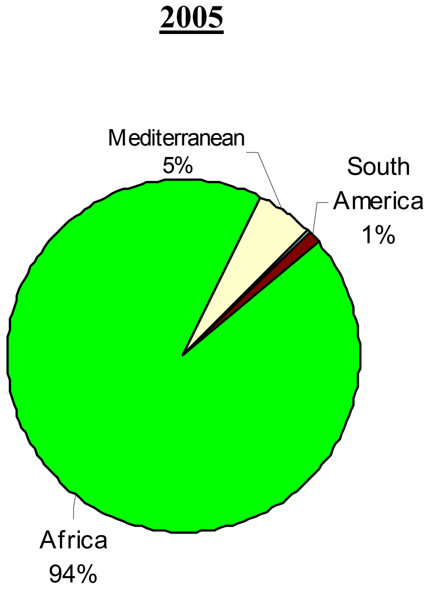
Phosphate Tonnage Inbound to the EU25

	1995	2005
Africa	3,496,318	2,598,813
China	0	0
Mediterranean	687,287	150,524
North America	77,671	4,862
Other Asia	15,333	1,541
South America	38,054	29,016

131 Compound Annual Growth (CAGR).

Phosphate Tonnage Inbound to the EU25; 1995, 2005



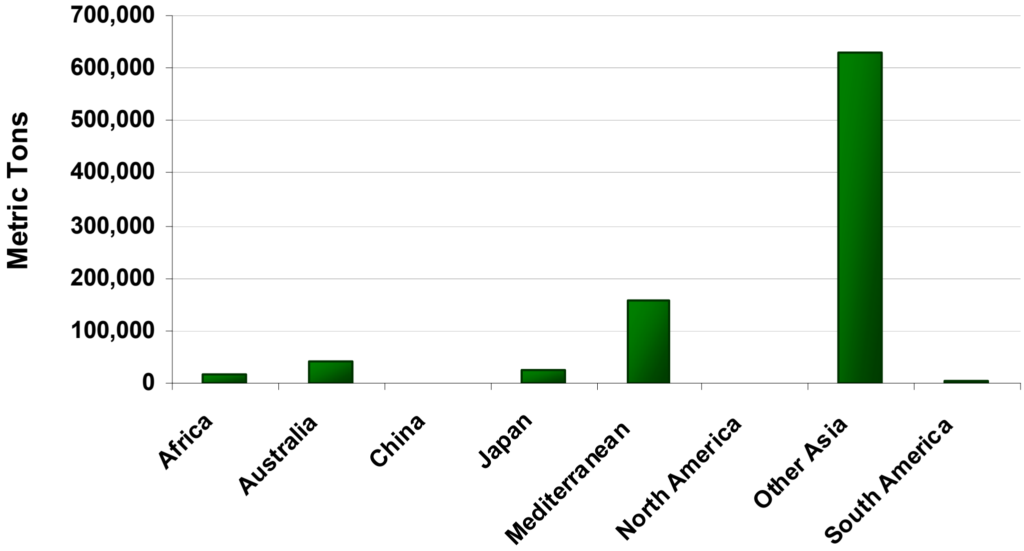


535. The destinations for Europe's phosphate exports are concentrated in Other Asia, as is shown in the graph below. Growth in phosphate tonnage exports to this market is expected to experience growth of 0.6% (CAGR) over the next 10 years, 2005-2015. Australia and Japan will each demonstrate the fastest growth (CAGR) in receipts of the EU's phosphate exports with rates of 1.5% and 1.2% expected over the forecast period, respectively.

Phosphate Tonnage Outbound from the EU25

	1995	2005
Africa	1,858	17,278
Australia	72,978	41,643
China	11,027	0
Japan	43,245	25,109
Mediterranean	136,383	156,946
North America	3,737	118
Other Asia	621,498	628,887
South America	1,971	6,071

Phosphate Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

536. The largest (in terms of tonnage) intra-Europe trading routes of crude fertilisers and phosphates over the past five years (annual average of 2000-2005) include:

The Baltics to Northwest Europe = 611,000 tonnes
Black Sea to Northwest Europe = 381,000 tonnes
Mediterranean to the Black Sea = 268,000 tonnes

537. The three routes above will remain the largest routes though to 2015, though none will demonstrate impressive growth. Exports from the Baltics to Northwest Europe will witness negative growth of 0.5% (CAGR) between 2005 and 2015, with 595,000 tonnes exported in 2015.

2.3.9.2 Demand Characteristics

538. Phosphates and crude fertiliser prices tend to be unique to the country of origin. As a result, decisions of where to import the commodity from are determined both by the raw price of the commodity, as well as the transportation costs. Crude fertilisers and phosphates are consistent with most agricultural products in that they are price inelastic.

539. Phosphate used today comes from phosphate rock, which is used principally as a fertiliser. The main importers are in Western Europe and Japan, where the phosphate is used for the production of compound fertilisers. Since the average size of a plant is comparatively small and often located in rural areas, the convenient size of cargo parcel is small with little incentive to use very large bulk carriers, except on major routes such as North Atlantic.

540. Traditionally, phosphate is shipped in its raw form, but there has been an increasing trend towards processing it into phosphoric acid prior to shipment.

541. No further information is available regarding the demand characteristics for this commodity.

2.3.10 *Cement (HS 2523, 3816) & Other Non-Metallic Products (HS 2522)*

542. European demand for cement is not expected to experience strong future growth; rather, global demand will stem from Asia in the future. The fact that cement is an input to new construction implies that demand for cement follows developing economies.

2.3.10.1 Geographical Scope

(a) Global Routes

543. Imports of cement are dominated by the United States while Thailand remains a key exporter of the commodity. The world's largest (in terms of tonnage) trading routes of cement over the past five years (annual average of 2000-2005) include:

China to the United States = 4.0 million tonnes
Thailand to Western Africa = 3.2 million tonnes
Thailand to the United States = 3.1 million tonnes
Greece to the United States = 1.8 million tonnes
China to South Korea = 1.9 million tonnes

544. Some shifting in the largest routes is expected by 2015 as China exports to South Korea become the largest route at 7.2 million tonnes, followed by Thailand to Western Africa (6.7 million) and China to the United States at 6.7 million.

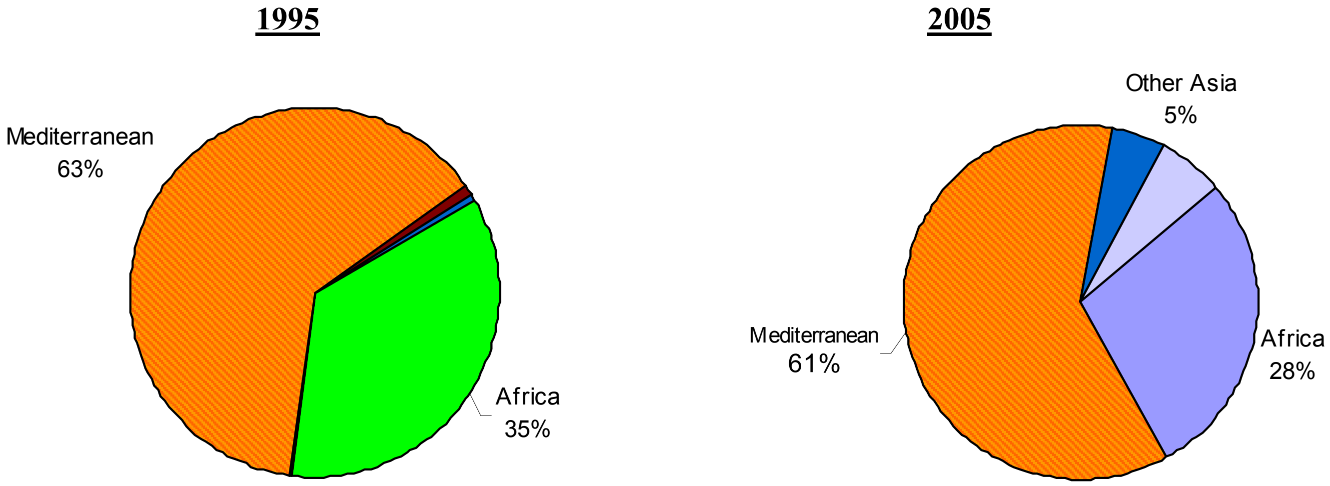
(b) EU Inbound & Outbound

545. The majority of cement tonnage flowing into the EU25 came from the Mediterranean in both 1995 and 2005. The figure and the table below illustrates the stability in the source of supply of cement tonnage between the Mediterranean and Africa, and hints at the growing importance of Other Asia as a supplier of EU cement. Other Asia will continue to gain steam as it is expected to be the fastest growing exporter of cement to the EU, with anticipated annual growth of 8.2% (CAGR) between 2005 and 2015.

Cement Tonnage Inbound to the EU25

	1995	**2005**
Africa	465,198	1,228,015
Australia	2	0
China	2,525	0
Japan	889	0
Mediterranean	832,350	2,648,016
North America	8,672	3,041
Other Asia	8,707	206,584
South America	204	272,160

Cement Tonnage Inbound to the EU25; 1995, 2005

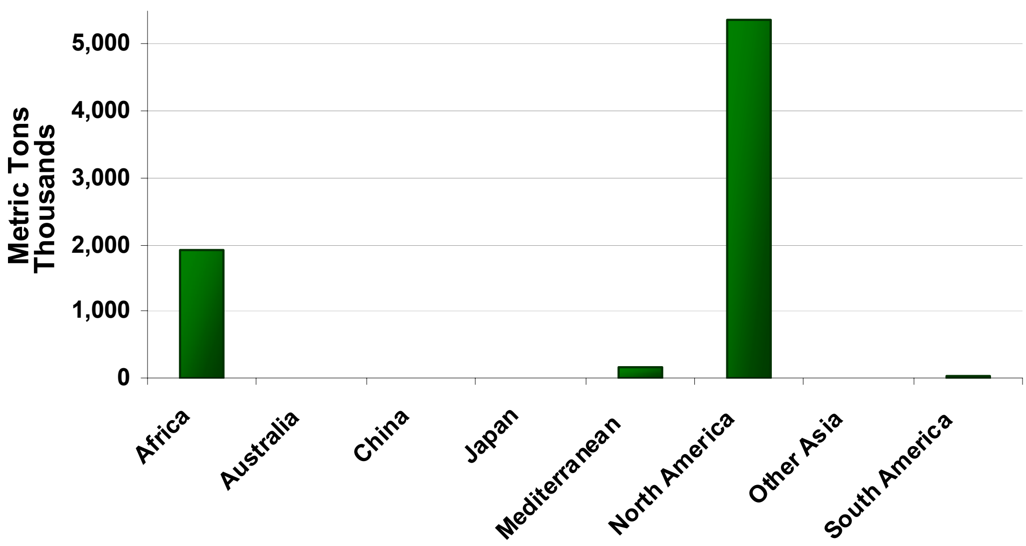


546. The majority of EU's cement exports were sent to North America in 2005. Tonnage from the EU25 into this region will witness 3.0% annual growth (CAGR) between 2005 and 2015. Over this same period, moderate compound annual growth will also stem from Other Asia (3.1%) and Africa (2.3%).

Cement Tonnage Outbound from the EU25

	1995	2005
Africa	2,771,511	1,930,897
Australia	4,595	4,444
China	330	0
Japan	2,067	0
Mediterranean	703,700	176,862
North America	3,843,463	5,381,641
Other Asia	26,722	4,683
South America	30,758	23,285

Cement Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

547. The largest (in terms of tonnage) intra-Europe trading routes of cement over the past five years (annual average of 2000-2005) include:

Black Sea to the Mediterranean	= 2.5 million tonnes
Mediterranean to the Black Sea	= 1.0 million tonnes
Baltics to Northwest Europe	= 1.5 million tonnes

548. The three routes above will remain the largest routes through to 2015, and will be joined by an additional strong route. Exports from Northwest Europe to the Baltics will enjoy compound annual growth of 5.9% between 2005 and 2015, bringing it to exports of 1.7 million tonnes in 2015. The Baltics to Northwest Europe route will enjoy strong growth of 6.0% over this period, exporting 3.3 million tonnes in 2015. The top route: Black Sea to the Mediterranean will peak at 3.5 million tonnes in 2015.

2.3.10.2 Demand Characteristics

549. Cement prices tend to be unique to the country of origin. As a result, decisions of where to import the commodity from are determined both by the raw price of the commodity, as well as by the transportation costs.

550. Because of the small share cement has on the total cost of a project where it is an input, cement tends to be price inelastic in the short term. However, cement can be substituted with asphalt, making it price elastic in the longer-term.

551. The trade is composed mainly of shipments to construction projects and construction activity is the primary demand driver. The nature of the trade is volatile and ships tend to be chartered for either the carriage of bulk or bagged cement. Many small bulk carriers and tweendeckers are used for transport of this commodity.

552. No further information is available regarding the demand characteristics for this commodity.

2.3.11 *Aggregates, Sulphur & Salt (HS 2501-2530)*

2.3.11.1 Geographical Scope

(a) Global Routes

553. Exports of aggregate materials tonnage are globally diverse with the world's largest exporters by route including Russia, China, and Australia. The world's largest (in terms of tonnage) trading routes of aggregates over the past five years (annual average of 2000-2005) include:

Russia to North Africa	= 8.9 million tonnes
China to Japan	= 7.9 million tonnes
China to Taiwan	= 7.8 million tonnes
Australia to Japan	= 5.4 million tonnes
Caribbean to the United States	= 4.3 million tonnes

554. Mexican exports of aggregates to Japan represented one of the largest routes in 1995, at 4.5 million tonnes exported. However, as Japanese imports from China and Australia gained steam between 1995 and 2005, imports from Mexico slowly declined. The largest trade routes listed above will retain their position as the 5 largest routes in 2015, with exports from China to Taiwan becoming the largest route after growing at 5.3% annually (CAGR) between 2005 and 2015, reaching 17.3 million tonnes in 2015.

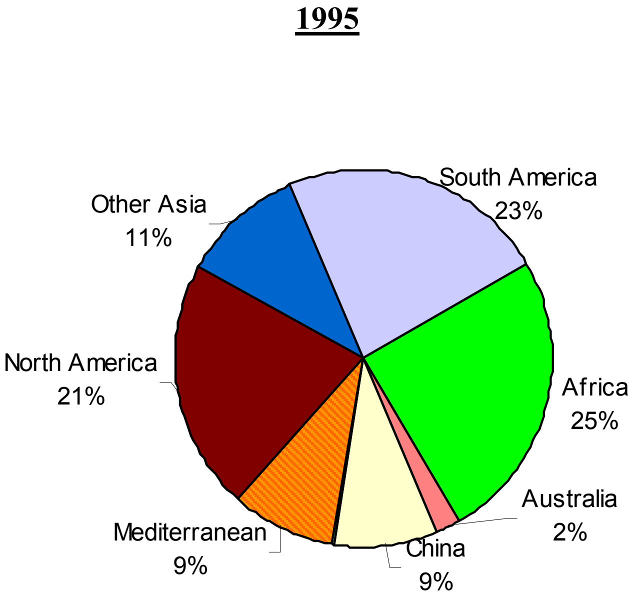
(b) EU Inbound & Outbound

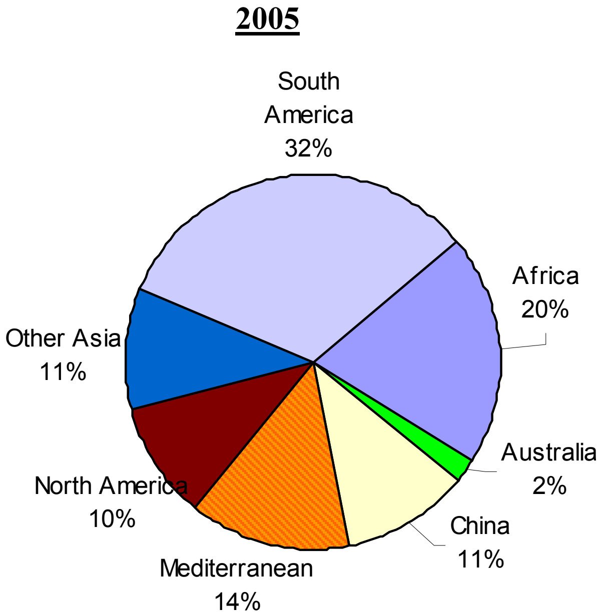
555. The figure below displays the shifts the origin regions supplying aggregates, sulphur & salt to the EU25 between 1995 and 2005. North America's share of tonnage into the EU25 declined between 1995 and 2005, while South America and the Mediterranean regions gained share over this period. These two regions are expected to see slower growth between 2005 and 2015 with projected compound annual rates of -0.1% and 0.6%, respectively. Other Asia, Australia and China are the regions to watch in the future with projected growth rates (of exports to the EU) of 4.3%, 3.6%, and 3.1% (CAGR), respectively.

Aggregates Tonnage Inbound to the EU25

	1995	**2005**
Africa	2,596,561	2,679,887
Australia	197,070	254,987
China	929,069	1,460,328
Japan	38,519	27,655
Mediterranean	920,695	1,849,894
North America	2,229,362	1,311,863
Other Asia	1,111,498	1,441,936
South America	2,389,532	4,319,382

Aggregates Tonnage Inbound to the EU25; 1995, 2005

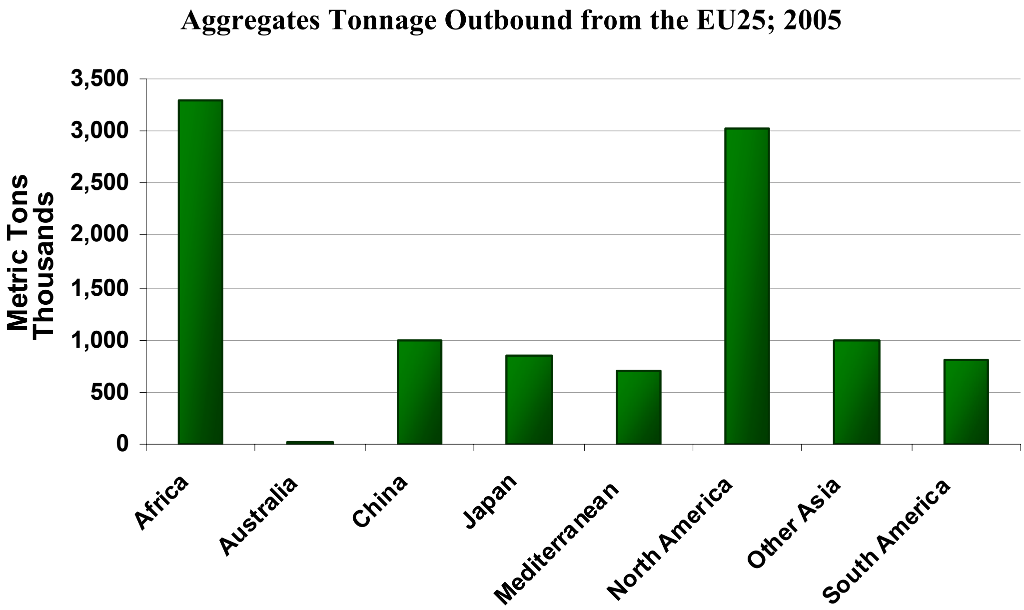




556. As indicated by the graph and the table below, the destinations for Europe's aggregates, sulphur and salt exports are concentrated in Africa and North America. Growth of export tonnage to these markets is expected to be weak with compound annual growth rates of 0.1% for Africa and 0.3% for North America expected between 2005 and 2015.

Aggregates Tonnage Outbound from the EU25

	1995	2005
Africa	2,408,759	3,296,229
Australia	31,967	23,695
China	28,192	999,443
Japan	2,144,131	839,340
Mediterranean	1,132,923	706,504
North America	1,146,109	3,033,597
Other Asia	1,278,855	998,938
South America	834,948	810,209



(c) Intra-Europe Trade Routes

557. The largest (in terms of tonnage) intra-Europe trading routes of aggregates over the past five years (annual average of 2000-2005) include:

Scandinavia to Northwest Europe	= 10.1 million tonnes
Northwest Europe to Scandinavia	= 4.1 million tonnes
Black Sea to the Mediterranean	= 4.3 million tonnes
Baltics to Northwest Europe	= 3.0 million tonnes

558. The routes above will remain the largest routes though to 2015, with exports from Scandinavia to Northwest Europe falling to 7.3 million tonnes in 2015.

2.3.11.2 Demand Characteristics

559. Aggregates, sulphur and salt prices tend to be unique to the country of origin. As a result, decisions of where to import the commodity from are determined both by the raw price of the commodity, as well as by the transportation costs.

560. Sulphur is a small bulk trade and is transported either in dry form (crushed, flaked, slated or pelleted), or as a molten liquid.

561. No further information is available regarding the demand characteristics for this commodity grouping.

2.3.12 *Non-Ferrous Metals (incl. Aluminium) (HS 7402-7406, 7106, 7110)*[132]

562. The non-ferrous metals category is fairly broad and contains products that move dry bulk as well as neo-bulk/general cargo. The analysis presented below related to tonnage moving in dry bulk

[132] The non-ferrous metals category includes other commodities than the HS codes listed above. A complete list can be provided upon request.

vessels. Paragraphs in the Neo-Bulk Demand Analysis section of this report will cover non-ferrous metals moving in general cargo vessels.

2.3.12.1 Geographical Scope

(a) Global Routes

563. Australia and Chile remain among the world's largest exporters of non-ferrous metals. The world's largest (in terms of tonnage) trading routes of non-ferrous metals over the past five years (annual average of 2000-2005) include:

Russia to the United States	= 640,000 tonnes
Australia to Japan	= 505,000 tonnes
Australia to Taiwan	= 310,000 tonnes
Chile to the United States	= 270,000 tonnes
Chile to Italy	= 235,000 tonnes

564. The Australia to South Korea route ranked in the top 5 routes in 1995 with 163,000 tonnes shipped that year, but has since fallen to the 7th largest route worldwide. Part of its fall in rank is attributed to the growth witness along the Chile to United States and Chile to Italy routes. Both grew at compound annual growth rates of 20.9% and 12.4% between 1995 and 2005. Despite historic growth along the Chile to Italy route, this route is not expected to remain one of the world's largest in 2015, despite the other routes retaining their places. Chile to Italy will be displaced by growth along the Australia to Thailand and Chile to China routes, which are both expected to grow at compound annual rates of 7.3% and 12.5%, respectively between 2005 and 2015.

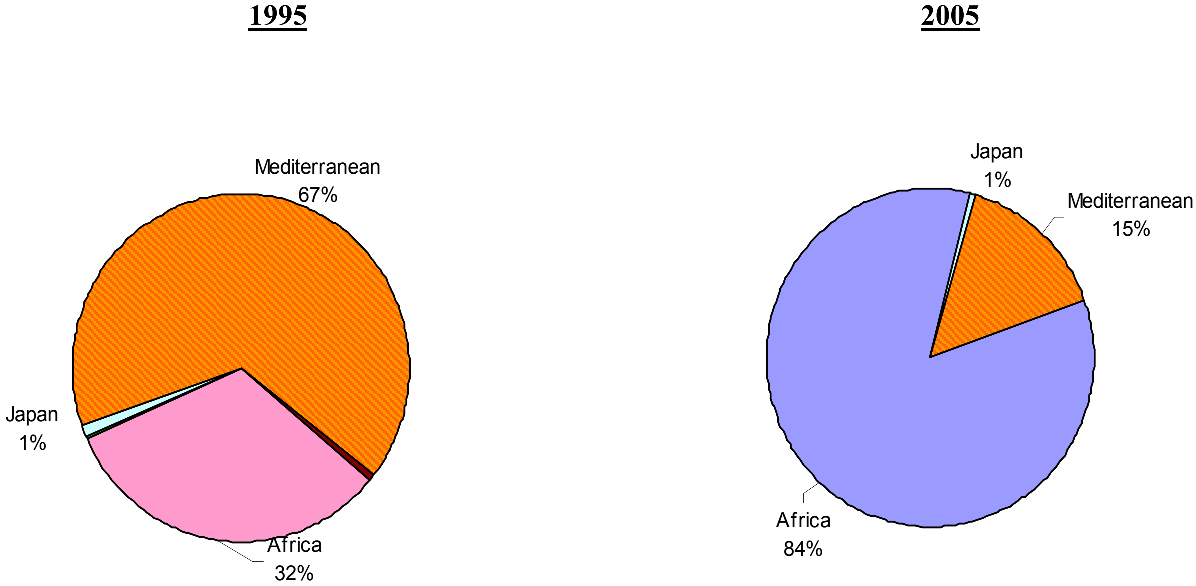
(b) EU Inbound & Outbound

565. The majority of EU's non-ferrous metals tonnage imports were from South America and Australia in 1995 and 2005. By 2005 Africa also grew to become a significant supplier to the EU, trailing closely behind Australia. Non-ferrous metals exports from these regions to the EU are expected to grow at compound annual growth rates of 2.6%, 3.0% and 1.3%, respectively, between 2005 and 2015. China's exports to the EU for this commodity grouping will grow at a strong CAGR of 5.9%, but tonnage levels will remain low throughout the forecast period.

Non-Ferrous Metals Tonnage Inbound to the EU25

	1995	**2005**
Africa	234,919	99,815
Australia	104,915	1,275,637
China	2,618,323	3,842,197
Japan	417,618	100,199
Mediterranean	311,227	201,369
North America	197,219	142,822
Other Asia	29,621	56,493
South America	38,814	110,601

Non-Ferrous Metals Tonnage Inbound to the EU25; 1995, 2005

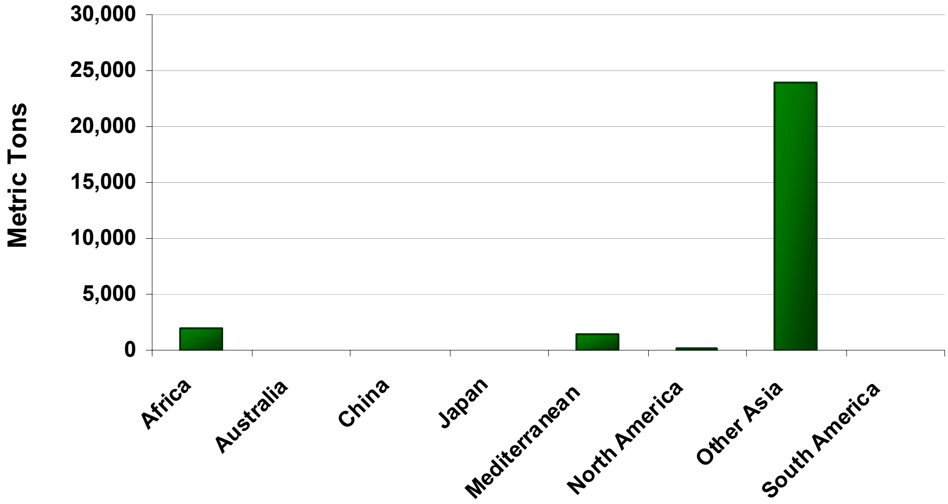


566. Non-ferrous metals tonnage outbound to the EU25 was dominated by North America in 2005. Although growth in EU exports of non-ferrous metals to North America will only grow at an annual rate of 1.5% (CAGR) between 2005 and 2015, North America will continue to receive the highest amount of tonnage from the EU in 2015. The fastest growth will come in EU exports to China (9.1%), Australia (5.0%), and Africa (5.0%) (each at CAGR between 2005-2015).

Non-Ferrous Metals Tonnage Outbound from the EU25

	1995	2005
Africa	26,503	44,789
Australia	0	549
Japan	19	685
Mediterranean	2,579	3,772
North America	38,333	415,304
Other Asia	649	1,040
South America	553,057	79,921
Africa	85,489	435,016

Non-Ferrous Metals Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

567. The largest (in terms of tonnage) intra-Europe trading routes of non-ferrous metals over the past five years (annual average of 2000-2005) include:

Scandinavia to Northwest Europe	= 1.1 million tonnes
Baltics to Northwest Europe	= 997,000 tonnes
Black Sea to Northwest Europe	= 862,000 tonnes

568. The routes above will remain the largest routes through to 2015, with exports from Scandinavia to Northwest Europe growing at a compound annual rate of 1.4% between 2005 and 2015, to reach 1.1 million tonnes in 2015.[133]

569. Intra-Europe trade of non-ferrous metals performed well between 1995 and 2005 with growth along nearly every route posting positive annual rates (CAGR 1995-2005). Tonnage from Scandinavia to Northwest Europe and the Baltics to Northwest Europe, were the largest intra-Europe trade flow for this commodity in 1995 and 2005. With compound annual growth of 2.0% between 2005 and 2015 in non-ferrous metals tonnage exported from the Baltics to Northwest Europe, and the Black Sea to Northwest Europe, these routes become 2 of the 3 largest routes for this commodity grouping in 2015. The Scandinavia to Northwest Europe route is the 2nd largest route with growth of 1.4% (CAGR) throughout the forecast period.

2.3.12.2 Demand Characteristics

570. Non-ferrous metals prices are traded globally. Therefore, decisions of where to import the commodity from are determined less by the raw price of the commodity, and more by the transportation costs. Metals are generally price inelastic at an aggregate level. Therefore, total demand should not be expected to be severely impacted by a change in price.

133 Note that because intra-Europe data is only available in total metric tonnes, rather than dry bulk and neo-bulk metric tonnes, the non-ferrous metals tonnage numbers provided for dry bulk will mirror those seen under non-ferrous metals intra-Europe trade for neo-bulk.

571. No further information is available regarding the demand characteristics for this commodity grouping.

2.3.13 *Steel & Iron Ore (HS 7201-7217)*

2.3.13.1 Geographical Scope

572. While more specialised steel products move on neo-bulk/general cargo vessels or containers, less finished steel products and iron ore move in dry bulk vessels. For steel, these products include pellets, granules and powders. The following analysis of steel and iron ore refers that travelling in dry bulk vessels. Paragraphs in the Neo-Bulk Demand Analysis section of this report will handle steel moving in general cargo vessels.

(a) Global Routes

573. Asia represents a significant amount of dry bulk steel and iron ore trade both on the export and import side. The world's largest (in terms of tonnage) trading routes of steel and iron ore over the past five years (annual average of 2000-2005) include:

Japan to South Korea	= 7.2 million tonnes
Brazil to the United States	= 5.7 million tonnes
Japan to China	= 5.3 million tonnes
Taiwan to China	= 4.1 million tonnes
China to South Korea	= 2.8 million tonnes

574. The top five routes listed above will remain the top five in 2015. The Japan to China route will become the largest route by 2015 with 11.5 million tonnes shipped in 2015. Growth along this route is expected at 8.7% per year (CAGR) between 2005 and 2015.

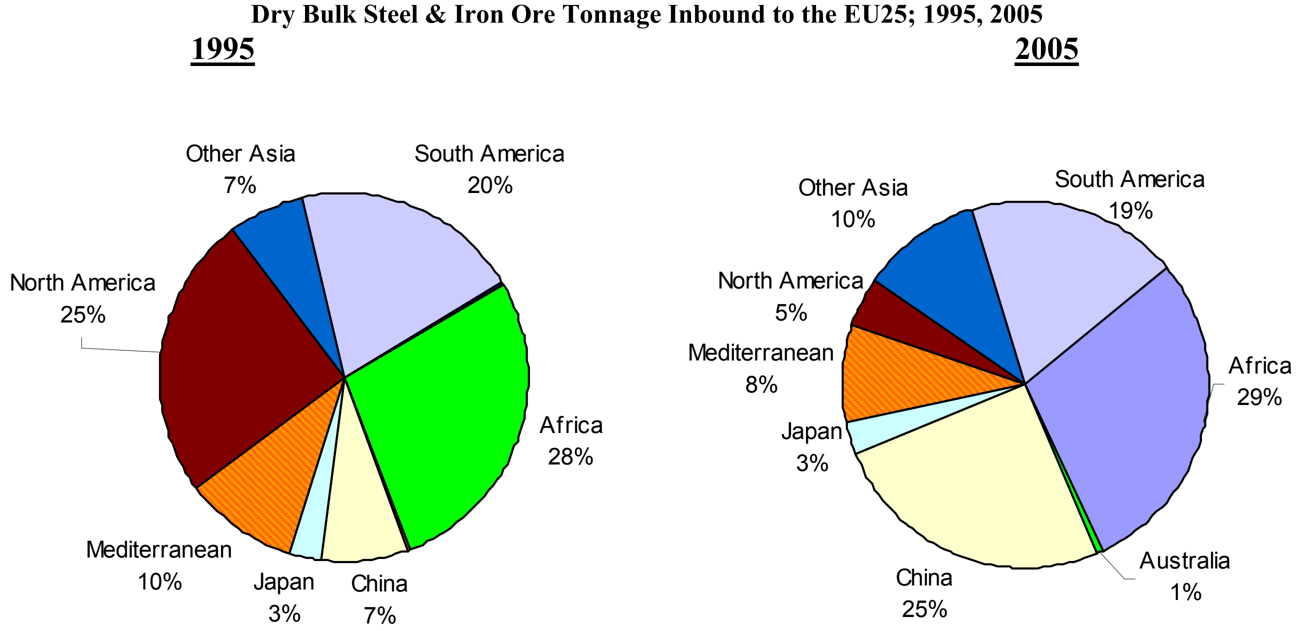
(b) EU Inbound & Outbound

575. As is evident in the figure and the table below, significant shifts occurred in the origins of dry bulk steel and iron ore tonnage inbound to the EU. North America lost 20% of its market share between 1995 and 2005 while China, the Mediterranean and Africa both gained share.

Dry Bulk Steel & Iron Ore Tonnage Inbound to the EU25

	1995	**2005**
Africa	1,604,105	3,439,918
Australia	12,001	72,416
China	431,122	2,978,236
Japan	174,338	319,228
Mediterranean	572,618	995,935
North America	1,451,243	545,032
Other Asia	402,026	1,233,080
South America	1,160,538	2,190,494

Dry Bulk Steel & Iron Ore Tonnage Inbound to the EU25; 1995, 2005

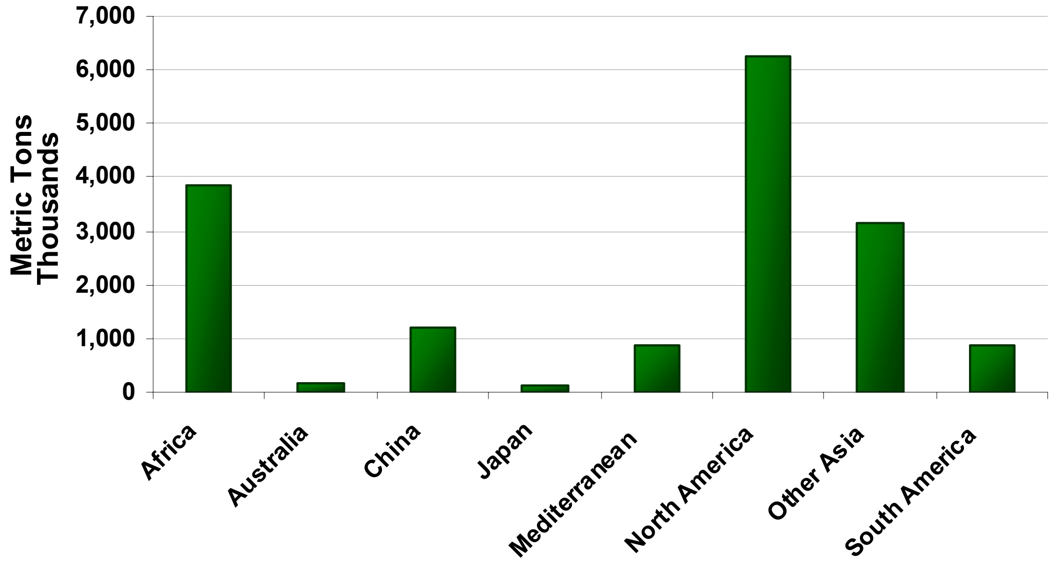


576. North America, Africa and Other Asia received the largest amount of the EU's outbound steel tonnage in 2005 and are expected remain the largest recipients in 2015, with annual growth of 0.8%, 3.0% and 2.6% expected for North America, Africa and Other Asia (respectively) between 2005 and 2015.

Dry Bulk Steel & Iron Ore Tonnage Outbound from the EU25

	1995	2005
Africa	3,423,574	3,869,110
Australia	147,090	163,859
China	773,034	1,205,180
Japan	330,780	121,166
Mediterranean	1,202,501	866,339
North America	6,821,601	6,259,481
Other Asia	5,403,477	3,150,394
South America	954,333	860,711

Dry Bulk Steel & Iron Ore Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

577. The largest (in terms of tonnage) intra-Europe trading routes of steel and iron ore over the past five years (annual average of 2000-2005) include:

Black Sea to the Mediterranean	= 4.1 million tonnes
Northwest Europe to Scandinavia	= 4.1 million tonnes
Scandinavia to Northwest Europe	= 3.9 million tonnes
Baltics to Northwest Europe	= 3.7 million tonnes
Black Sea to Northwest Europe	= 1.5 million tonnes
Northwest Europe to the Baltics	= 1.4 million tonnes

578. The routes above will remain the largest routes through to 2015, with exports from the Black Sea to the Mediterranean growing at a compound annual rate of 2.0% between 2005 and 2015, to reach 6.0 million tonnes in 2015.[134]

2.3.13.2 Demand Characteristics

579. Steel and iron ore prices are influenced by the country of import, as well as transportation costs. However, because the production countries are limited, transportation costs can play a significant role in the final price paid for a good. Steel products and iron ore travelling dry bulk tend to be more price elastic than higher finished steel products that travel neo-bulk, but prices still have low elasticity. While some substitutes exist during periods of high prices, there are not enough to eliminate demand for these products. Therefore, while substitution may occur for products within the steel and iron ore category, many steel and iron ore users are willing to absorb higher prices.

580. Iron ore is the largest of the five major dry bulk commodity trades and the principal raw material of the steel industry. The main players in the freight market are steel mills and mining companies. The price of iron ore is negotiated one time every year. Typically the steel mills have supply

134 See footnote 133.

contracts of iron ore with the mining companies with a duration anywhere from 10-20 years, as can be illustrated with Rio Tinto Iron Ore which entered into long term sales contracts to supply (an additional) 40 million tonne of iron ore a year with Chinese Steel mills in 2004.

581. The supply contracts will, on average have a longer duration than the typical freight contracts, as the freight agreements could be anything from spot voyages to a 20 year long mutual agreement to perform 10 trips from Australia to Japan every year. The spot market and the short term time charter market is a supplement to the long term contracts when extra iron ore is needed.

582. Some Panamax and capsize vessels are contracted on the basis of a long freight contract, typically with 20 years duration to transport ore on a given route. For example, Mitsui O.S.K Lines signed a long-term consecutive voyage charter with the Shanghai Baosteel Group of China to transport iron ore with a very large ore carrier of 300,000 dwt. The contract will take effect by the second half of 2008 when the newbuilding will be delivered ex yard. The Norwegian ship owner Bergesen's Very Large Ore Carriers are trading on contracts with 5-7 years duration.

583. Imports of iron ore are primarily shipped with Capesizes and Panamaxes, although some are also shipped with Handysize and Handymax vessels. Panamax and Capesize vessels are fixed on a combination of different contracts, ranging from spot fixtures to time charters with 20 years duration. The typical length of a time charter contract is one year, but a contract can also have longer or shorter durations, typically from 6 months up to 5 years.

584. An alternative to the time charter and the spot market is to fix the vessel on a volume basis, thus meaning that a vessel is hired on a consecutive voyage charter to perform a consecutive number of voyages between A and B. A typical contract would specify the number of trips in the area from 4 to 12 trips within a pre-specified timeframe.

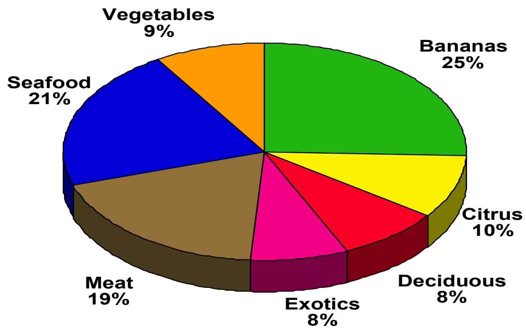
2.4 NEO-BULK DEMAND ANALYSIS

2.4.1 *The Reefer Market*

585. The reefer market is driven by the demand for meat, fruit, vegetable and seafood which is exported from regions with a comparative advantage in producing these products.

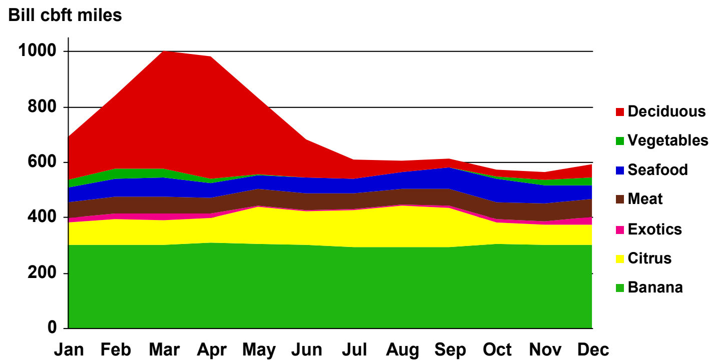
586. The specialised reefer market is composed of a wide variety of products, but about 60% of the products which was transported are fruit and vegetables, and the remaining commodities and/or goods are frozen seafood and meat. The cargo mix is illustrated in the diagram below.

Specialised reefer fleet commodities[135]



587. The reefer market is highly seasonal, and the seasonal fluctuations are illustrated in the graph below:

Seasonality of demand for reefer commodities[136]



588. As can be seen from the graph above, the smallest fluctuation is seen for the trade in bananas, as the exports volumes are fairly stable. Deciduous fruit (which includes apples, pears *etc.*) follows the opposite pattern, and the trade is most active in the first part of the year.

589. The major operators, like the big banana and deciduous fruit companies, cover their basic shipping needs by hiring a given number of vessels on a one -year time charter basis, and then they cover seasonal changes in transportation needs by using vessels on a spot voyage charter basis, where the typical trip is in the range of 40 days. During the off season months (July-December), many vessels are usually laid up. However,–this may change somewhat as Russia has appeared as a major growth market for fruit imports, especially for bananas and citrus from South Africa and Argentina, which are important trades during the off season months.

590. The alternative to hiring a ship on a time charter and spot basis, is to hire space onboard vessels which operate on a seasonal liner basis based on export, where one can buy space on board the vessel which is filled with different commodities and/or goods. The cargo is typically palletised. These services are offered both by specialised reefers and container lines. The commodities and/or

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135 Source: http://www.sitrusfees.co.za/papers/TrevorPresentation.ppt.

136 Source: http://www.sitrusfees.co.za/papers/TrevorPresentation.ppt.

goods which are covered on these services include bananas, vegetables, seafood, meat, exotics and deciduous fruit. Freight rates are paid in USD per cubic metre for specialised reefers and USD per container for container vessels, and specialised reefer vessels with container capacity.

591. Availability of modern specialised reefer vessels is becoming ever more limited. This appears to be a response to dwindling demand from shippers for specialised transport, or at least a recognition that container lines can offer an equivalent level of service in terms of technical quality, flexibility on timing and choice of routes. Modern containerships are all now fitted with large numbers of reefer plugs for transportation of perishable commodities. Consequently the ability of container ship operators to price competitively by filling available spare slot space at marginal prices has proved attractive to shippers and drastically changed demand patterns as well. One can expect the trend to be maintained and demand for specialised reefer vessels to remain static or even reduce, especially as the average fleet age becomes older.

2.4.2 *Fruit & Vegetables, Refrigerated (HS 0702, 0703, 0710, 0711, 0803-0810, 2001-2005)*

592. There continues to be a steady increase in the demand for fresh produce in the main import markets. In the main reefer trades, food requiring refrigeration is transported from the Southern hemisphere to the major import markets: Europe, USA, and Japan. Conventional reefers carry the majority of these commodities, but refrigerated containers continue to gain market share. Bananas, citrus fruits and deciduous fruits[137] are the major commodities in this category.

2.4.2.1 Geographical Scope

(a) Global Routes

593. Latin America (South and Central America) dominates exports of refrigerated fruits and vegetables, with key importers being the United States and Europe (where Europe is included as an importer in the top 10 routes). The world's largest (in terms of tonnage) trading routes of refrigerated fruits and vegetables over the past five years (annual average of 2000-2005) include:

Central America to the USA	= 2.8 million tonnes
Ecuador to the United States	= 1.0 million tonnes
China to Japan	= 622,000 tonnes
Chile to the United States	= 595,000 tonnes
Colombia to the United States	= 593,000 tonnes

594. As in 2000-2005, Central American exports to the United States dwarfed trade along all other routes in 1995, with 1.2 million tonnes more than the next largest route. These routes are also expected to be the largest trade routes for these commodities in 2015. Growth along the China to Japan route is expected at 4.0% between 2005 and 2015 (CAGR) thus propelling shipments to 969,000 tonnes in 2015. Similarly, Central American exports to the United States will reach 3.6 million tonnes in 2015, after growing an annual 2.4% over the forecast period.

(b) EU Inbound & Outbound

595. The figure and the table below depict the fact that the source of refrigerated fruit and vegetable tonnage did not change substantially between 1995 and 2005. Points of interest include a reduction in imports from North America coupled with an increase in imports from Africa and Asia. Inbound compound annual growth between 2005 and 2015 is expected to be strongest from

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[137] Deciduous fruits include apples, pears and table grapes (avocados and kiwi are typically considered exotic fruits).

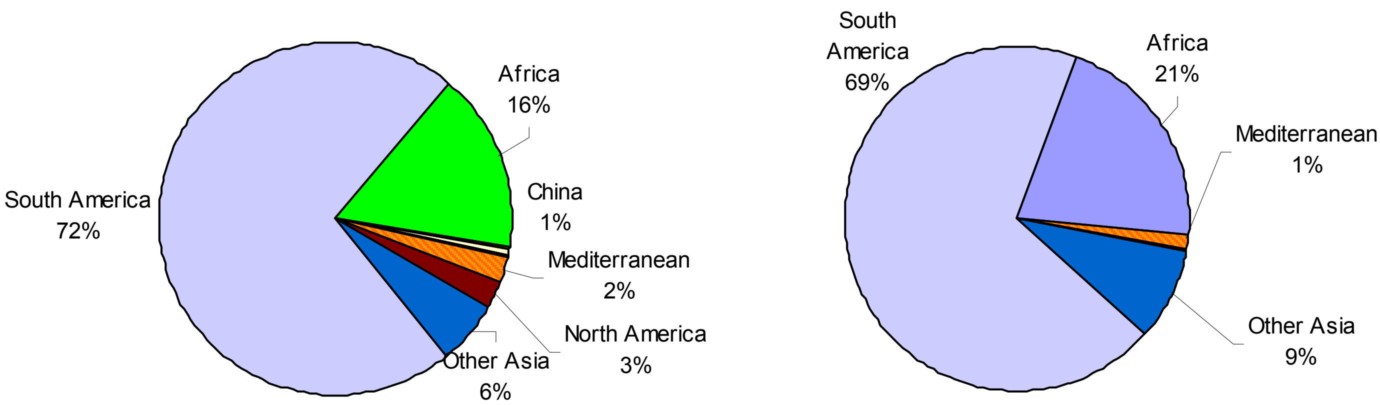
Asia, with imports from China growing at over 11% annually (11.8%) and imports from the rest of Asia (less Japan) posting an annual growth rate of 4.1% (CAGR).

Refrigerated Fruit & Vegetable Tonnage Inbound to the EU25

	1995	2005
Africa	534,368	1,123,336
Australia	9,857	5,151
China	23,183	896
Japan	112	0
Mediterranean	73,582	79,612
North America	84,743	13,888
Other Asia	191,528	468,242
South America	2,351,103	3,725,411

Refrigerated Fruit & Vegetable Tonnage Inbound to the EU25 by Region; 1995, 2005

1995 **2005**

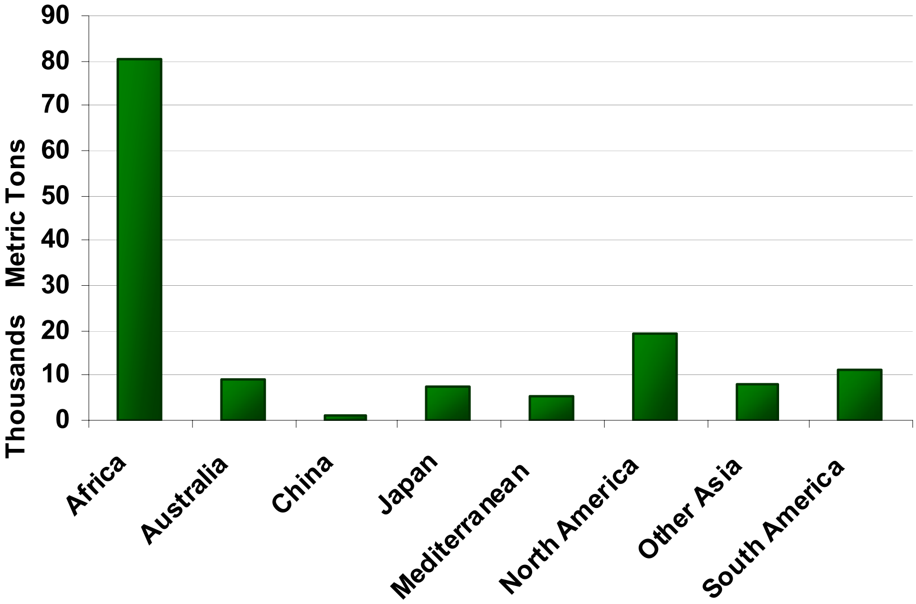


596. As the figure and the table below indicates, the majority of Europe's outbound refrigerated fruit & vegetable tonnage was destined for Africa in 2005. Growth in exports to Africa from the EU for this commodity grouping is expected to witness compound annual growth of 2.8% between 2005 and 2015. Outbound growth will be strongest for EU refrigerated fruits & vegetables bound for China and America, with rates of 4.5% and 3.9%, respectively.

Refrigerated Fruit & Vegetable Tonnage Outbound from the EU25

	1995	2005
Africa	67,417	80,364
Australia	5,257	8,995
China	60	1,021
Japan	6,697	7,386
Mediterranean	6,886	5,577
North America	18,050	19,052
Other Asia	8,598	7,893
South America	9,591	11,502

Refrigerated Fruit & Vegetable Tonnage Outbound from the EU



597. Bananas - Central and South America are the principal export regions for bananas, with a larger volume of exports coming from the Eastern countries than the western countries. The East coast of North America is one of the largest importers of bananas, but it is also mature and therefore, slow growing. North West Europe is the largest importer of bananas, but this region's growth has not come through increased per-capita consumption but rather through imports moving through Northern European ports with final destinations in Eastern Europe. The fastest growing banana importer will be the Asia-Pacific region, in line with the region's faster economic growth.

598. Deciduous Fruit - The main global exporters are the East Coast of Central and South America, the West Coast of Central and South America, and Asia-Pacific. Of these, the consultants expect the highest rate of export growth to come from Asia-Pacific, while the saturated North American market will demonstrate slower, more mature growth.

599. Citrus Fruit - The largest exporter of Citrus fruit is the Mediterranean region and continued economic growth in the less-developed Mediterranean countries will continue to expand production growth in this region.

600. Intra-Europe trade of reefer fruits and vegetables performed well between 1995 and 2005 with growth along nearly every route posting positive annual rates (CAGR 1995-2005). Tonnage from the Mediterranean to the Black Sea was the largest intra-Europe trade flow for this commodity in 1995 and 2005 (growing at an annual 9.4% CAGR). Even with compound annual growth of 1.5% between 2005 and 2015 in reefer fruits and vegetables tonnage exported from the Mediterranean to the Black Sea, this route will continue to represent the largest intra-Europe trade flow for this commodity grouping in 2015.

(c) Intra-Europe Trade Routes

601. The largest (in terms of tonnage) intra-Europe trading routes of reefer fruits and vegetables over the past five years (annual average of 2000-2005) include:

Mediterranean to the Black Sea	= 950,000 tonnes
Northwest Europe to Scandinavia	= 796,000 tonnes
Mediterranean to Scandinavia	= 673,000 tonnes

602. The routes above will remain the largest routes through to 2015, with exports from the Mediterranean to the Black Sea growing at a compound annual rate of 1.5% between 2005 and 2015, to reach 1.4 million tonnes in 2015.

2.4.2.2 Demand Characteristics

603. Refrigerated fruit and vegetable prices are unique to the country of origin, and do influence export competitiveness. Additionally, these commodity prices are highly vulnerable to supply shocks caused by weather in a producing country. Decisions of where to import the commodity from are determined both by the raw price of the commodity, as well as by the transportation costs. Because of the growing trend in containerization, modes will compete on price to gain business. Thus, increases in bulk prices may increase the attractiveness of containerized transit.

604. Refrigerated fruits and vegetables are both price elastic, implying that demand is sensitive to changes in the price of the good.

2.4.3 *Fruit & Vegetables, Non-Refrigerated (HS 0701-0710, 0713; 1210-1212, 0802)*

605. Non-refrigerated fruit and vegetables include potatoes, peas, beans, onions, garlic, leeks, cauliflower, brussel sprouts, cabbage, broccoli, carrots, turnips, beets, cucumbers, artichokes, asparagus, eggplants, celery, mushrooms, corn, cassava, sweet potatoes, other roots and nuts.

2.4.3.1 Geographical Scope

(a) Global Routes

606. Non-refrigerated fruit and vegetable products are not dominated by Latin America as is seen in the refrigerated equivalent. The world's largest (in terms of tonnage) trading routes of non-refrigerated fruits and vegetables over the past five years (annual average of 2000-2005) include:

Canada to India	= 535,000 tonnes
Canada to Spain	= 167,000 tonnes
Australia to India	= 140,000 tonnes
India to the UAE	= 113,000 tonnes
Australia to the other Indian Sub-Continent	= 54,000 tonnes

607. Unlike exports between 2000 and 2005, Canada to India non-refrigerated trade was only the 6th largest route in 1995. In addition to the India to UAE route seen above, Argentine exports to Brazil, Other Mediterranean to Saudi Arabia, and India to Malaysia were the largest routes in 1995. As opposed to the shifts witnessed between 1995 and 2005, few shifts are expected between 2005 and 2015. In fact, the routes listed above will continue to be the largest routes in 2015, with each experiencing compound annual growth rates ranging from 5.4% to 9.9%. Exports from Australia to India, the route with the fastest expected growth of 9.9%, will be the 3rd largest route with 240,000 tonnes shipped in 2015. This will pale in comparison to trade from Canada to India, which will top 1.5 million tonnes in 2015.

(b) EU Inbound & Outbound

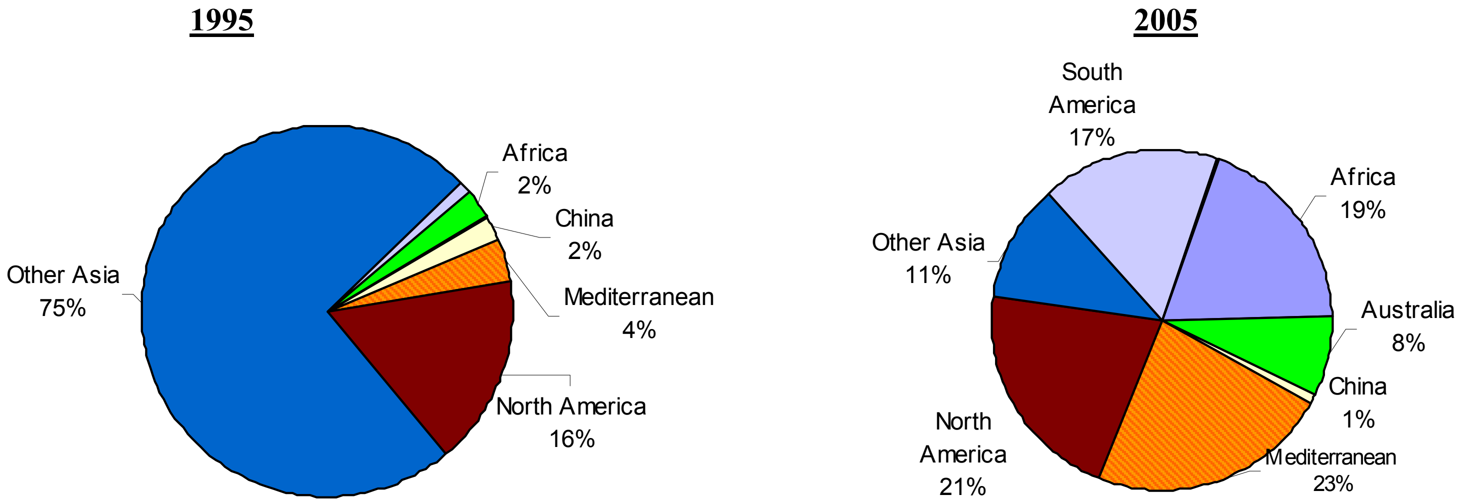
608. Unlike reefer trade of fruits and vegetables, the figure and the table below illustrates significant changes in the origins of the EU25's inbound tonnage of non-reefer fruits and vegetables between 1995 and 2005. While Asia existed as the primary supplier in 1995, no country existed as a

dominant supplier in 2005 with many regions representing significant shares. The share of tonnage inbound from South America increased substantially, as did the share of tonnage from Africa, the Mediterranean, and Australia. Inbound growth (CAGR) between 2005 and 2015 is expected to be strongest from Asia, with imports from China growing at 8.8% annually, imports from Australia growing at 5.5%, and imports from the rest of Asia (less Japan) posting annual growth rates of 3.3%.

Non-Refrigerated Fruit & Vegetable Tonnage Inbound into the EU25

	1995	2005
Africa	65,610	59,299
Australia	11,620	23,493
China	55,725	2,478
Japan	58	0
Mediterranean	100,991	70,563
North America	453,668	65,263
Other Asia	2,038,877	34,791
South America	32,942	52,486

Non-Refrigerated Fruit & Vegetable Tonnage Inbound into the EU25; 1995, 2005

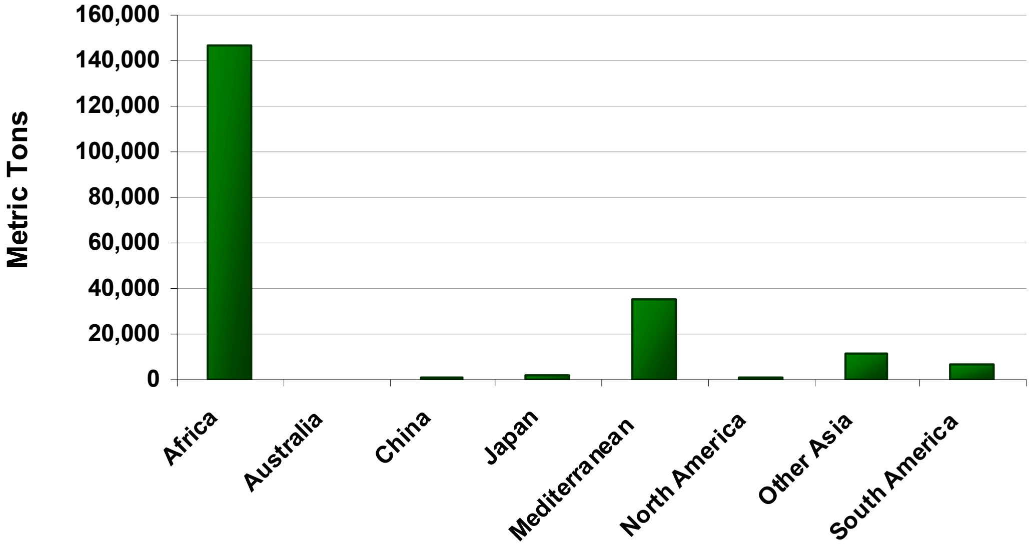


609. As the graph and the table below indicates, the majority of Europe's outbound non-refrigerated fruit and vegetable tonnage was destined for Africa in 2005. Growth in exports to Africa for this commodity grouping is expected to witness compound annual growth of 4.3% between 2005 and 2015. Outbound growth will also be strong for non-refrigerated fruits and vegetables bound for China, with an expected rate of 4.0%.

Non-Refrigerated Fruit & Vegetable Tonnage Outbound from the EU25

	1995	2005
Africa	100,458	146,223
Australia	265	183
China	61	785
Japan	5,253	1,975
Mediterranean	20,230	34,945
North America	7,023	1,371
Other Asia	19,857	11,486
South America	4,088	6,757

Non-Refrigerated Fruit & Vegetable Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

610. The largest (in terms of tonnage) intra-Europe trading routes of non-reefer fruits and vegetables over the past five years (annual average of 2000-2005) include:

Northwest Europe to the Baltics	= 326,000 tonnes
Northwest Europe to Scandinavia	= 309,000 tonnes
Northwest Europe to the Black Sea	= 159,000 tonnes

611. The routes above will remain the largest routes through to 2015, with exports from Northwest Europe to the Baltics growing at a compound annual rate of 5.1% between 2005 and 2015, to reach 709,000 tonnes in 2015.

2.4.3.2 Demand Characteristics

612. Non-refrigerated fruit and vegetable prices are unique to the country of origin, and do influence export competitiveness. Additionally, these commodity prices are highly vulnerable to supply shocks caused by weather in a producing country. Decisions of where to import the commodity from are determined both by the raw price of the commodity, as well as by the transportation costs.

Because of the growing trend in containerization, modes will compete on price to gain business. Thus, increases in bulk prices may increase the attractiveness of containerized transit.

613. Non-refrigerated fruits and vegetables are both price elastic, implying that demand is sensitive to changes in the price of the good.

614. No further information is available regarding the demand characteristics for this commodity grouping.

2.4.4

2.4.5 *Meat, Dairy, Fish, Refrigerated (HS 0201-0208, HS 0301-0307, HS 0401, HS 0403; HS 0405-0406, HS 0408, HS 1604, HS2105)*

2.4.5.1 Geographical Scope

(a) Global Routes

615. Importers along the major trading routes for refrigerated meats and dairy are concentrated in Asia. The world's largest (in terms of tonnage) trading routes of refrigerated meats and dairy over the past five years (annual average of 2000-2005) include:

China to Japan	= 282,000 tonnes
United States to Russia	= 265,000 tonnes
United States to Japan	= 225,000 tonnes
Russia to China	= 191,000 tonnes
China to South Korea	= 189,000 tonnes

616. Chinese exports to South Korea were extremely low in 1995 at only 31,000 tonnes. Trade along this route has grown 22% per year (CAGR) between 1995 and 2005 to reach 225,000 tonnes shipped in 2005. Between 2005 and 2015, exports from Brazil to Russia will grow at a compound annual growth rate of 5.9%, pushing exports in 2015 to 325,000 tonnes and propelling this route into the 4th largest position. Significant growth along the United States to Russia route will be seen at 7.8% (CAGR) over the forecast period, but this will only be enough to give it the 3rd place position in 2015.

(b) EU Inbound & Outbound

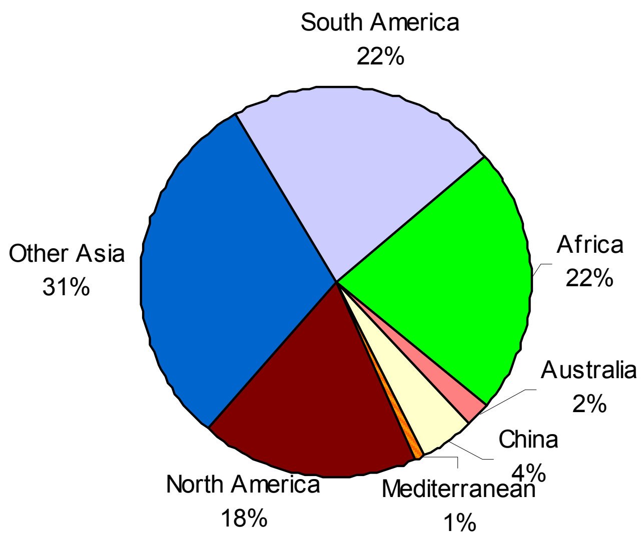
617. Unlike reefer trade of fruits and vegetables, the figure and the table below illustrates notable shifts in the origins of the EU25's inbound tonnage between 1995 and 2005. While Asia existed as the primary supplier in 1995, South America emerged as the largest supplier in 2005. While many producers maintain their 1995 status in 2005, Asia dropped from the n. 1 to the n.3 supplier by 2005 and South America moved from n. 3 (tied with Africa in 1995) to n.1 in 2005. Inbound growth (CAGR) between 2005 and 2015 is expected to be strongest from Asia, with imports from China growing at 5.4% annually, and imports from Australia and Other Asia each growing at 4.2%.

Meat, Dairy and Fish Tonnage Inbound to the EU25

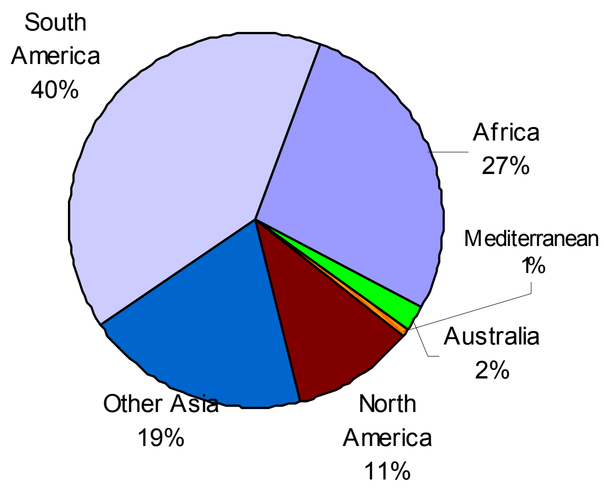
	1995	2005
Africa	201,852	359,956
Australia	20,721	27,718
China	39,157	290
Japan	1,909	35
Mediterranean	7,504	9,196
North America	164,306	139,885
Other Asia	276,058	256,153
South America	206,404	528,753

Meat, Dairy and Fish Tonnage Inbound to the EU25; 1995, 2005

1995



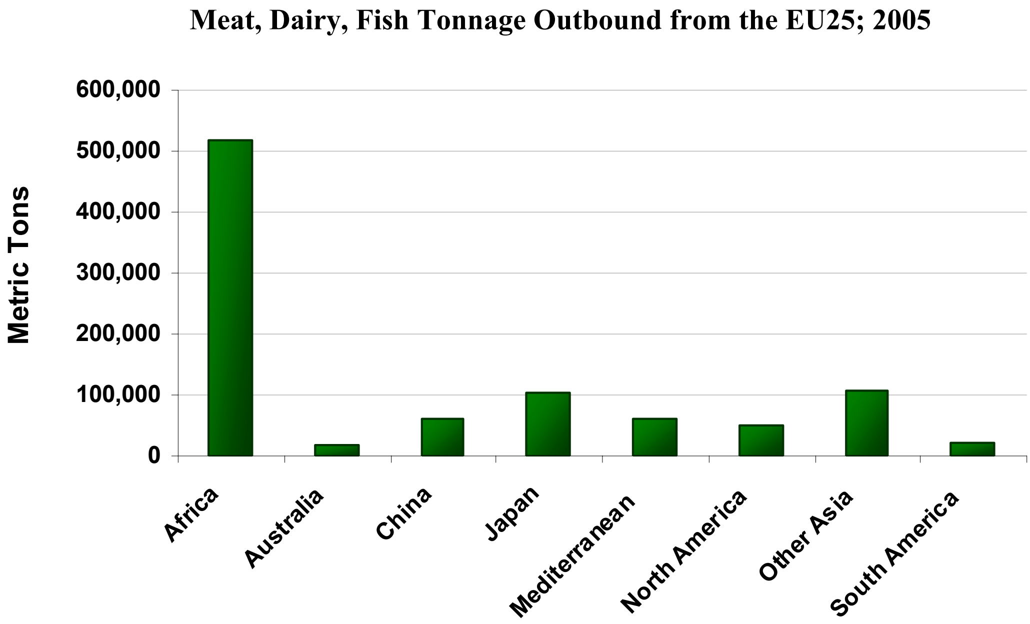
2005



618. As the graph and the table below indicates, the majority of Europe's outbound meat, dairy and fish tonnage was destined for Africa in 2005. Growth in exports to Africa for this commodity grouping is expected to witness compound annual growth of 3.3% between 2005 and 2015. Outbound growth will be strongest for the meat/dairy/fish commodity grouping bound for the Mediterranean and Australia, with expected rates of 3.7% each.

Meat, Dairy, Fish Tonnage Outbound from the EU25

	1995	2005
Africa	442,796	518,281
Australia	6,086	16,932
China	18,088	60,191
Japan	126,851	104,876
Mediterranean	96,367	62,258
North America	96,472	48,463
Other Asia	115,737	107,051
South America	24,743	20,021



619. Meat - The largest exporter and importer of meat is the Asia-Pacific region. Supply and demand from this region have historically grown quite slowly (just over 1% per year), but the region is expected to improve its share through to 2015 by growing faster as higher incomes in the Far East create demand for higher-protein foods. Since this region is both the largest exporter and importer, it is important to note that Australia and New Zealand captures the growth on the supply/production side, while the fast-growing nations such as China cause the imports to grow sizably.

620. Poultry - Poultry exports from the East Coast of North America are sizable. Historically, total global poultry demand in the past ten years has been stimulated by huge demand from the CIS countries. The other major exporting region is the East Coast of Central and South America (primarily Brazil), where cost of poultry production in the lowest in the world. Asia-pacific region is the largest importer of poultry.

621. Dairy - The Asia-Pacific and North Coast of Western Europe are the world's largest dairy exporters. Similarly, Asia-Pacific, the Mediterranean, and Northwest Europe are the world's largest importers, followed by North America.

622. Fish- The largest exporter to the world is the Asia-Pacific region, which is also the largest importer. Most of the growth in this global commodity will stem from the higher export growth from Northern countries of Western Europe.

623. Intra-Europe trade of reefer meat, dairy and fish performed well between 1995 and 2005 with growth along nearly every route posting positive annual rates (CAGR 1995-2005). Tonnage from the Scandinavia to Northwest Europe was the largest intra-Europe trade flow for this commodity in 1995 and 2005. Even with compound annual growth of 1.7% between 2005 and 2015 (slower than other routes) in reefer meat, dairy and fish tonnage exported from Scandinavia to Northwest Europe, this route will continue to represent the largest intra-Europe trade flow for this commodity grouping in 2015. Meat, dairy and fish tonnage exported from the Baltics to Northwest Europe and Northwest Europe to the Baltics is each expected to witness moderate growth of 3.8% and 3.4% (CAGR) between 2005 and 2015.

(c) Intra-Europe Trade Routes

624. The largest (in terms of tonnage) intra-Europe trading routes of refrigerated meats and dairy over the past five years (annual average of 2000-2005) include:

Scandinavia to Northwest Europe	= 1.0 million tonnes
Northwest Europe to the Baltics	= 553,000 tonnes
Scandinavia to the Mediterranean	= 424,000 tonnes
Northwest Europe to the Black Sea	= 416,000 tonnes
Northwest Europe to Scandinavia	= 411,000 tonnes

625. The routes above will remain the largest routes through to 2015, with exports from Scandinavia to Northwest Europe growing at a compound annual rate of 1.7% between 2005 and 2015, to reach 1.3 million tonnes in 2015. Exports from Northwest Europe to the Baltics will grow at 3.4% (CAGR) over the same period, closing the gap between this route and the largest route (Scandinavia to Northwest Europe). Exports from Northwest Europe to the Baltics will achieve 939,000 tonnes in 2015.

2.4.5.2 Demand Characteristics

626. Refrigerated meats, fish and dairy prices are unique to the country of origin, and do influence export competitiveness. Decisions of where to import the commodity from are determined both by the raw price of the commodity, as well as by the transportation costs. Because of the growing trend in containerization, modes will compete on price to gain business. Thus, increases in bulk prices may increase the attractiveness of containerized transit.

627. Like fruits and vegetables, meat, fish and dairy products are also price elastic and will witness drop-offs in demand under high price environments.

2.4.6 *Pulp (HS 4701-4706)*

2.4.6.1 Geographical Scope

(a) Global Routes

628. Exporters along the major trading routes for pulp are dominated by China. The world's largest (in terms of tonnage) trading routes of pulp over the past five years (annual average of 2000-2005) include:

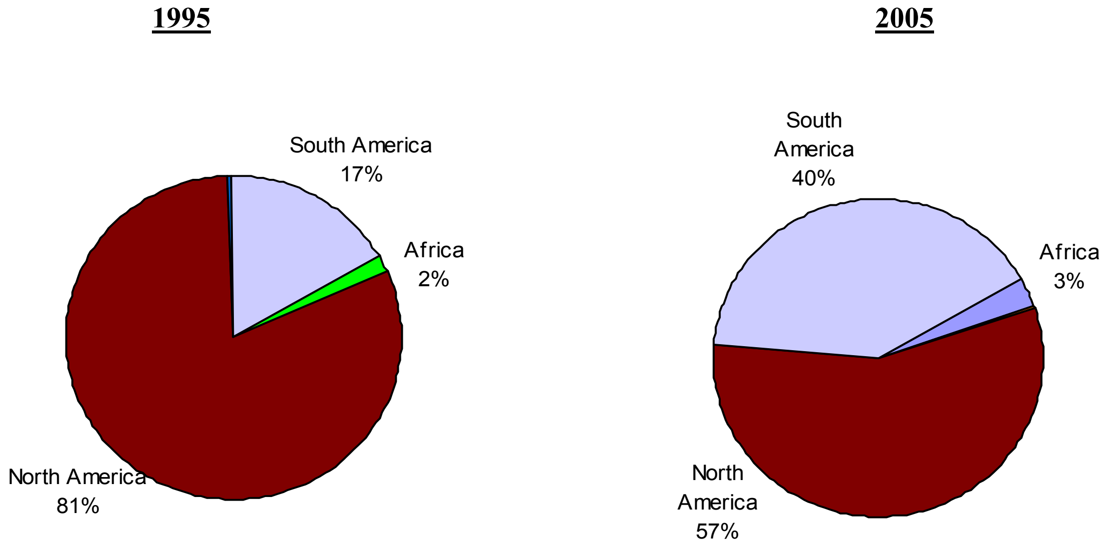
Indonesia to China	= 381,000 tonnes
Brazil to the United States	= 256,000 tonnes
Russia to China	= 238,000 tonnes
Canada to China	= 228,000 tonnes
Indonesia to South Korea	= 186,000 tonnes

629. Japanese consumption in 1995 drove the two largest trade routes that year with 387,000 tonnes exported from Canada to Japan and 351,000 tonnes exported from the United States to Japan. Canada's exports to Germany and the United States' exports to South Korea made up the 3rd and 4th largest routes in this year. Despite the shifts that occurred in the size of routes between 1995 and 2005, the shifts in routes between 2005 and 2015 are not substantial. Exports from Brazil to China are expected to grow at a compound annual growth rate of 10.2% between 2005 and 2015, leading to total exports of 463,000 tonnes to China in 2015. This propels this route into the number 4 slot and slides exports from Brazil to the United States to the 6th largest route.

(b) EU Inbound & Outbound

630. The figure and the table below depict the relatively stable sources of inbound pulp tonnage to the EU. North America was clearly the largest supplier in both 1995 and 2005, though it relinquished 24% of its market share by 2005. Inbound growth between 2005 and 2015 is expected to be fairly weak, but strongest from South America at 2.1% (CAGR). North America will continue to lose its market share with growth of negative 1.6% expected between 2005 and 2015.

Pulp Tonnage Inbound to the EU25; 1995, 2005



Pulp Tonnage Inbound to the EU25

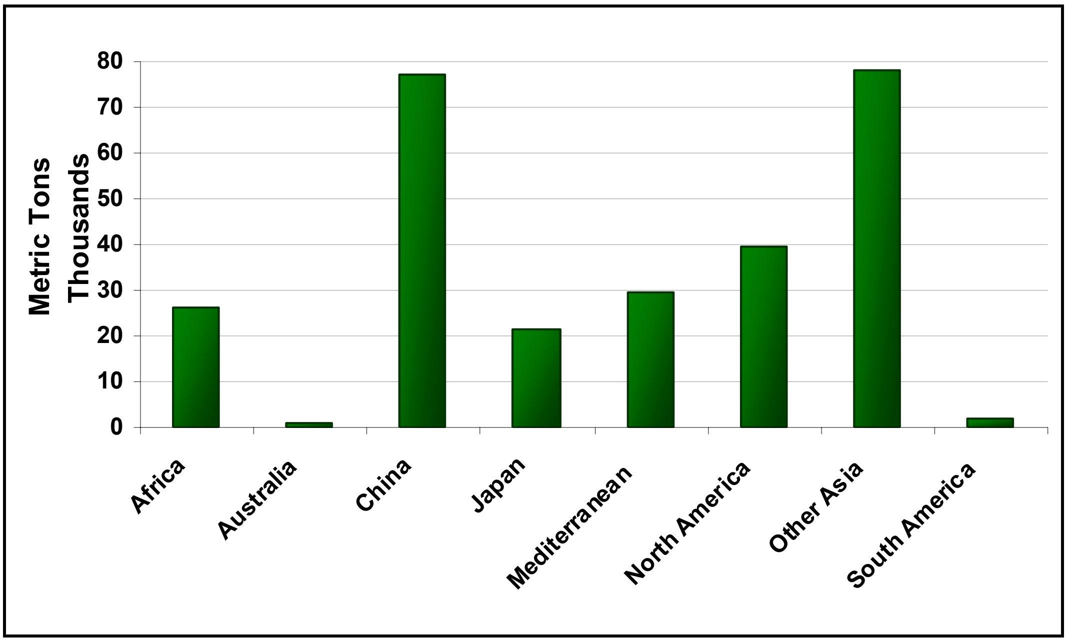
	1995	2005
Africa	33,227	55,599
Australia	0	4
China	4	0
Japan	3	0
Mediterranean	412	611
North America	1,644,170	985,641
Other Asia	5,381	2,613
South America	342,540	704,087

631. The destinations for Europe's Pulp exports are quite diverse, exporting to China, Other Asia, the Mediterranean and North America. Growth in pulp exports to these markets is expected to be strong between 2005 and 2015, particularly in exports to China (6.9%). Asia will post rates above 4% for this period while the Mediterranean and North America grow at 1.3% and 2.5% (CAGR) annually. While its tonnage will remain low in comparison to other export markets, South America is expected to grow at 4.7% annually.

Pulp Tonnage Outbound from the EU25

	1995	2005
Africa	11,790	26,253
Australia	1,016	862
China	3,616	77,018
Japan	33,735	21,479
Mediterranean	12,304	29,407
North America	20,360	39,302
Other Asia	39,976	78,206
South America	1,119	2,023

Pulp Tonnage Outbound from the EU25; 2005



632. Tonnage from Scandinavia to Northwest Europe dominated intra-Europe trade flow for pulp in 1995 and 2005. Even with compound annual growth of 0.04% between 2005 and 2015 in pulp tonnage exported from Scandinavia to Northwest Europe, this route will continue to represent the largest intra-Europe trade flow for this commodity grouping in 2015. Pulp tonnage exported from Northwest Europe to the Baltics will witness the fastest growth with a compound annual growth rate of 3.7% between 2005 and 2015. It is important to note, however that tonnage levels along this route remain very low.

(c) Intra-Europe Trade Routes

633. The largest (in terms of tonnage) intra-Europe trading routes of pulp over the past five years (annual average of 2000-2005) include:

Scandinavia to Northwest Europe = 3.1 million tonnes
Scandinavia to the Mediterranean = 925,000 tonnes
Scandinavia to Portugal and Spain = 202,000 tonnes

634. The routes above will remain the largest routes through to 2015. Exports from Scandinavia to Northwest Europe will have flat growth between 2005 and 2015, to remain at 3.1 million tonnes in 2015. Pulp tonnage exported from Northwest Europe to the Baltics will witness the fastest growth

with a compound annual growth rate of 3.7% between 2005 and 2015. It is important to note, however that tonnage levels along this route remain very low.

2.4.6.2 Demand Characteristics

635. Demand for pulp is driven by demand in the paper industry since pulp is an input to paper production. Pulp prices are unique to the country of origin, but more research is needed to learn the extent to which this influences export competitiveness. Decisions of where to import the commodity from are determined both by the raw price of the commodity, as well as by the transportation costs. Because of the growing trend in containerization, as well as the variety of vessels paper can travel in, modes will compete on price to gain business.

636. Given that pulp is both a consistently demanded agricultural commodity as well as an input to many finished products, it tends to be fairly price inelastic.

637. No further information is available regarding the demand characteristics for this product.

2.4.7 *Waste Paper (HS 4707)*

2.4.7.1 Geographical Scope

(a) Global Routes

638. Asia dominates global imports of waste paper and primarily receives its waste paper from Japan and the United States. The world's largest (in terms of tonnage) trading routes of waste paper over the past five years (annual average of 2000-2005) include:

Japan to China	= 678,000 tonnes
United States to China	= 138,000 tonnes
United States to Indonesia	= 78,000 tonnes
Japan to Thailand	= 23,000 tonnes
Japan to Taiwan	= 19,000 tonnes

639. Clearly, the global market is dominated by Japanese and United States' exports to China. No route came close to producing the amount of tonnage in 1995, as was seen annually between 2000 and 2005. However, the United States exported 84,000 tonnes of waste paper to Indonesia in 1995, the largest of the routes. In 2015, the top 4 routes over the 2000-2005 period will remain the top 4. The 5th largest route will change from Japan to Taiwan (2000-2005) to Netherlands' exports to India in 2015. With annual growth of 8.4% (CAGR) between 2005 and 2015, the Netherlands will export 24,000 tonnes to India in 2015.

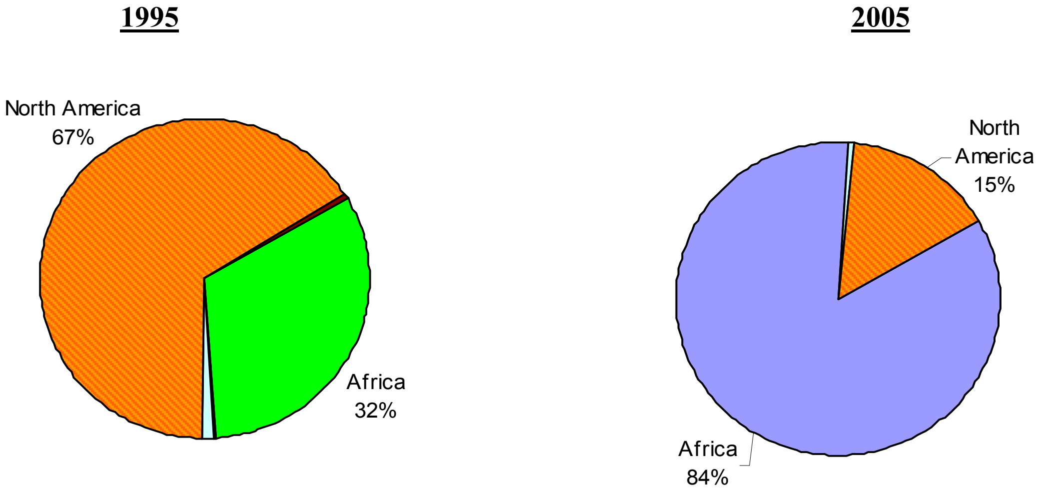
(b) EU Inbound & Outbound

640. Waste Paper inbound to the EU arrived primarily via North America in 1995, but by 1996, Africa began supplying the largest amount to the EU and continued to do so up to and including 2005. With compound annual growth of 0.8% between 2005 and 2015, Africa will continue to be the primary supplier to the EU. The Mediterranean region maintained a third-place position (3rd to North America) over the 10-year horizon, and will demonstrate moderate growth of 2.9% (CAGR) over the forecast period. While North America will remain a significant supplier to Europe throughout the forecast period, its compound annual growth between 2005 and 2015 will be a negative 1.2%.

Waste Paper Tonnage Inbound to the EU25

	1995	2005
Africa	19,299	25,597
Australia	100	0
China	0	0
Mediterranean	593	169
North America	39,350	4,525
Other Asia	293	0
South America	38	0

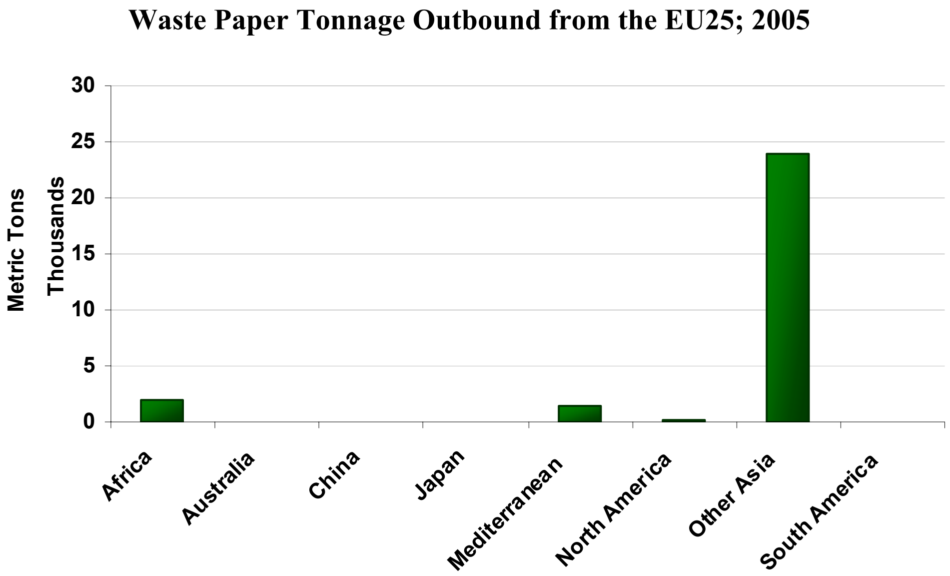
Waste Paper Tonnage Inbound to the EU25; 1995, 2005



641. Other Asia received the largest amount of the EU's outbound waste paper tonnage in 2005 and is expected remain the largest recipient in 2015 with compound annual growth of 8.4% expected between 2005 and 2015. Africa and North America are also expected to witness strong growth in outbound waste paper tonnage from the EU with rates of 6.4% and 5.3% (CAGR), respectively.

Waste Paper Tonnage Outbound from the EU25

	1995	2005
Africa	3,951	1,968
Australia	0	2
China	2,168	0
Japan	25	0
Mediterranean	546	1,362
North America	229	242
Other Asia	30,852	23,940
South America	562	39



(c) Intra-Europe Trade Routes

642. The largest (in terms of tonnage) intra-Europe trading routes of waste paper over the past five years (annual average of 2000-2005) include:

Northwest Europe to Scandinavia	= 366,000 tonnes
Scandinavia to Northwest Europe	= 253,000 tonnes
Mediterranean to Black Sea	= 96,000 tonnes

643. The routes above will remain the largest routes through to 2015. Exports from Northwest Europe to Scandinavia to will grow at 2.9% (CAGR) between 2005 and 2015, to export at 540,000 tonnes in 2015.

2.4.7.2 Demand Characteristics

644. Waste paper prices are unique to the country of origin, but more research is needed to learn the extent to which this influences export competitiveness. Decisions of where to import the commodity from are determined strongly by transportation costs. In the case of waste paper, transportation costs are quite low as this commodity is used to fill empty containers. Because of the trade imbalance between the U.S. and Asia, there is a considerable volume of empty containers left in the U.S. that need to be transported back to Asia. Container owners will ship waste paper in containers from the U.S. back to Asia for very little, just to have some revenue to cover a part of the cost of returning the containers.

645. No further information is available regarding the demand characteristics for this commodity.

2.4.8 *Paperboard & Products (HS 4801-4814, HS 4816-4820, HS 4822-4823)*

2.4.8.1 Geographical Scope

(a) Global Routes

646. Exports from Finland to the United States constitute the largest global trade route for paperboard and products by a substantial margin. Beyond this route, global trade is fairly diverse. The world's largest (in terms of tonnage) trading routes of paperboard and products over the past five years (annual average of 2000-2005) include:

Finland to the United States	= 668,000 tonnes
United States to Central America	= 288,000 tonnes
Canada to the United Kingdom	= 330,000 tonnes
China to Mexico	= 201,000 tonnes
United States to Japan	= 295,000 tonnes

647. With the exception of Chinese exports to Mexico, the remaining routes were also the largest routes in 1995. Chinese exports to Mexico grew at a compound annual growth rate of 82% per year from 1995 to 2005. The aforementioned five routes will continue to remain the largest 5 routes in 2015. Chinese exports to Mexico will continue to witness strong growth with annual rates of 10.7% (CAGR) between 2005 and 2015, shipping 861,000 tonnes in 2015.

(b) EU Inbound & Outbound

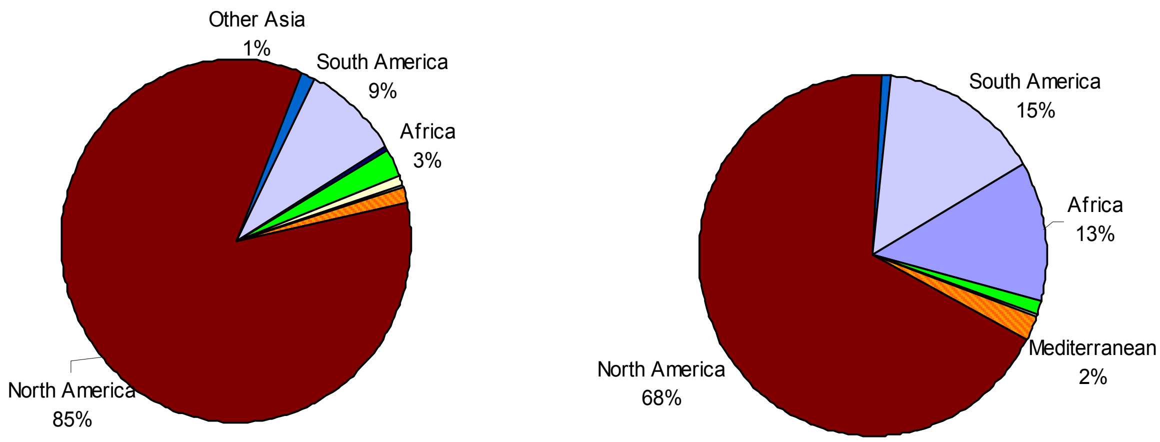
648. Paperboard and products inbound to the EU arrived primarily via North America in both 1995 and 2005, though North America's share diminished from 78% in 1995 to 58% in 2005. Conversely, South America and Africa improve, growing in their paper tonnage inbound to the EU. At expected growth of 3.1% (CAGR) between 2005 and 2015, North America will continue to be the primary supplier of this commodity grouping to the EU. Significant growth will come from China, Australia and South America with expected growth rates (CAGR) of 7.5%, 6.6%, and 4.8%, respectively over the forecast period.

Paperboard and Products Tonnage Inbound to the EU25

	1995	2005
Africa	38,713	167,876
Australia	330	14,162
China	10,035	1,058
Japan	6,726	1,710
Mediterranean	17,933	31,223
North America	1,267,813	910,082
Other Asia	21,128	11,608
South America	135,978	200,315

Paperboard and Products Tonnage Inbound to the EU25; 1995, 2005

<u>1995</u> **<u>2005</u>**

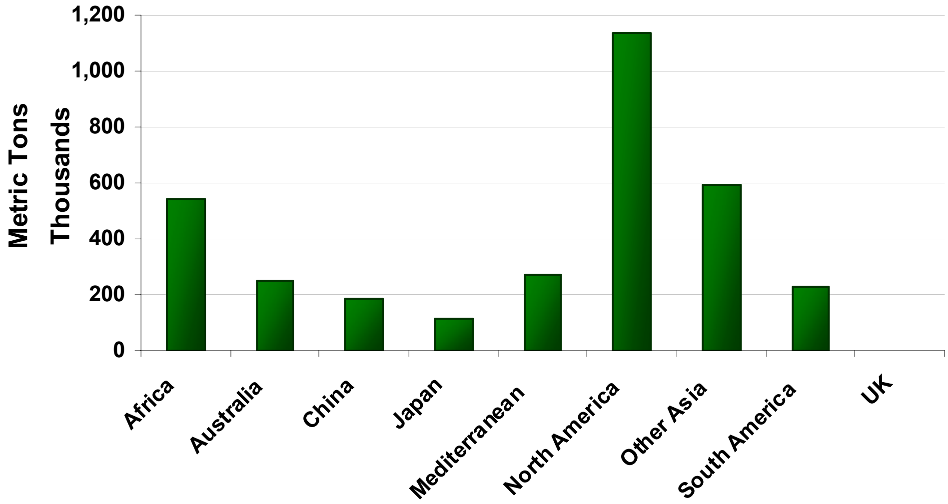


649. North America received the largest amount of the EU's outbound paper and paperboard tonnage in 2005 and is expected remain the largest recipient in 2015, even with annual growth of 1.8% expected between 2005 and 2015. The Mediterranean and Africa are expected to witness strong growth in outbound paper tonnage from the EU with rates of 4.8% and 3.4% (CAGR), respectively.

Paperboard and Product Tonnage Outbound from the EU25

	1995	2005
Africa	519,290	541,149
Australia	227,565	251,400
China	55,155	183,838
Japan	152,390	114,372
Mediterranean	223,231	269,379
North America	1,112,778	1,133,049
Other Asia	698,761	593,738
South America	243,039	227,355

Paperboard and Product Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

650. The largest (in terms of tonnage) intra-Europe trading routes of paperboard and products over the past five years (annual average of 2000-2005) include:

Scandinavia to Northwest Europe = 12.4 million tonnes
Scandinavia to the Mediterranean = 2.3 million tonnes
Scandinavia to Spain and Portugal = 1.5 million tonnes
Baltics to Northwest Europe = 1.2 million tonnes
Northwest Europe to the Baltics = 1.1 million tonnes
Northwest Europe to Scandinavia = 1.1 million tonnes

651. The routes above will remain the largest routes through to 2015. Volume on all of these routes can be expected to post moderate to strong annual growth rates between 2005 and 2015. Exports from

Scandinavia to Northwest Europe will grow at compound annual growth rate of 2.5% (one of the slower rates) between 2005 and 2015, to export 16.5 million tonnes in 2015. The fastest rates will come from the Baltics-Northwest Europe routes. Exports from the Baltics to Northwest Europe will grow at 8.5% (CAGR) over the forecast period, while exports from Northwest Europe to the Baltics will grow at 7.4% (CAGR).

2.4.8.2 Demand Characteristics

652. Demand for these products is driven by overall demand in the paper industry. Paper and paperboard prices are unique to the country of origin, but more research is needed to learn the extent to which this influences export competitiveness. Decisions of where to import the commodity from are determined both by the raw price of the commodity, as well as by the transportation costs. Because of the growing trend in containerisation, as well as the variety of vessels paper can travel in, modes will compete on price to gain business.

653. No further information is available regarding the demand characteristics for this commodity.

2.4.9 *Cork & Wood (HS 4401-4403, HS 4406-4407, HS 4409, HS 4501-4502)*

2.4.9.1 Geographical Scope

(a) Global Routes

654. Japan is the primary importer of cork and wood. The world's largest (in terms of tonnage) trading routes of cork and wood over the past five years (annual average of 2000-2005) include:

Australia to Japan	= 4.8 million tonnes
United States to Japan	= 3.3 million tonnes
Canada to Japan	= 2.4 million tonnes
South Africa to Japan	= 1.3 million tonnes
Chile to Japan	= 1.3 million tonnes

655. In 1995, the largest cork and wood trade route was United States' exports to Japan at 15.2 million tonnes – larger than trade along any route today. Trade along this route experienced a steep drop off between 1998 and 1999, before falling each year following. Neither in 2005 nor in 2015, does any route experience the volumes seen on the United States to Japan route in 1995. By 2005 and through to 2015, Thailand's exports to the Caribbean rank among the top 5 routes, with 1.6 million tonnes expected to be shipped in 2015. Australian exports to Japan will remain the largest route with 5.5 million tonnes shipped in 2015.

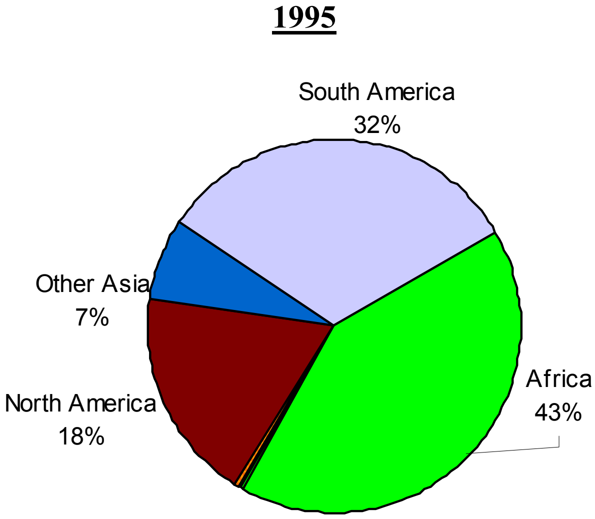
(b) EU Inbound & Outbound

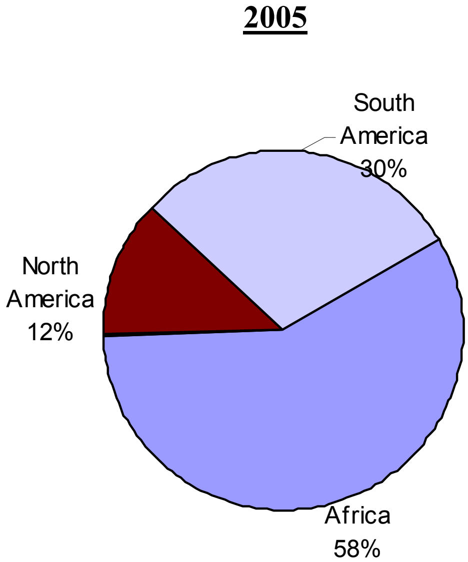
656. The figure and the table below depict the shifts in the sources of inbound cork and wood tonnage to the EU. Africa was the largest supplier in both 1995 and 2005, gaining 15% market share over the 10-year period. North America and Asia diminished in importance as a supplier of cork and wood to the EU between 1995 and 2005. Inbound growth between 2005 and 2015 is expected to be strongest from China (though tonnage levels will remain low) with 4.9% growth and South America with 2.2% (CAGR) growth.

Cork & Wood Tonnage Inbound to the EU25

	1995	2005
Africa	2,870,378	3,321,590
Australia	14,315	11,113
China	8,945	100
Japan	1,122	2
Mediterranean	32,875	6,993
North America	1,253,918	703,468
Other Asia	498,089	4,977
South America	2,228,829	1,713,910

Cork & Wood Tonnage Inbound to the EU25; 1995, 2005



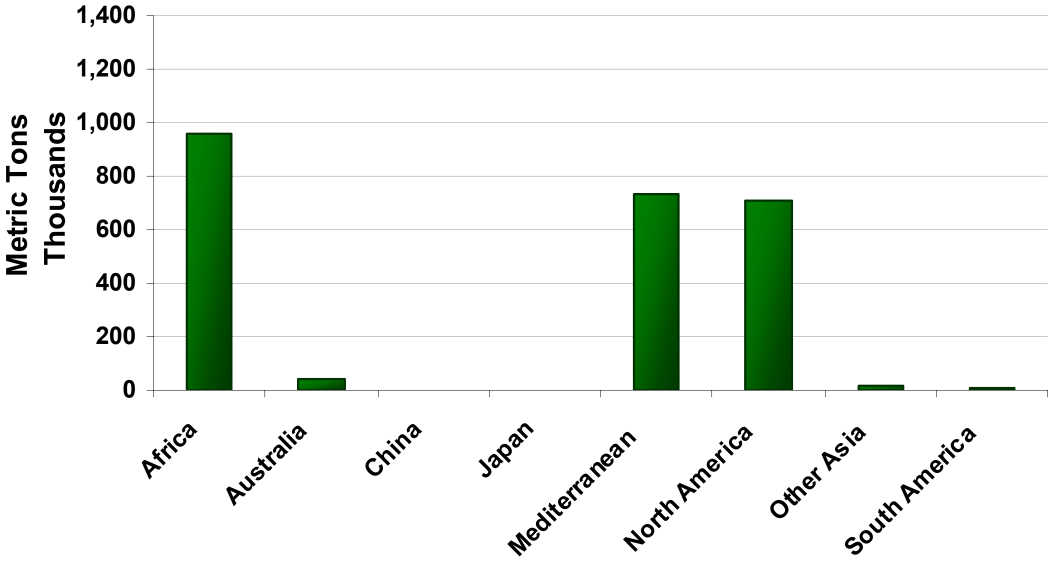


657. The destinations for Europe's cork and wood exports include Africa, the Mediterranean and North America. Although these markets will continue to remain the largest recipients of the EU's cork and wood exports through to 2015, growth is expected to witness negative growth between 2005 and 2015, with rates of -0.4% to Africa, -2.7% to the Mediterranean, and -1.5% North America. Other Asia is expected to grow at 6.9% (CAGR) over the forecast period, but tonnage will fall short of levels posted by the aforementioned markets.

Cork & Wood Tonnage Outbound from the EU25

	1995	2005
Africa	868,011	959,108
Australia	8,213	39,772
China	2,643	584
Japan	816,591	0
Mediterranean	1,080,000	734,693
North America	31,669	709,268
Other Asia	51,823	16,891
South America	4,636	11,727

Cork & Wood Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

658. The largest (in terms of tonnage) intra-Europe trading routes of cork and wood over the past five years (annual average of 2000-2005) include:

Baltics to Northwest Europe	= 4.5 million tonnes
Scandinavia to Northwest Europe	= 4.0 million tonnes
Black Sea to the Mediterranean	= 2.0 million tonnes
Scandinavia to the Mediterranean	= 1.4 million tonnes
Northwest Europe to Scandinavia	= 1.1 million tonnes

659. The routes above will remain the largest routes through to 2015, despite the fact that growth along these routes is fairly mature. Exports from the Baltics to Northwest Europe grew at 8.2% (CAGR) between 1995 and 2005, but will only grow at 2.0% (CAGR) between 2005 and 2015. Exports from the Baltics on this route will reach 5.8 million tonnes in 2015.

2.4.9.2 Demand Characteristics

660. Cork and wood prices are unique to the country of origin, but more research is needed to learn the extent to which this influences export competitiveness. Decisions of where to import the commodity from are determined both by the raw price of the commodity, as well as by the transportation costs. Because of the growing trend in containerization, as well as the variety of vessels wood can travel in, modes will compete on price to gain business.

661. Cork and wood is similar to pulp, paper & paperboard products, in that they tend to be fairly price inelastic.

662. No further information is available regarding the demand characteristics for this commodity.

2.4.10 *Agricultural Machinery (HS 8701)*

2.4.10.1 Geographical Scope

(a) Global Routes

663. The world's largest (in terms of tonnage) trading routes of agricultural machinery over the past five years (annual average of 2000-2005) include:

Japan to the United States	= 27,000 tonnes
United States to Australia	= 13,000 tonnes
Germany to the United States	= 11,000 tonnes
China to the United States	= 8,000 tonnes

664. As was the case over the 2000-2005 period listed above, these routes were important routes in 1995. Exports from the United Kingdom to the United States were also large, with 15,000 tonnes shipped from the UK to the US in 1995. The above routes will maintain their significance in 2015 with exports from China to the United States moving into the number 3 spot after growing at 3.8% per year (CAGR) between 2005 and 2015. Japanese exports of agricultural machinery to the United States are expected total 34,000 tonnes in 2015.

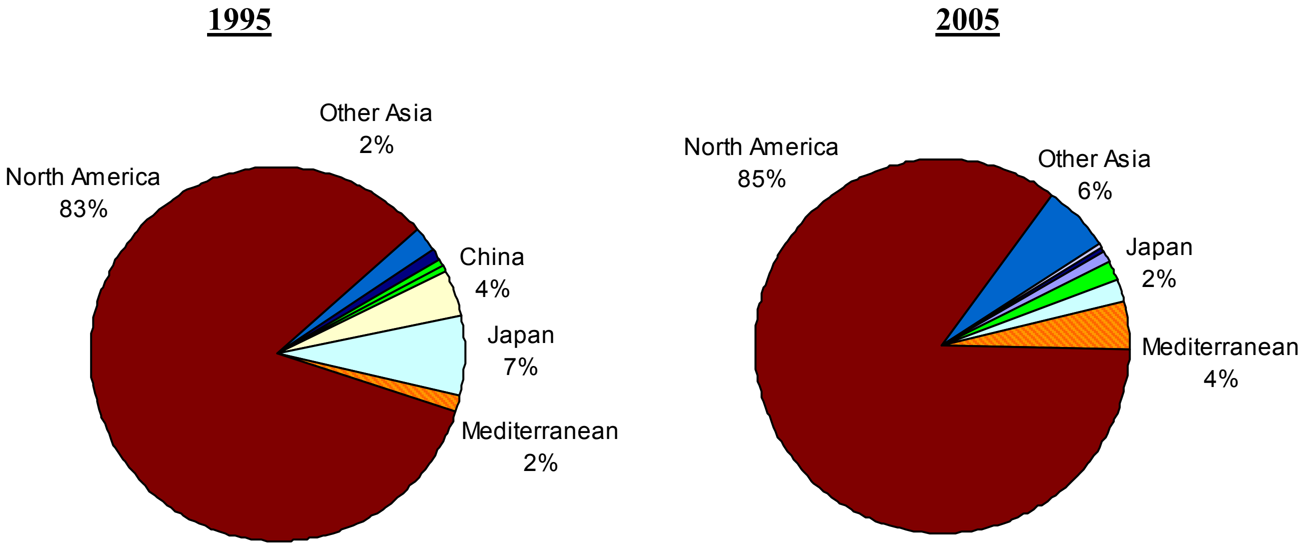
(b) EU Inbound & Outbound

665. Agricultural Machinery inbound to the EU arrived primarily via North America in both 1995 and 2005, and no major shifts occurred among suppliers. North America increased its share of the EU's agricultural machinery imports from 83% in 1995 to 85% in 2005. Japan's share dropped from 7% to 2%, while the Mediterranean grew from 2% to 4% over the 10-year period. Even at slow growth of 0.6% (CAGR) between 2005 and 2015, North America will continue to be the primary supplier of this commodity grouping to the EU. Significant growth will come from Other Asia and China, with expected growth (CAGR) of 4.0%, and 4.1%, respectively over the forecast period. However, it is important to note that tonnage from China is insignificant at only 14 tonnes in 2015.

Agricultural Machinery Tonnage Inbound to the EU25

	1995	**2005**
Africa	191	253
Australia	340	381
China	1,817	9
Japan	3,072	521
Mediterranean	744	1,128
North America	38,102	22,250
Other Asia	1,045	1,470
South America	62	110

Agricultural Machinery Tonnage Inbound to the EU25; 1995, 2005

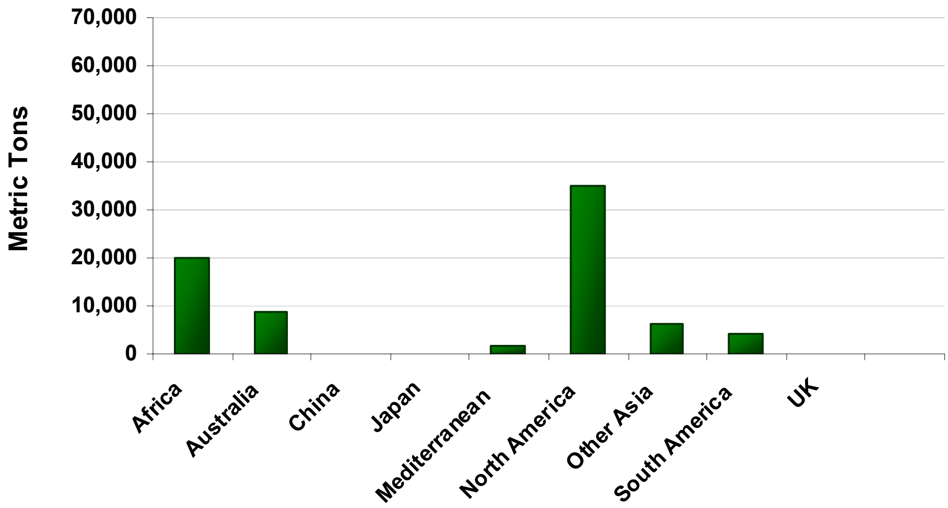


666. North America and Africa received the largest amount of the EU's outbound agricultural tonnage in 2005 and are expected to remain the largest recipients in 2015, even with annual growth of 0.9% and 1.1% expected for North America and Africa (respectively) between 2005 and 2015. China will experience the fastest growth as a recipient of EU agricultural machinery exports at 2.8% (CAGR). Every other destination will experience positive growth, but less than 2%.

Agricultural Machinery Tonnage Outbound from the EU25

	1995	2005
Africa	15,648	19,827
Australia	6,163	8,795
China	359	0
Japan	8,394	0
Mediterranean	2,156	1,869
North America	60,990	35,176
Other Asia	19,941	6,261
South America	5,513	3,982

Agricultural Machinery Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

667. The largest (in terms of tonnage) intra-Europe trading routes of agricultural machinery over the past five years (annual average of 2000-2005) include:

Northwest Europe to Scandinavia	= 87,000 tonnes
Scandinavia to Northwest Europe	= 72,000 tonnes
Northwest Europe to the Baltics	= 72,000 tonnes

668. The routes above will remain the largest routes through to 2015 despite slow growth along all routes. Exports from Northwest Europe to Scandinavia are expected to grow at a compound annual rate of 1.2% between 2005 and 2015, to reach 106,000 tonnes in 2015.

2.4.10.2 Demand Characteristics

669. See 2.4.11.2 of this Report for PCC market demand characteristics.

2.4.11 *Motor Vehicles*

670. Year-to-May Western European new car demand posted just over 6.5 million units, up 2.3%. A move to more pricing restraint in Europe in the face of rising raw material manufacturing costs and low industry profitability will probably undermine any cyclical upswing in car sales over the next two years or so. This will open the door for Japanese and Korean importers to make extra sales gains at the expense of the European makers.

671. By 2011, Central Europe will house nearly 1 million units worth of new greenfield automotive plant. Meanwhile, Turkish output is being raised by Toyota, Hyundai, Ford, Fiat and PSA. Here Light Vehicle production will also reach over 1 million units by 2011. More caution is being exercised in Russia, underlining the risks of investment. Nevertheless, new capacity from foreign OEMs will amount to 450,000 units by 2011, but the majority of this output will remain in Russia for domestic consumption.

2.4.11.1 Geographical Scope

(a) Global Routes

672. The United States dominates motor vehicle imports while Japan, Germany and South Korea dominate exports. In fact, trade from Japan to the United States is more than double trade along the 2nd largest route. The world's largest (in terms of tonnage) trading routes of motor vehicles over the past five years (annual average of 2000-2005) include:

Japan to the United States	= 2.3 million tonnes
Germany to the United States	= 858,000 tonnes
South Korea to the United States	= 757,000 tonnes
Japan to Australia	= 528,000 tonnes
Japan to Saudi Arabia	= 278,000 tonnes

673. As was the case over the 2000-2005 period listed above, motor vehicle trade from Japan to the United States dominated all routes in 1995. This will continue in 2015 after shipments grow at a compound annual rate of 2.3% between 2005 and 2015. The top 5 routes listed above will remain the top 5 routes in 2015. Exports of motor vehicles from Japan to the United States are expected to top 2.9 million in 2015.

(b) EU Inbound & Outbound

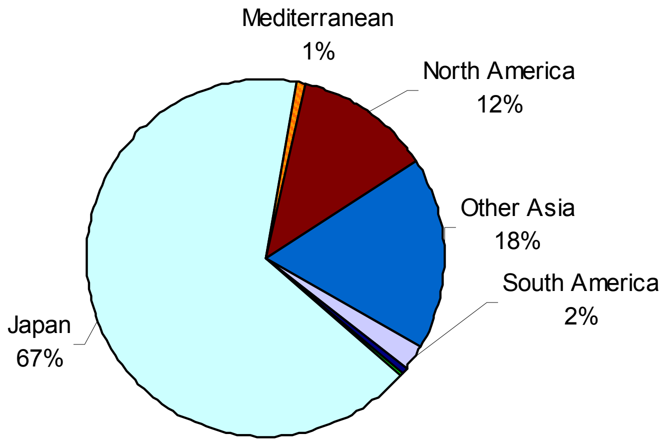
674. As is evident in the figure and the table below, significant shifts occurred in the origins of Motor Vehicle tonnage inbound to the EU. Japan dropped as the primary supplier in 1995 to the 3rd largest supplier in 2005. Japan's market share was replaced by shipments from North America, which became the primary supplier in 2005. On a smaller scale, Africa emerged as a supplier to the EU. At the steady growth rate of 4.4% (CAGR) between 2005 and 2015, North America will continue to be the primary supplier of this commodity grouping to the EU. Significant growth (CAGR) between 2005 and 2015 will come from China (9.2%), Africa (7.5%) and Asia (less Japan) (5.8%).

Motor Vehicle Tonnage Inbound to the EU25

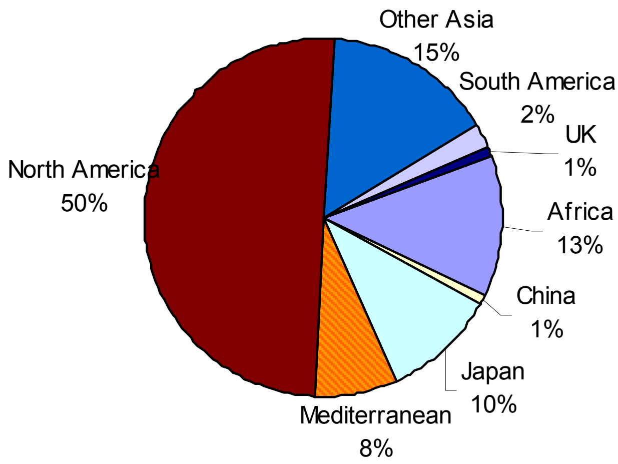
	1995	**2005**
Africa	3,939	99,167
Australia	609	757
China	860	7,089
Japan	1,032,105	80,247
Mediterranean	12,932	59,716
North America	193,831	393,920
Other Asia	273,425	118,962
South America	34,378	18,139

Motor Vehicle Tonnage Inbound to the EU25; 1995, 2005

1995



2005

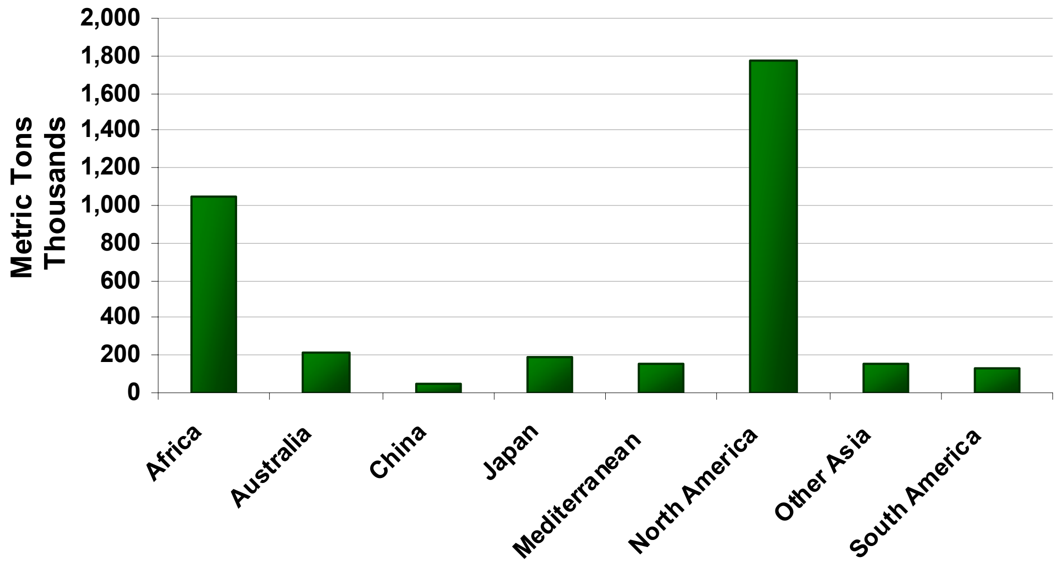


675. North America and Africa received the largest amount of the EU's outbound motor vehicle tonnage in 2005 and are expected remain the largest recipients in 2015, with annual growth of 2.5% and 3.2% expected for North America and Africa (respectively) between 2005 and 2015. China will experience the fastest growth as a recipient of EU motor vehicle exports at 7.4% (CAGR) followed by the Mediterranean at a rate of 4.8%.

Motor Vehicle Tonnage Outbound from the EU25

	1995	2005
Africa	384,613	1,048,435
Australia	72,573	210,326
China	54,206	49,391
Japan	286,577	190,363
Mediterranean	120,912	149,506
North America	601,248	1,775,317
Other Asia	274,422	159,039
South America	354,571	128,007

Motor Vehicle Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

676. The largest (in terms of tonnage) intra-Europe trading routes of motor vehicles over the past five years (annual average of 2000-2005) include:

Northwest Europe to the Baltics	= 676,000 tonnes
Northwest Europe to Scandinavia	= 630,000 tonnes
Northwest Europe to the Black Sea	= 356,000 tonnes
Scandinavia to Northwest Europe	= 198,000 tonnes

677. The routes above will remain the largest routes through to 2015, with growth along these routes being moderate. Exports from Northwest Europe to the Baltics are expected to grow at 6.7% (CAGR) between 2005 and 2015, to export 1.7 million tonnes in 2015.

2.4.11.2 Demand Characteristics

678. The PCC market is a specialised market developed to service the needs of the global automotive industry manufacturers whose centres of production are spread across the whole globe, and whose markets tend to be global too.

679. Production is often outsourced to independent third parties. Such decentralised production means vehicle parts, sub-assembly units, knock down kits and finished vehicles need shipping from plant to plant according to tight time schedules to ensure the relevant products are in the right place at the right time for assembly, sub-assembly or sale.

680. At the same time, the distribution chain is usually organised on a pyramidal structure with wholesalers, importers, main franchisees and a number of more localised sub-franchisees, requiring further vehicle shipments from the point of final assembly to the relevant importer or main franchisee's wholesale depots. Depending on the make of the car and the size of the market being served, volumes can be quite significant and can require significant vessel capacity to be made available either at regular intervals throughout the year or to meet specific sales peaks (which may vary from market to market).

681. There is therefore a requirement for large oceanbound shipments linking production and assembly plants in different locations and as part of the sales and distribution chain.

682. As well as the transportation of factory new cars, the PCC market also traditionally covers agricultural equipment and the related PCTC market covers trucks and coaches, construction and mining equipment. All of these have similar market characteristics and production and distribution are organised in similar ways. The patterns of demand for ocean transport are therefore similar.

683. The markets are all primarily based on tenders, which have a duration of between one and three years. The large manufacturers, like Daimler Chrysler (Mercedes Benz), BMW and John Deere send their tender requirements directly to the PCC operators and ask them to come up with an offer based on their given requirements with respect to frequency of sailings, ports served, transit time and the anticipated volume of cargo which needs to be transported (although they only pay for the capacity used).

684. The freight rate payable is based on the volume in cubic metres of cargo which is transported, as different car models and agricultural equipment vary in size. Agreements often provide for the cargo owner to pay for the loading and-discharging of the cargo.

685. The cargo owner acts as both the importer and the exporter. Some operators in the PCC market like WWL offer door-to-door services, whereas other operators are not vertically integrated in the whole supply chain. This does not change the role of the cargo owner.

686. Just as second sourcing and multi-sourcing are common features of the automotive industry itself, so in relation to their transport requirements it is common for automotive manufacturers to have transportation agreements with more than one PCC operator at the same time. This gives them added flexibility as well as security should one service provider be unable to perform. Where a manufacturer has contracts in place with two or more PCC operators each can be asked to present the positions of their ships to the manufacturer, and based on the position list which the operators present, the manufacturer chooses the one which suits its shipping needs best for the particular shipment or shipments.

687. Most PCC operators have contracts with more than one company.

688. Typically contracts are in the form of CoAs or "requirements contracts".

689. A notable exception is EUKOR[138] which is known to have a worldwide 5-year exclusive service agreement with Kia Motors which ends in 2007. KIA is a part of the Hyundai Motor Group (which is a minority shareholder of EUKOR). EUKOR is thus the only company which is entitled to transport factory new Kia and Hyundai cars from Korea.

690. Another feature of this market is that the operators from time to time exchange[139] vessels. If for instance EUKOR and WWL operate two vessels with different specifications, which are suited for

[138] Eukor Car Carriers Inc., established in 2002 and jointly owned by Wilh. Wilhelmsen, Walleniusredernierna and Hyundai Motor Group.

[139] These are arrangements typically for a very limited period of time (one trip/spot type) which are negotiated on the basis of a freight rate which is paid from for instance WWL to NYK. They are not cross-space or cross-vessel charters over a long period of time, but come as a result of shortage of tonnage for a very limited period. Rates are determined separately for each agreement. In addition, large operators like WWL, which operate a large fleet of vessels always optimise their fleet size with respect to a given volume of goods at various destinations. If the cargo mix and/or demand pattern changes, then they have to optimise their fleet once again. Then the result of this optimisation problem can for instance be that they will manage to transport all the cars *etc*. that they are committed to,

two different trades, and given that the EUKOR vessel is suited for WWL, and opposite, say for instance because of a larger number of hoistable decks, this could be a favourable deal for both parties. Then a shipbroker can arrange this deal to happen and the involved parties will have to agree on the payment.

691. Since this market operates based on requirement contracts, from time to time there are seasonal changes in production or regional changes in demand which needs to be dealt with. Typically, operators can help each other out by selling spare capacity to each other. If for instance WWL asks NYK if they are interested in transporting some cars in November, then WWL can provide NYK with extra capacity in, say February, which could be a peak month for NYK's trades, and low season for WWL.

2.4.12 *Metal Products (HS 7415-7419)* [140]

2.4.12.1 Geographical Scope

(a) Global Routes

692. The world's largest (in terms of tonnage) trading routes of metal products over the past five years (annual average of 2000-2005) include:

China to Malaysia	= 362,000 tonnes
China to the United States	= 251,000 tonnes
China to Mexico	= 194,000 tonnes
Taiwan to Malaysia	= 183,000 tonnes
China to Japan	= 160,000 tonnes

693. The routes above will remain the largest routes through to 2015, with the exception of the China to Japan route, which will be replaced by exports from Malaysia to Thailand with 242,000 tonnes in 2015. Growth in these routes will be fairly moderate between 2005 and 2015 with compound annual growth rates over 5% expected for the top three routes. China is expected to export over 1.1 million tonnes to Malaysia in 2015.

(b) EU Inbound & Outbound

694. The majority of EU's metal products tonnage imports were from Other Asia and China in 1995. However, by 2005 China lost market share as North America and the Mediterranean drew closer to levels set by Other Asia. Other Asia will continue to be the largest supplier in 2015 with expected annual growth of 7.8% (CAGR) between 2005 and 2015. Australia and China will also experience strong rates of growth- each posting rates of 4.9% and 4.6% (CAGR) over the forecast horizon.

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but with one less vessel. This vessel can then be related to another operator, for instance on a 12 months time charter to HUAL.

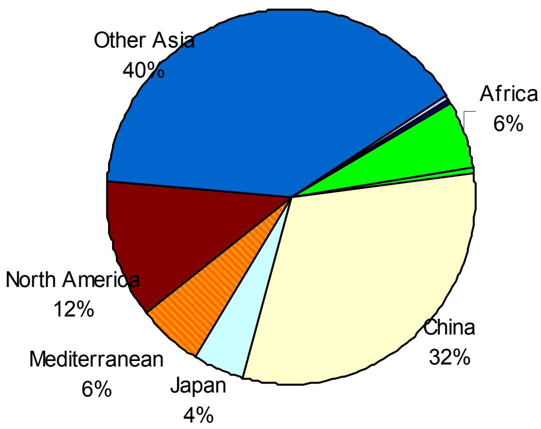
[140] The metal products category also contains HS codes: 7308-7315, 7317, 7318, 7320, 7321, 7323, 7413-7419, 7508, 7610-7616, 8101-8109, 8112, 8201-8215, 8301-8311.

Metal Products Tonnage Inbound to the EU25

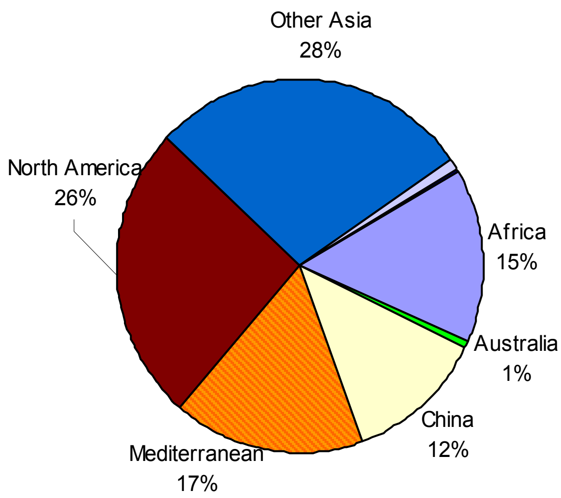
	1995	2005
Africa	20,330	27,512
Australia	1,347	1,294
China	106,255	22,090
Japan	15,290	101
Mediterranean	20,295	31,013
North America	40,945	47,250
Other Asia	134,754	52,192
South America	1,364	1,690

Metal Products Tonnage Inbound to the EU25; 1995, 2005

1995



2005

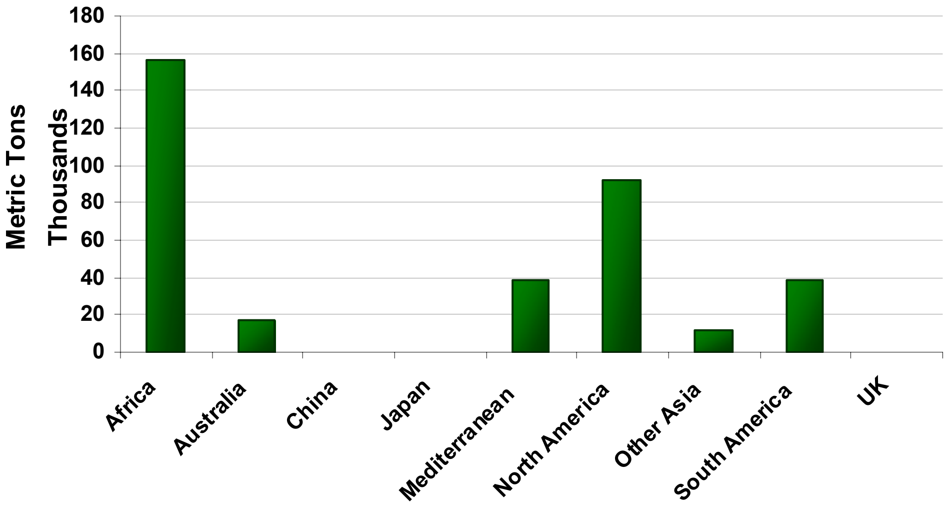


695. Metal products tonnage outbound to the EU25 was dominated by Africa in 2005, followed by North America. By 2015, Africa and North America will continue to be the largest 2 recipients of metal products from the EU. These two regions, coupled with Other Asia will also be the fastest growing regions over the forecast period. Metal product exports from the EU to Africa, North America and Other Asia are projected to grow at compound annual rates of 4.0%, 3.3%, and 4.5%, respectively.

Metal Products Tonnage Outbound from the EU25

	1995	2005
Africa	136,212	156,313
Australia	11,848	17,435
China	11,752	0
Japan	9,063	42
Mediterranean	34,792	38,087
North America	143,478	92,050
Other Asia	110,988	11,370
South America	30,455	38,858

Metal Products Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

696. The largest (in terms of tonnage) intra-Europe trading routes of metal products over the past five years (annual average of 2000-2005) include:

Baltics to Northwest Europe	= 650,000 tonnes
Northwest Europe to Scandinavia	= 541,000 tonnes
Northwest Europe to the Baltics	= 326,000 tonnes
Scandinavia to Northwest Europe	= 273,000 tonnes

697. The routes above will remain the largest routes through to 2015, with growth along these routes being moderate. Exports from the Baltics to Northwest Europe are expected to grow at 5.6% (CAGR) between 2005 and 2015, with 1.3 million export tonnes in 2015.

2.4.12.2 Demand Characteristics

698. Since metal products are a higher value-added good than their raw metal inputs (which are traded on global markets), their demand and prices are more unique to the country of origin. Prices for metal products, taken as an aggregate grouping, tend to be quite high.

699. No further information is available regarding the demand characteristics for this commodity.

2.4.13 *Petroleum Coke & Other Residual Petroleum Products (HS 2713 & 2708)*

2.4.13.1 Geographical Scope

(a) Global Routes

700. The largest export routes of petroleum coke products are dominated by the United States. However, trade along the top five routes only represent 24% of total petroleum coke products tonnage traded in the world. Total world trade on neo-bulk/general cargo vessels in 2005 is estimated at 687,000 tonnes. The world's largest (in terms of tonnage) trading routes over the past five years (annual average of 2000-2005) include:

United States to Japan = 50,000 tonnes
United States to Spain = 39,000 tonnes
United States to Italy = 31,000 tonnes
United States to Brazil = 24,000 tonnes
Venezuela to the United States = 22,000 tonnes

701. The top 5 routes listed above will remain the top 5 in 2015. Growth rates along all routes will be modest, with the fastest growth on any of the above routes expected at 1.8% per year (CAGR) between 2005 and 2015. The United States is expected to export 46,000 tonnes to Japan in 2015, but will still represent the largest route.

(b) EU Inbound & Outbound

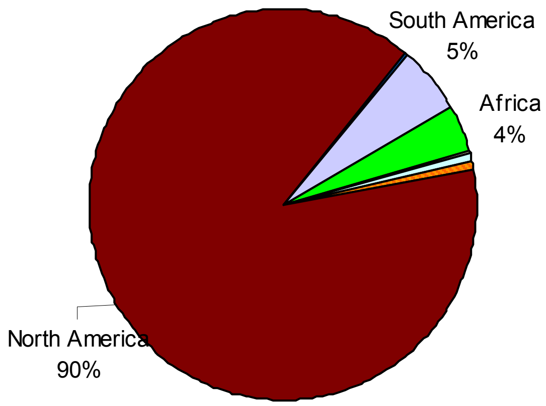
702. The majority of EU's petroleum coke tonnage imports were from North America in 1995 and 2005. By 2005 South America also grew to become a significant supplier to the EU, but North American outbound tonnage to the EU in 2005 was still more than twice tonnage from South America. These two countries will continue to dominate in 2015, each growing at rates of 1.6% and 1.9% (CAGR) between 2005 and 2015.

Petroleum Coke Tonnage Inbound to the EU25

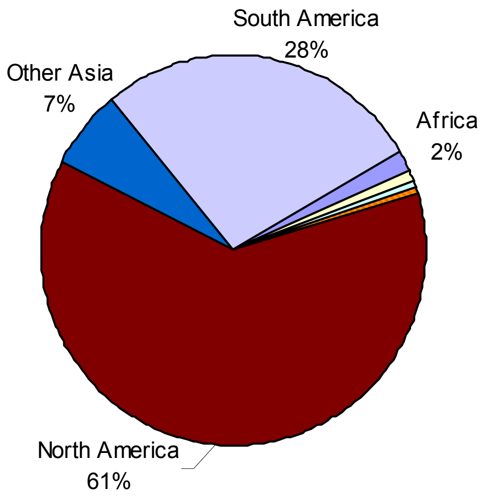
	1995	**2005**
Africa	6,916	3,428
Australia	1	7
China	595	1,476
Japan	769	960
Mediterranean	1,528	1,368
North America	156,324	123,509
Other Asia	563	13,059
South America	9,642	54,607

Petroleum Coke Tonnage Inbound to the EU25; 1995, 2005

1995



2005

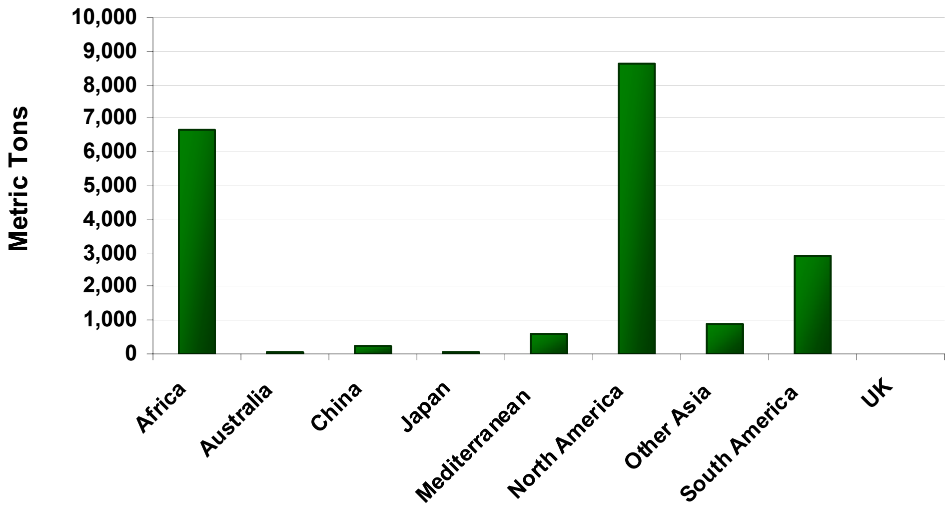


703. Petroleum coke tonnage outbound to the EU25 was dominated by North America and Africa in 2005. These regions will continue to receive the largest amounts of petroleum coke tonnage from the EU in 2015, with North America growing at a CAGR of 1.5% and Africa posting a CAGR of 0.8% between 2005 and 2015. The fastest growth will come in EU exports to China, which will grow at an annual 3.1% (CAGR) over the forecast horizon. Neo-bulk Steel Tonnage Outbound from the EU25; 2005

Petroleum Coke Tonnage Outbound from the EU25

	1995	2005
Africa	3,738	6,679
Australia	29	87
China	133	218
Japan	90	73
Mediterranean	1,774	566
North America	4,326	8,623
Other Asia	1,766	906
South America	1,533	2,909

Petroleum Coke Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

704. The largest (in terms of tonnage) intra-Europe trading routes of petroleum coke products over the past five years (annual average of 2000-2005) include:

Northwest Europe to Scandinavia	= 660,000 tonnes
Scandinavia to Northwest Europe	= 479,000 tonnes
Baltics to Northwest Europe	= 153,000 tonnes
Northwest Europe to the Baltics	= 148,000 tonnes

705. The routes above will remain the largest routes through to 2015, with growth along these routes being mature and slow. Exports from Northwest Europe to Scandinavia are expected to grow at 0.6% (CAGR) between 2005 and 2015, with 759,000 export tonnes in 2015.

2.4.13.2 Demand Characteristics

706. Petroleum coke is a by-product of the oil refining process and therefore, will be produced regardless of the market price or demand for it. Prices are unique to the country of origin, and do influence export competitiveness. However, transportation costs of this commodity are significant and feed into the final cost of the good. As a result, decisions of where to import the commodity from are determined both by the raw price of the commodity, as well as by the transportation costs.

707. No further information is available regarding the demand characteristics for this commodity.

2.4.14 *Steel (HS 7201-7217)*

708. Global steel supply is relatively balanced. Low production in 2005 outside of China caused thin inventory early in the year, but excess production in China meant imports were available. Production is up sharply in almost every region as inventory is replenished and steel makers reap the benefits of current high prices. Demand continues to rise in the United States, China, and Central/Eastern Europe, with China acting as the main demand driver, with infrastructure, consumer durables, and fabrications for export. Central and Eastern Europe are benefiting from exports to Western Europe and growing internal demand. Steel supply has improved compared to the first half of 2006, and in general, higher global production has allowed supply to better meet demand.

2.4.14.1 Geographical Scope

709. While a variety of steel products move on neo-bulk or general cargo vessels, steel pipes and rods under 40 ft long and 8 ft in diameter can and do move in containers. The following analysis of steel refers to processed steel that travels in neo-bulk/general cargo vessels.

(a) Global Routes

710. Asia represents a significant amount of neo-bulk steel trade both on the export and import side. The world's largest (in terms of tonnage) trading routes of steel over the past five years (annual average of 2000-2005) include:

Japan to China = 954,000 tonnes
Japan to South Korea = 861,000 tonnes
Brazil to the United States = 681,000 tonnes
Taiwan to China = 489,000 tonnes
Russia to China = 399,000 tonnes

711. The top 4 routes listed above will remain the top 4 in 2015. The Russia to China route will slide to the 6th largest route by 2015 with exports from China to the United States moving into the 5th largest route with 823,000 tonnes shipped in 2015

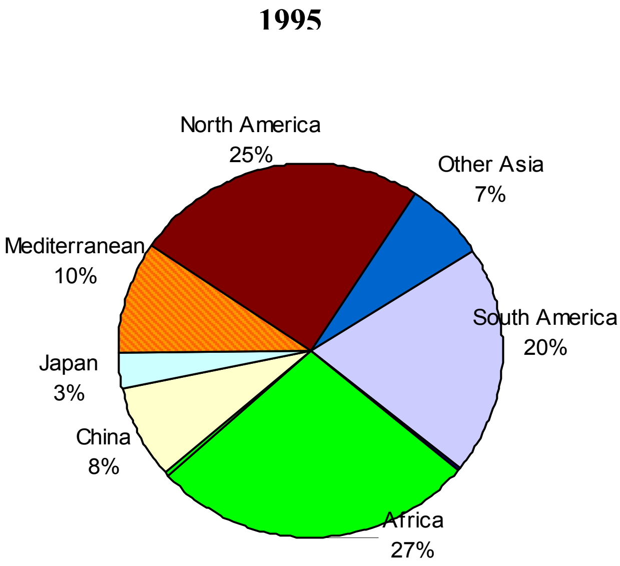
(b) EU Inbound & Outbound

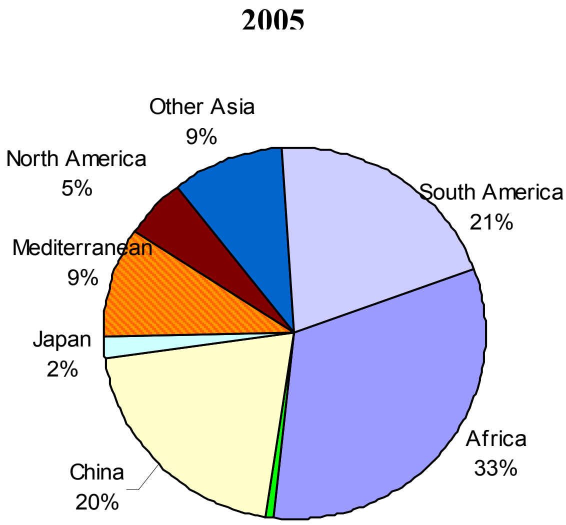
712. As is evident in the figure and the table below, significant shifts occurred in the origins of neo-bulk steel tonnage inbound to the EU. North America lost 20% of its market share between 1995 and 2005 while China and Africa both gained share. With moderate growth rates of 2.3% and 3.9% (CAGR) between 2005 and 2015, Africa and China will continue to be the primary suppliers of this commodity grouping to the EU.

Neo-bulk Steel Tonnage Inbound to the EU25

	1995	2005
Africa	195,678	410,808
Australia	1,464	8,648
China	58,002	256,598
Japan	23,441	27,566
Mediterranean	69,851	118,938
North America	177,031	65,090
Other Asia	51,303	119,827
South America	141,569	261,597

Neo-bulk Steel Tonnage Inbound to the EU25; 1995, 2005



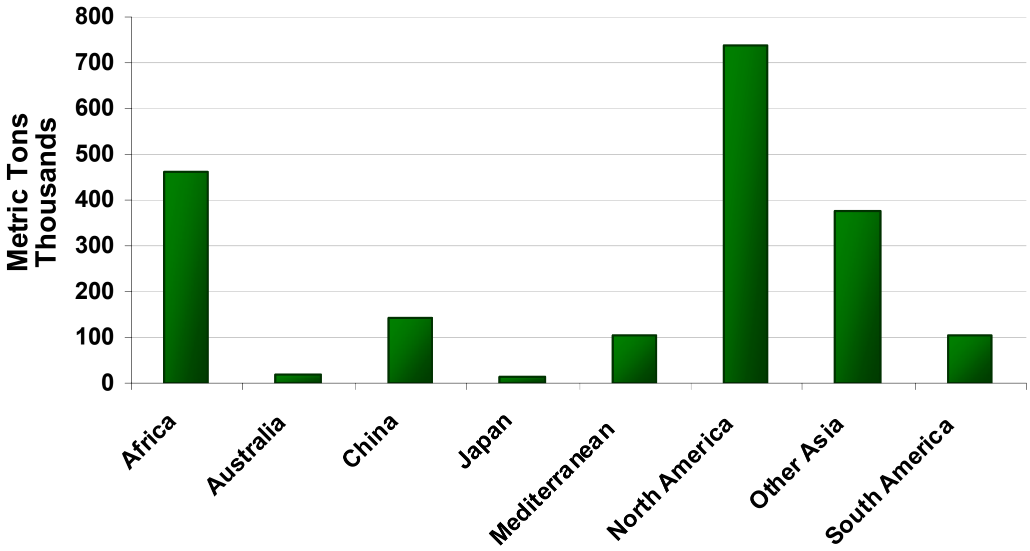


713. North America and Africa received the largest amount of the EU's outbound steel tonnage in 2005 and are expected remain the largest recipients in 2015, even with annual growth of 0.9% and 3.0% expected for North America and Africa (respectively) between 2005 and 2015.

Neo-bulk Steel Tonnage Outbound from the EU25

	1995	2005
Africa	417,627	462,064
Australia	17,943	19,569
China	94,299	143,927
Japan	40,350	14,470
Mediterranean	146,688	103,462
North America	846,560	739,776
Other Asia	659,147	376,232
South America	116,415	102,789

Neo-bulk Steel Tonnage Outbound from the EU25; 2005



(c) Intra-Europe Trade Routes

714. The largest (in terms of tonnage) intra-Europe trading routes of steel and iron ore over the past five years (annual average of 2000-2005) include:

Black Sea to the Mediterranean	= 4.1 million tonnes
Northwest Europe to Scandinavia	= 4.1 million tonnes
Scandinavia to Northwest Europe	= 3.9 million tonnes
Baltics to Northwest Europe	= 3.7 million tonnes
Black Sea to Northwest Europe	= 1.5 million tonnes
Northwest Europe to the Baltics	= 1.4 million tonnes

715. The routes above will remain the largest routes through to 2015, with exports from the Black Sea to the Mediterranean growing at a compound annual rate of 2.0% between 2005 and 2015, to reach 6.0 million tonnes in 2015.[141]

2.4.14.2 Demand Characteristics

716. Steel prices are unique to the country of origin, and do influence export competitiveness. As a result, decisions of where to import the commodity from are determined both by the raw price of the commodity, as well as by the transportation costs. Because of the growing trend in containerization, modes will compete on price to gain business. Thus, increases in bulk prices may increase the attractiveness of containerized transit.

717. Steel products vary in their degree of elasticity. More specialised steel products, such as those carried in neo-bulk and general cargo vessels, tend to be price inelastic. These products are high-valued added products with limited applications and few substitutes. Thus, users of these products are willing to absorb higher prices.

718. No further information is available regarding the demand characteristics for this commodity.

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[141] See footnote 133.

2.4.15 *Non-Ferrous Metals (HS 7402-7406, 7106, 7110)*[142]

719. The non-ferrous metals category is fairly broad and contains products that move dry bulk as well as neo-bulk/general cargo. The analysis presented below related to neo-bulk/general cargo tonnage.

2.4.15.1 Geographical Scope

(a) Global Routes

720. The world's largest (in terms of tonnage) trading routes of steel over the past five years (annual average of 2000-2005) include:

Russia to the United States	= 91,000 tonnes
Taiwan to China	= 98,000 tonnes
China to South Korea	= 82,000 tonnes
Malaysia to Taiwan	= 64,000 tonnes
Malaysia to China	= 60,000 tonnes

721. Exports from Malaysia to Taiwan and China have emerged recently as major exporters, exporting only 3,500 and 1,000 tonnes to Taiwan and China in 1995. The five routes listed above will remain in the top five in 2015. After achieving annual growth of 8.4% (CAGR) between 2005 and 2015, exports from Malaysia to China will reach 201,000 tonnes in 2015. Growth from Taiwan to China and from China to South Korea will each be strong with expected rates of 5.8% and 5.3% (CAGR) between 2005 and 2015.

(b) EU Inbound & Outbound

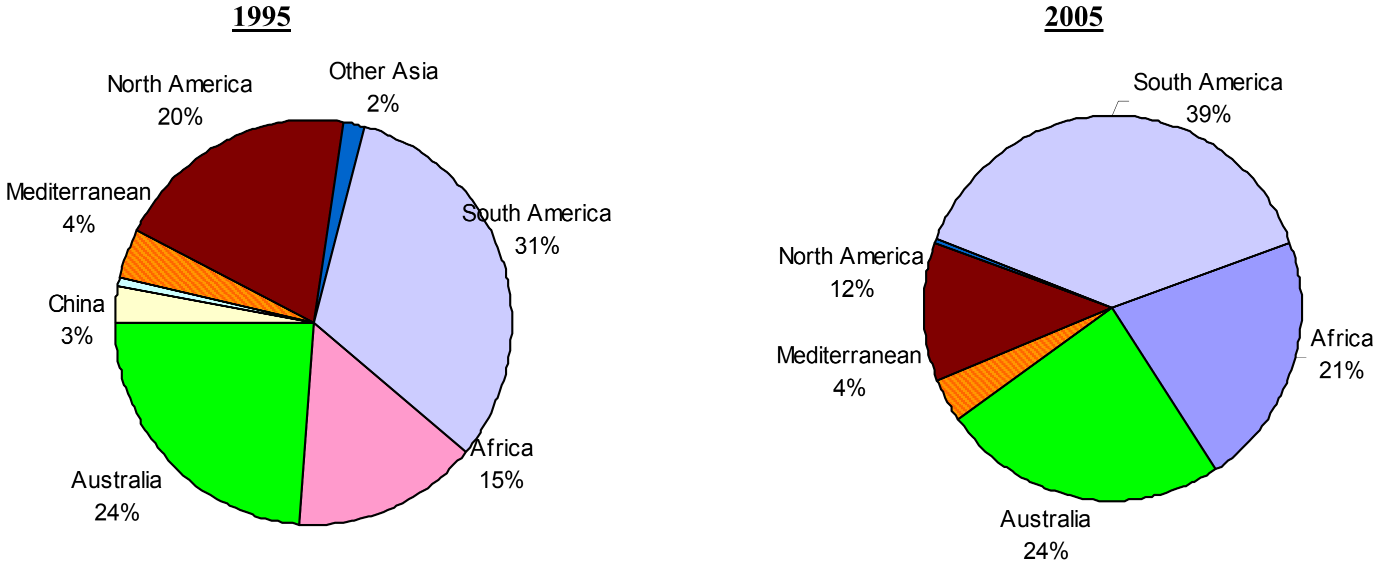
722. The majority of EU's non-ferrous metals tonnage imports on neo-bulk/general cargo vessels were from South America and Australia in 1995 and 2005. Africa and Australia are both significant EU suppliers, though both countries suffered a decline in their tonnage sent to the EU market between 1995 and 2005.

Non-Ferrous Metals Tonnage Inbound to the EU25

	1995	**2005**
Africa	19,299	25,597
Australia	100	0
China	0	0
Japan	593	169
Mediterranean	39,350	4,525
North America	293	0
Other Asia	38	0
South America	0	0

[142] The non-ferrous metals category includes commodities other than those listed above. A complete list is available upon request.

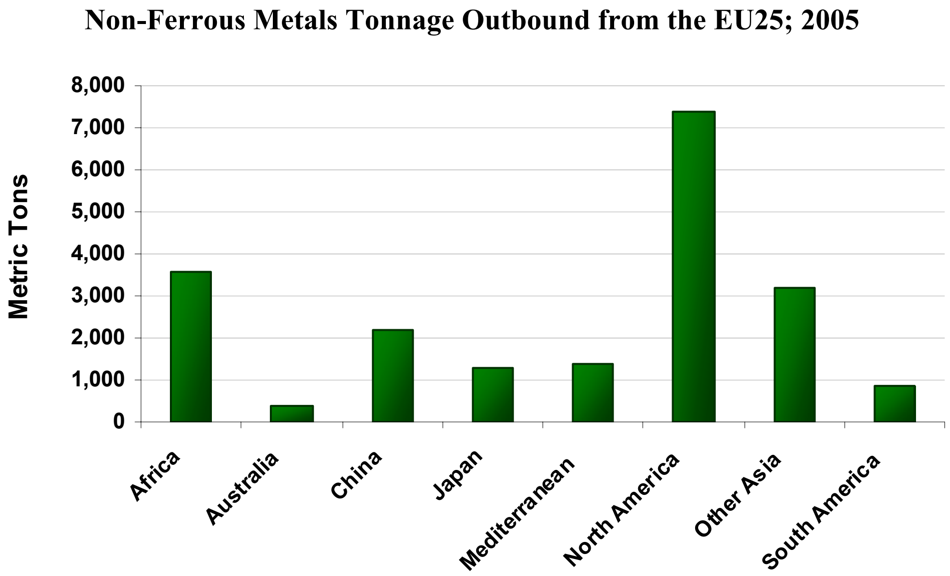
Non-Ferrous Metals Tonnage Inbound to the EU25; 1995, 2005



723. Non-ferrous metals tonnage outbound to the EU25 was dominated by North America in 2005 but supported by Africa and Other Asia as well. Although growth in EU exports of non-ferrous metals to North America will only grow at an annual rate of 1.5% (CAGR) between 2005 and 2015, North America will continue to receive the highest amount of tonnage from the EU in 2015 at 8,500 tonnes. Non-ferrous metals shipments to Africa will top 5,800 tonnes in 2015 with China trailing closely with 5,200 tonnes.

Non-Ferrous Metals Tonnage Outbound from the EU25

	1995	**2005**
Africa	3,951	1,968
Australia	0	2
China	2,168	0
Japan	25	0
Mediterranean	546	1,362
North America	229	242
Other Asia	30,852	23,940
South America	562	39



(c) Intra-Europe Trade Routes

724. The largest (in terms of tonnage) intra-Europe trading routes of non-ferrous metals over the past five years (annual average of 2000-2005) include:

Scandinavia to Northwest Europe	= 1.1 million tonnes
Baltics to Northwest Europe	= 997,000 tonnes
Black Sea to Northwest Europe	= 862,000 tonnes

725. The routes above will remain the largest routes through to 2015, with exports from Scandinavia to Northwest Europe growing at a compound annual rate of 1.4% between 2005 and 2015, to reach 1.1 million tonnes in 2015.[143]

2.4.15.2 Demand Characteristics

726. Non-ferrous metals prices are influenced heavily by transportation costs, though the raw price of the good in the country of production influences the price as well.

727. No further information is available regarding the demand characteristics for this commodity.

2.5 VESSEL SIZES AND RESTRICTIONS BY COMMODITY

728. The table below lists vessel sizes used for each commodity. In addition to listing the vessel sizes that are primarily used by each commodity, notes relating to vessel size restrictions are also provided. Generally speaking, most commodities *can* travel in most vessel sizes, even if they do not for economic reasons. The only exceptions are for finished products that may not fit in a container and therefore cannot travel on any vessel, such as large machinery or long logs.

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143 See footnote 133.

Commodity	Vessel Sizes (dwt)	Vessel Restrictions
Oil	60-80K; tanker	Must travel in tanker vessels; no size restrictions
	80-120K; tanker	
	120-200K; tanker	
	200-315K; tanker	
LPG	<7,500m³ Fully-Pressurised tanker	Must travel in tanker vessels; no size restrictions
	500-22,000m³ Semi-Refrigerated tanker	Requires unique vessel types
	20,000-40,000 m³; Fully-Refrigerated tanker	
	60,000 m³; Fully-Refrigerated tanker	
	84,000 m³; Fully-Refrigerated tanker	
Natural Gas (LNG)	70-165K m³	Must travel in tanker vessels; no size restrictions
Animal & Vegetable Oils	5-80K; small tankers	No size restrictions
Inorganic Chemicals	5-40K; small chemicals tankers	No size restrictions
Organic Chemicals	5-40K; small chemicals tankers	No size restrictions
Grain	10-50K; dry bulk vessel	No size restrictions
	50-80K; dry bulk vessel	
Sugar	10-60K; dry bulk vessel	No size restrictions
Oil Seeds & Soybeans	Handysize; dry bulk vessel	No size restrictions
	50-80K; dry bulk vessel	
Animal Feed	Handymax; dry bulk vessel	No size restrictions
	50-80K; dry bulk vessel	
Coal	10-50K; dry bulk vessel	No size restrictions
	50-80K; dry bulk vessel	
	80-200K; dry bulk vessel	
Briquettes, Peat, Coke	10-50K; dry bulk vessel	No size restrictions
	50-80K; dry bulk vessel	
	80-200K; dry bulk vessel	
Copper, Alumina, Bauxite, Ores	10-60K; dry bulk vessel	No size restrictions
	60-80K; dry bulk vessel	
	80-200K; dry bulk vessel	
Fertilisers	<80K; dry bulk vessel	No size restrictions
Phosphates	<80K; dry bulk vessel	No size restrictions
Cement	<60K; dry bulk vessel	No size restrictions
Aggregates	<80K; dry bulk vessel	No size restrictions
Non-Ferrous Metals/Aluminium	<60K; dry bulk vessel	No size restrictions
Iron Ore	10-365K; dry bulk vessel	No size restrictions

Steel	10-60K; general cargo	No vessel size restrictions
	Containers	Not all steel products will fit into a container, and will have to travel in general cargo
Refrigerated Fruits & Vegetables	Refrigerated vessels	No size restrictions
	Containers	Require special vessel or refrigerated container
Non-Refrigerated Fruits & Vegetables	Palletized on general cargo ships	No size restrictions
	Containers	
Meat, Dairy, Eggs	Refrigerated vessels	No size restrictions
	Containers	Require special vessel or refrigerated container
Pulp	Forest product vessels	No size restrictions
	Containers	
	Ro-ro	
	General cargo vessels	
Waste Paper	Containers	No size restrictions
	Open-Hatch box shaped vessels	
Paperboard & Products	Open-Hatch box shaped vessels	No size restrictions
	Containers	
	Ro-ro	
Cork & Wood	Log-fitted bulk carriers	Some forest products (certain sized logs) will not fit in containers
	Containers	
	Ro-ro	
Agricultural Machinery	PCC (PCTC)	Some agricultural machinery will not fit in any vessel other than Ro-ros with adjustable levels
Motor Vehicles	PCC (PCTC)	
Metal Products	General cargo vessels	Some metal products will not fit in containers
	Containers	
Pet Coke	10-80K; dry bulk vessel	No size restrictions
Non-Ferrous Metals (neo-bulk)	General cargo vessels	No size restrictions
	Open-Hatch box shaped vessels	
	Ro-ro	
	Containers	

2.6 PORTS OF LOADING AND DISCHARGE BY COMMODITY

729. The European Commission requested information relating to the ports of loading and discharge by commodity around the world. Unfortunately, this information is highly difficult to obtain outside of a handful of commodities. In fact, because ship operators can choose from a variety of ports of call, this data can only be obtain from vessels that hit the charter market. The commodities for which ports of loading and/or discharge information are available are found in the table below.

	Loading	Discharge
Oil	**Saudi Arabia** – Ras Tanura and Yanbu	N/A
	Kuwait – Mina al Ahmadi	
	Oman – Mina al Fahal	
	Qatar – Halul Island, Messaieed	
	Russia – Novorossiysk	
	Nigeria – Bonny, Brass River, Escravos, Forcados, Qua Iboe	
	Venezuela – Puerto la Cruz, Puerto Miranda, La Salina, Punta Cardon	
Animal & Vegetable Oils	N/A	N/A
Inorganic Chemicals	N/A	N/A
Organic Chemicals	N/A	N/A
Grain	**United States** - Chicago, Galveston, Houston, New Orleans, Norfolk, Philadelphia, Seattle, Tacoma, Tampa	N/A
	Argentina - Bahia Blanca, Buenos Aires	
	Brazil - Paranagua, Porto Alegre, Santos, Tubarao	
	Australia - Adelaide, Albany, Brisbane, Fremantle, Geelong, Geraldton, Newcastle.	
	Canada - Vancouver, Duluth	
Sugar	N/A	N/A
Oil Seeds & Soybeans	N/A	N/A
Animal Feed	N/A	N/A
Coal	**Australia** – Abbot Point, Brisbane, Dalrymple, Gladstone, Hay Point, Newcastle, Kembla	**Rotterdam**
	China- Qinhuangdao, Rizhao, Xingang	**Antwerp**
	Indonesia- Balikpapan, Banjarmasin, Bengkulu, Tanah Merah, Telok Bayer	**Dunkirk**
	Poland – Gdansk, Gdynia, Swinoujscie	**Japan** - All major ports
	United States – Baltimore, Hampton Roads, Mobile, Long Beach, Los Angeles	
	Colombia - Puerto Bolivar, Cienaga	
	Canada - Roberts Bank, Vancouver, Port Cartier	

	South Africa - Richards Bay	
	Russia - Murmansk	
Briquettes, Peak, Coke	N/A	N/A
Alumina, Bauxite	**Australia** – Bunbury, Gladstone, Gove, Kwinana, Weipa	N/A
	Brasil – Trombetas, Vila do Conde	
	India – Mormugao, Vizakhapatnam	
	Jamaica – Port Esquivel, Port Kaiser, Port Rhoades, Rocky Point	
Other Ores	**Trinidad** – Chaguaramas	N/A
	Brasil – Macapa, Ponta da Madeira, Ponta do Ubu, Tubarao	
	South Africa – Port Elizabeth, Saldanha Bay	
	India – Chennai, Mormugao, Paradip, Vizakhapatnam	
Fertilisers & Phosphates	**Egypt** – Safaga, Hamrawein, Kosseir	N/A
	Morocco – Casablanca, Safi, Jorf Lasfar	
	Tunisia – Gabes, La Goulette, Sfax	
	South Africa – Richards Bay	
	United States – Jacksonville, Morehead City, Tampa	
Cement	N/A	N/A
Aggregates, Sulphur	**Saudi Arabia** – Jubail, Rabigh	N/A
	Ukraine – Mariupol, Yuzhnyy	
	United States – Long Beach, Stockton	
Non-Ferrous Metals/Aluminium	N/A	N/A
Iron Ore	**Brasil** - Tubarao, Sepetiba, Paranagua, Ponta da Madeira, Ponta do Ubo	**Rotterdam**
	Australia - Dampier, Port Walcott, Port Hedland	**Antwerp**
	South Africa - Saldanha Bay	**UK** - Port Talbot, Redcar
	Mauritania - Nouadhibou	**China** - Baoshan, Beilun
		Japan - Kobe, Yokohama
Steel	N/A	N/A
Refrigerated Fruits & Vegetables	N/A	N/A
Non-Refrigerated Fruits & Vegetables	N/A	N/A
Meat, Dairy, Eggs	N/A	N/A
Pulp	N/A	N/A
Waste Paper	N/A	N/A
Paperboard & Products	N/A	N/A

Cork & Wood	N/A	N/A
Agricultural Machinery	N/A	N/A
Motor Vehicles	N/A	N/A
Metal Products	N/A	N/A
Pet Coke	N/A	N/A
Non-Ferrous Metals (neo-bulk)	N/A	N/A

3. MARKETS IN DETAIL – SUPPLY ANALYSIS[144]

3.1 THE LIQUID BULK MARKET

3.1.1 *The Crude Oil Tanker Market*

730. "Oil tankers" are tankers designed for carrying crude oil, refined petroleum products and various types of feedstocks (for petrochemical purposes). The commodities carried by oil tankers are:

- Crude oil: a complex mixture of various hydrocarbons. Crude oil as such has limited uses and is almost universally refined through distillation and treatment in refineries into various petroleum products. Global output of crude oil is some 85 million barrels per day (approx. 4.25 bill. tonnes per year) and approximately 44% is transported by sea.

- (Stabilised) Condensates: also known as "natural gasoline" – is a light oil extracted from gas processing and used as feedstock in refineries and petrochemical complexes.

- Petroleum Products: common name for all products derived from refining crude oil which my be divided into clean and dirty petroleum products (CPP and DP):

    - Gasoline;
    - Mid distillates (*e.g*. Diesel oil);
    - Kerosene (Jet fuel);
    - Residual Fuel oil (fuel oil, marine bunkers) and
    - Naphtha

731. These are the main products carried by oil tankers. Total seaborne trade in these products amounts to about 425 million tonnes per year.

732. The oil tanker markets are truly global in the sense that crude oil and oil products are shipped between all corners of the world. The oil market is, in general, a trading market and the movement of a cargo is the result of the arbitrage opportunities available. However, there is a relatively set main trading pattern following the fact that, especially, crude oil is not produced in sufficient quantities in the consuming areas. For instance, the United States meet some 60% of their crude oil demand by imports through pipelines from neighbouring Canada and Mexico, but by tankers from all other sources. A mainstay in the crude oil trade are of course exports from the Middle East Gulf to both Atlantic and Pacific destinations. This is similar for West African exports whereas North Sea, FSU and South American crude exports are of more regional character. However, we see an increasing trend in exports from the Atlantic to the Pacific. This section deals with the oil tanker market for crude oil, chemicals and CPP/DPP products.

733. In the oil products trades there are also main trading routes. *E.g*. trans-Atlantic between Europe and North America carrying gasoline to the USA and Diesel oil to Europe. The Pacific market is dominated by oil products exports from the Middle East Gulf and South East Asia to East Asia.

734. As virtually no new refineries are built in Europe and North America, we observe that several crude oil producing nations are building export oriented refineries in order supply value added goods instead of raw materials.

[144] Source: Fearngas, when other sources are used they are mentioned explicitly for every section.

735. The tanker market is typically a spot market driven by imbalances between supply and demand. CoAs are common, but usually based on a market related freight rate. That is, the volumes and regularity of shipments are relatively precisely agreed, but the freight rate is adjusted for each cargo transported in accordance with a pre-defined formula, or benchmark.

3.1.1.1 Barriers to entry

736. The tanker market has very low barriers to entry, as there is an active second hand market.

737. A vessel could be ordered at a shipyard for delivery in 2010 or be purchased in the second hand market, with a minimum delivery time of four weeks. The second hand market for both dirty and clean tankers is highly liquid, and there are a number of transactions taking place every year. The activity in the second hand market is illustrated in the table below.

Second hand tanker sales 1997-2005

	Size Groups in '000 dwt								**Total**
	10-25	25-40	40-50	50-80	80-120	120-200	200-320	320+	**No.**
1997	n.a.	42	20	29	53	20	14	7	185
1998	n.a.	31	4	14	37	10	16	5	117
1999	n.a.	35	11	10	34	19	11	1	121
2000	n.a.	41	15	18	51	25	28	1	179
2001	n.a.	57	19	27	32	28	34	2	199
2002	n.a.	31	21	16	30	18	16	6	138
2003	n.a.	65	54	48	73	56	47	2	345
2004	n.a.	69	73	42	81	38	76	7	386
2005	n.a.	11	16	22	33	41	19	0	142

Source: Fearnleys (2006)

738. As can be seen from the table, the largest number of transactions occurred in 2004 (386), when the freight market was strong.

739. Both the technical and commercial management of the vessel can easily be outsourced.

3.1.1.2 The oil tanker fleet

740. The oil tanker fleet can broadly be divided into two groups: "Dirty" tankers and "Clean" tankers. This sub-division is based on the characteristics of the intended cargoes and the main difference is that clean tankers have coated (painted) cargo tanks whereas the dirty tankers normally do not. This has to do with the fact that dirty products, like crude oil and fuel oil, often carry residues which sediments at the bottom of the cargo tanks. Furthermore, these products are dark in colour. This may lead to contamination of "clean" products (like gasoline, or jet fuel) or may change the colouring of the "clean" products. Thus, vessels designed for carrying clean products are usually designed with unobstructed surfaces in the cargo holds as well as coated surfaces in order to make cleaning of tanks in between voyages as simple and quick as possible.

741. The global oil tanker fleet (larger than 10,000 dwt) consists of about 3,500 vessels with a combined capacity of 341.6 million dwt. The "dirty" fleet consists of about 1,587 ships with a

combined capacity of 254.3 million dwt and the "clean" fleet consists of 1,863 vessels totalling 81.8 million dwt.[145]

Tanker fleet development

Bulk Carrier / Tanker		**Year End**				**01-Nov-06**	
Fleet ..m. Dwt		**2002**	**2003**	**2004**	**2005**	**No.**	**m.Dwt**
VLCC	**200,000+**	124.7	125.3	130.8	137.9	482	141.0
Suezmax	**120-200,000**	41.8	43.2	45.4	49.0	348	52.4
Aframax	**80-120,000**	55.0	59.4	62.4	67.8	700	71.1
Panamax	**60-80,000**	14.7	14.9	16.4	18.9	305	21.1
Small	**10-60,000**	59.2	61.2	65.8	70.5	2,400	75.0
of which: Specialised >10,000		26.3	29.6	33.7	37.6	1,374	40.0
<10,000		9.1	9.4	9.5	9.9	1,995	10.1
TOTAL FLEET	**>10,000**	**295.3**	**304.0**	**320.8**	**344.2**	**4,235**	**360.6**
Combos in Oil		10.4	7.2	5.3	5.5	49	4.0
Laid-up		0.4	0.2	0.4	0.4	22	1.1
Storage		3.0	3.0	2.8	2.8	14	1.5

Source: Clarkson Shipping Intelligence Weekly, 24 November 2006

742. The various size groups and two main types are usually referred to by their generic names. The following table shows a common breakdown:

Type	**Generic name**	**Size range dwt**	**Nos of vessels**	**Total Dwt. (mill.)**
Dirty	VLCC	200,000 +	479	139.6
	Suezmax	120-200,000	343	51.6
	Aframax	80-120,000	551	56.23
	Panamax	60-80,000	136	9.22
	Handysize	10-60,000	132	4.32
Clean	LR2	80-120,000	148	14.7
	LR1	60-80,000	162	11.5
	MR	25-60,000	1208	48.7
	Handysize	10-25,000	334	5.25

Source: Fearnleys (2006)

145 Fearnleys' Bulk Fleet Update, September 2006.

The Oil tanker orderbook

Type	Generic name	Size range dwt	Nos of vessels	Total Dwt. (mill.)
Dirty	VLCC	200,000 +	165	50.59
	Suezmax	120-200,000	95	14.99
	Aframax	80-120,000	136	14.88
	Panamax	60-80,000	16	1.15
	Handysize	10-60,000	2	0.08
Clean	LR 2	80-120,000	61	6.79
	LR1	60-80,000	116	8.72
	MR	25-60,000	465	21.2
	Handysize	10-25,000	166	2.38

Source: Fearnley Bulk Fleet Update (September 2006)

743. As of September 2006, the oil tanker orderbook equals about 35.5% of the current existing fleet.

3.1.1.3 Major tanker owners

744. The maximum share of any tanker segment controlled by one owner is 10.2% which the market share of the Fredriksen Group (primarily, Frontline Ltd.). This group also have the largest share of the entire tanker fleet (4.2%). The following tables show the ten largest owners in each of the segments.

745.

Very Large Crude Carriers (VLCC) 200,000 dwt+					
Rank	Company	Nos of vessels	DWT	Share of VLCC Fleet	Share of tanker fleet
1	Fredriksen Group	48	14,307,025	10.2 %	4.2 %
2	Mitsui OSK Lines	37	10,789,271	7.7 %	3.2 %
3	Nippon Yusen Kaisha (NYK)	28	8,046,976	5.8 %	2.4 %
4	Angelicoussis Group	21	6,265,081	4.5 %	1.8 %
5	Bergesen Worldwide (BWW)	20	5,859,431	4.2 %	1.7 %
6	Vela International	19	5,772,358	4.1 %	1.7 %
7	Euronav (UK) Agencies	17	5,702,044	4.1 %	1.7 %
8	Nat. Iranian Oil Tanker Co. (NITC)	15	4,491,285	3.2 %	1.3 %
9	Overseas Shipholding Group (OSG)	13	3,991,948	2.9 %	1.2 %
10	Zodiac Maritime Agency	12	3,397,322	2.4 %	1.0 %

Source: Clarkson (October 2006)

Suezmax Tankers 120-200,000 dwt					
Rank	Company	Nos of vessels	DWT	Share of SuezmaxFleet	Share of tanker fleet
1	Teekay Shipping	23	3,305,848	6.4 %	1.0 %
2	Fredriksen Group	21	3,153,419	6.1 %	0.9 %
3	Schoeller Holdings	13	2,068,087	4.0 %	0.6 %
4	Sovcomflot JSC	13	2,055,678	4.0 %	0.6 %
5	Knutsen OAS	13	1,774,689	3.4 %	0.5 %
6	Top Tankers	13	1,936,383	3.8 %	0.6 %
7	Zodiac Maritime Agy.	13	1,952,607	3.8 %	0.6 %
8	Euronav (UK) Agencies	12	1,839,189	3.6 %	0.5 %
9	Dynacom Tankers Management	11	1,684,030	3.3 %	0.5 %
10	Thenamaris Management	9	1,341,525	2.6 %	0.4 %

Source: Clarkson (October 2006)

Aframax Tankers 80-120,000 dwt					
Rank	Company	Nos of vessels	DWT	Share of Aframax Flee	Share of tanker fleet
1	Teekay Shipping	42	4,408,868	6.2 %	1.3 %
2	MISC	37	3,818,566	5.4 %	1.1 %
3	Novorossiysk Shipping	21	2,260,032	3.2 %	0.7 %
4	Minerva Marine	17	1,777,962	2.5 %	0.5 %
5	BP Plc.	16	1,800,248	2.5 %	0.5 %
6	Dynacom Tankers Management	15	1,520,276	2.1 %	0.4 %
7	Centrofin Management	13	1,307,266	1.8 %	0.4 %
8	Overseas Shipholding Group (OSG)	13	1,345,700	1.9 %	0.4 %
9	Prime Marine Management	12	1,028,008	1.4 %	0.3 %
10	Zodiac Maritime Agy.	11	1,078,568	1.5 %	0.3 %

Source: Clarkson (October 2006)

Panamax Tankers 60-80,000 dwt					
Rank	Company	Nos of vessels	DWT	Share of Panamax Flee	Share of tanker fleet
1	China Ocean Shipping Co. (COSCO)	15	1,019,735	4.1 %	0.3 %
2	China Shipping Group	14	961,851	3.8 %	0.3 %
3	Overseas Shipholding Group (OSG)	13	904,785	3.6 %	0.3 %
4	Shipping Corp. Of India (SCI)	11	738,926	2.9 %	0.2 %
5	Pleiades Shipping	10	617,000	2.5 %	0.2 %
6	Eletson Corp.	10	697,936	2.8 %	0.2 %
7	Tsakos Group	9	600,898	2.4 %	0.2 %
8	Liquimar Tankers	8	533,361	2.1 %	0.2 %
9	Dynacom Tankers Mgt.	8	567,447	2.3 %	0.2 %
10	Chemikalien Seetransport	8	562,361	2.2 %	0.2 %

Source: Clarkson (October 2006)

Handysize Product Tankers 10-60,000 dwt					
Rank	Company	Nos of vessels	DWT	Share of Panamax Flee	Share of tanker fleet
1	China Shipping Group	49	1,534,246	6.1 %	0.4 %
2	Mitsui OSK Lines	42	1,706,766	6.8 %	0.5 %
3	U.S. Govt	36	1,157,382	4.6 %	0.3 %
4	Petrobras	33	1,046,082	4.2 %	0.3 %
5	OMI	32	1,325,905	5.3 %	0.4 %
6	Overseas Shipholding Group (OSG)	32	1,384,148	5.5 %	0.4 %
7	Iino Kaiun Kaisha	31	798,040	3.2 %	0.2 %
8	Novorossiysk Shipping	30	1,076,778	4.3 %	0.3 %
9	Brostrøm	30	940,960	3.7 %	0.3 %
10	Tokyo Marine	25	508,772	2.0 %	0.1 %

Source: Clarksons/Fearnleys (2006)

3.1.1.4 Price competition

746. There is strong price competition in the oil tanker markets. In certain trade routes, there are substitutability opportunities between sizes and hence price competition (*e.g.* in the North Sea and Baltic areas where Aframax and Suezmax tankers compete daily). Furthermore, exports from West Africa are almost exclusively carried in Suezmax and VLCCs. At a certain freight level, a charter has a choice between two Suezmax shipments or one VLCC shipment. If freight rates increase above a certain level for Suezmaxes, the charter will seek to put the cargoes together in order to do one VLCC. Likewise, if the VLCC freight rates increase too much, the cargo is split into two and lifted on two Suezmaxes.

747. In the product tanker trade, we also observe strong competition between the various sizes, especially for the Naphtha trades out of the Middle East, where LR1's and LR2's compete on the same runs.

748. Furthermore, given the tremendous growth of the LR1 fleet in recent years, they compete strongly with the traditional MR sizes on several routes in the Atlantic, in the Pacific and, of course, also on the cross trades (between Atlantic and Pacific).

3.1.1.5 Substitutability

749. From a design and technical point of view, all oil tankers are substitutable; however, in practice certain types and sizes are predominant in individual trade lanes. Furthermore, an owner of a clean product tanker will, if possible, avoid carrying dirty products as this may disqualify his ship for certain clean commodities and/or goods on the next voyage. However, the ship will again be qualified for certain clean cargoes upon a number of voyages with certain commodities. Furthermore, a new tanker (straight from the shipyard) without coated cargo tanks may carry clean products, and a dirty tanker may be cleaned to a standard satisfactory to the charterer's standards. In periods with low freight rates we can also see that chemical tankers to a larger degree carry refined petroleum products. Occasionally, we can also observe certain types of older LPG carriers carrying light refined petroleum products.

3.1.1.6 Geographical scope

750. The trading patterns for oil tankers larger than 50,000 dwt is described in the following tables:[146]

Oil tankers 50-80,000 dwt trades 2Q06 (mill.Dwt)

	NW	Mediter-	Americas East Coast			N.America	Japan	Other	S.E.	South	S.E.	R.Sea	Others	Total
2Q2006	Eur.	ranean	North	Central	South	West Coast		F.East	Asia	Asia	Africa	Africa		
MEG	0.7	0.2	0.1	-	-	-	0.6	0.8	0.4	2.7	0.3	0.0	0.4	6.1
Near East	-	0.1	0.1	-	-	-	-	-	-	-	-	-	-	0.1
Red Sea	0.3	0.1	-	-	-	0.1	0.2	0.1	0.2	0.1	-	-	0.1	1.2
N. Africa	0.1	0.2	0.2	0.1	0.1	0.4	-	-	0.1	0.1	-	-	-	1.2
W. Africa	0.3	0.1	1.2	-	-	-	-	0.1	-	0.1	-	-	-	1.7
Caribbean	0.2	0.1	8.6	3.8	0.1	1.9	-	0.1	0.1	0.1	0.1	-	0.7	15.7
S.E. Asia	0.1	0.2	0.2	0.1	-	0.1	0.8	3.1	0.4	1.4	0.1	-	0.3	6.6
North Sea	0.1	-	2.2	-	-	-	-	-	0.2	-	-	-	-	2.5
Baltic	0.4	0.1	1.1	0.0	-	0.1	-	-	-	-	-	-	0.2	1.9
Black Sea	0.1	2.0	0.4	-	-	-	-	-	-	-	-	-	0.1	2.4
China	-	-	-	-	-	-	0.2	0.1	0.1	-	-	-	-	0.4
Others	0.9	0.7	2.5	1.6	0.8	5.1	0.8	3.7	1.8	0.1	0.3	-	2.1	20.3
Total	3.1	3.7	16.6	5.6	1.0	7.5	2.7	8.0	3.2	4.4	0.7	-	3.8	60.3

Source: Fearnleys (2006)

751. The smallest vessels groups transport oil from a wide range of exporting and importing areas. The trade in million dwt of crude oil transported from export to import areas is listed in the table above.

146 Fearnleys Oil & Tanker Market Quarterly, 3/2006.

Oil tankers 80-120,000 dwt trades 2Q06 (mill.Dwt)

2Q2006	NW Eur.	Mediter-ranean	Americas East Coast North	Central	South	N.America West Coast	Japan	Other F.East	S.E. Asia	South Asia	S.E. Africa	R.Sea Africa	Others	Total
MEG	1.0	0.9	0.4	-	0.1	0.4	3.0	5.7	6.1	9.9	0.7	0.0	2.0	30.2
Near East	0.5	2.1	-	-	-	-	-	-	-	-	-	-	-	2.6
Red Sea	0.1	0.9	0.2	-	-	-	1.0	0.8	0.8	1.4	0.1	-	0.2	5.4
N. Africa	5.6	27.9	3.8	0.5	0.2	-	-	-	0.0	0.0	-	-	-	38.1
W. Africa	0.6	0.5	0.3	0.6	-	-	-	-	-	0.1	-	-	0.1	2.3
Caribbean	2.5	0.5	53.2	3.1	-	-	-	-	0.5	-	-	-	-	59.8
S.E. Asia	0.1	0.1	0.1	-	0.1	1.2	2.9	8.5	4.7	2.0	0.2	-	7.1	27.1
North Sea	0.2	1.0	4.3	0.3	-	-	-	-	-	-	-	-	0.7	6.6
Baltic	20.0	1.0	3.2	0.2	-	-	-	-	-	-	-	-	2.1	26.5
Black Sea	2.1	12.4	0.8	-	-	-	0.1	-	1.5	-	-	-	-	16.9
China	-	-	-	-	-	0.3	0.2	0.4	0.5	-	-	-	-	1.4
Others	1.1	0.3	5.0	0.4	0.1	1.6	1.3	2.3	4.2	0.1	0.1	-	1.2	17.6
Total	33.9	47.6	71.3	5.2	0.5	3.5	8.5	17.6	18.3	13.6	1.1	0.0	13.2	234.4

Source: Fearnleys (2006)

752. Aframaxes transport oil mainly from the Caribbean from North America. They also transport oil from North Africa to the Mediterranean. This accounts for 21% of the volume transported. Imports to the Mediterranean come from North Africa and the Black Sea. In addition, there is substantial trade from the Baltic to North West Europe.

Oil tankers 120-200,000 dwt trades 2Q06 (mill.Dwt)

2Q2006	NW Eur.	Mediter-ranean	Americas East Coast North	Central	South	N.America West Coast	Japan	Other F.East	S.E. Asia	South Asia	S.E. Africa	R.Sea Africa	Others	Total
MEG	1.1	3.5	0.4	-	0.2	0.4	-	3.3	2.6	6.6	0.3	0.3	0.6	19.3
Near East	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Red Sea	-	0.1	-	-	-	-	0.7	1.3	-	0.7	0.1	-	1.4	4.5
N. Africa	2.2	11.3	6.5	-	0.5	-	-	0.2	0.6	-	0.3	-	-	21.6
W. Africa	5.0	4.3	14.1	1.9	2.0	0.3	-	0.9	0.3	0.6	1.1	-	1.7	32.3
Caribbean	1.2	2.3	3.0	3.4	0.5	-	-	0.6	0.3	-	-	-	0.1	11.5
S.E. Asia	-	0.2	-	-	-	-	-	1.4	0.3	0.1	-	-	0.6	2.6
North Sea	0.2	0.4	5.8	0.2	-	-	-	-	0.5	-	-	-	0.5	7.7
Baltic	1.5	-	1.0	-	-	-	-	0.1	-	-	-	-	-	2.6
Black Sea	1.4	10.2	1.4	-	-	-	-	0.3	-	-	-	-	-	13.3
China	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	0.5	-	1.3	-	-	1.7	-	0.8	0.2	-	0.2	-	1.1	5.6
Total	13.1	32.3	33.5	5.6	3.1	2.5	0.7	9.0	4.7	8.1	1.9	0.3	6.0	120.8

Source: Fearnleys (2006)

753. Imports to the Mediterranean are mainly sourced from North Africa and the Black Sea as we saw for Aframaxes (17.7% of the volume transported (as we saw for Aframaxes). There are also a lot of shipments from West Africa to North America (14million dwt).

Oil tankers 200,000 dwt+ trades 2Q06 (mill.Dwt)

2Q2006	NW Eur.	Mediter-ranean	Americas East Coast North	Americas East Coast Central	Americas East Coast South	N.America West Coast	Japan	Other F.East	S.E. Asia	South Asia	S.E. Africa	R.Sea Africa	Others	Total
MEG	8.9	0.1	22.7	2.4	1.5	5.9	44.8	51.8	22.6	11.8	3.6	14.3	-	190.3
Near East	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Red Sea	0.3	-	0.3	-	-	0.1	0.7	2.0	0.5	-	-	5.6	-	9.6
N. Africa	4.6	-	2.4	-	0.3	-	-	1.2	-	-	0.3	-	-	8.8
W. Africa	-	-	10.0	-	0.3	0.9	0.6	14.8	0.9	4.6	0.3	-	-	32.5
Caribbean	-	-	0.6	-	-	-	-	3.6	1.5	0.9	-	-	-	6.7
S.E. Asia	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Sea	-	-	1.8	-	-	-	-	0.9	1.4	-	-	-	-	4.1
Baltic	-	-	-	-	-	-	-	0.9	0.1	-	-	-	-	1.0
Black Sea	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	0.3	-	-	0.6	-	1.2	-	-	-	-	-	2.1
Total	13.7	0.1	38.2	2.4	2.1	7.6	46.2	76.3	27.0	17.3	4.2	19.9	-	255.1

Source: Fearnleys (2006)

754. The dominant trade by far is from MEG to North America and the Far East. 74,5% of the shipments are sourced in the MEG.

3.1.2 *The Chemical Tanker Market*

755. To a large degree the chemical tankers are quite similar to oil tankers. There are, however, certain key differences which relates to the intended cargoes' physical properties. In general one could say that chemical tankers are more "sophisticated" than tankers for oil. One could also define a chemical tanker as a vessel designed and constructed in accordance with the rules set forth in the IBC Code[147].

756. Chemical tankers are categorised with respect to their IMO (International Maritime Organisation) type, the material used in tanks and/or the coating used in the cargo tanks.

757. There are three IMO types:

Type 1: A chemical tanker intended to transport chapter 17[148] products with *very severe environmental and safety hazards which require maximum* preventive measures to preclude an escape of such cargoes.

Type 2: A chemical tanker intended to transport chapter 17 products with *appreciably severe environmental and safety hazards which require significant* preventive measures to preclude an escape of such commodities and/or goods.

Type 3: A chemical tanker intended to transport chapter 17 products with *sufficiently severe environmental and safety hazards which require moderate degree of containment to increase survival capability in a damaged condition.*

[147] The International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk.
[148] Refers to chapter 17 of the IBC code.

758. As can be observed, an IMO type 1 vessel is designed for maximum safety in order to preclude an escape of dangerous/poisonous commodities and/or goods and the requirement for safety measures is reduced with increasing IMO category.

759. Having said this, a chemical tanker may have some IMO 1 tanks in combination with IMO 2 tanks. Further, IMO 2 and 3 may be combined.

760. The other main feature differentiating between the various types of chemical tankers is the material used in the cargo tanks. The tanks may, as for product tankers, be coated with a suitable paint, or the tanks may be constructed in, or lined with, stainless steel. The latter is not necessarily required by the IBC code for IMO 1 type tanks, but may be considered necessary for acids. Most industrial acids are soluble in water and as such they do not pose an environmental risk. However, non-corrosive chemical substances that do not require any particular highly resistant coating may be extremely poisonous and insoluble in water. As such, the environmental hazard is extreme and requires the highest safety standards possible (IMO 1).

761. The chemical tanker market is much more industrialised than the oil tanker market in the sense that several of the major operators are offering services beyond transporting chemicals between two ports.

3.1.2.1 The chemical tanker fleet

762. The chemical tanker fleet above 5,000 dwt consists of almost 1,900 vessels totalling about 42 million dwt. The average age of the fleet is 9.2 years. About 26% of the fleet have stainless steel tanks.

763. The fleet is actually a little difficult to assess exactly as most, if not all, product tankers built today are built with an IMO 3 class. These vessels may carry vegoils as well as "easy chemicals". However, they cannot carry toxic and/or corrosive product requiring an IMO 1 or 2 class. However, the overview below should provide an overview of "real" chemical tankers.

Built	Epoxy	Marineline	Other	Poly	SS	Zinc	Grand Total
1967			13938				13938
1968					35489		35489
1970			6261		9970	6000	22231
1971			28317		28634		56951
1972	19772		6159		12910	19266	58107
1973			20248		7760	11459	39467
1974			7155		12956	26396	46507
1975	5673				122916	53679	182268
1976	7620		16964		181418	32584	238586
1977	33402		55787		106482		195671
1978	26623		12237		230158	80677	349695
1979	70133		12724		117478	77890	278225
1980	342520		35144	17403	142340	150213	687620
1981	399863		16188		156265	270147	842463
1982	351738			20353	364682	331698	1068471
1983	361802		14885	52375	207740	410888	1047690
1984	553078		19462		148332	185629	906501
1985	773382	35170	24662		280154	80675	1194043
1986	341210				469775	97288	908273
1987	198669		5147	45222	395782	71614	716434
1988	329439				77707	166367	573513
1989	125490		5028		131041	23228	284787
1990	212170				181142	7959	401271
1991	323565		13301		273010	71344	681220
1992	259300		28655		263946	69103	621004
1993	255126		27548		179914	33037	495625
1994	195056	28840	25041		159710		408647
1995	342364		18413		295445	108980	765202
1996	883044				484361	102873	1470278
1997	723102	60849	23681		567537	175580	1550749
1998	1042918	30075	14340		605754	291789	1984876
1999	1199293	46323	51817		648090	179615	2125138
2000	1168751	6753	32829		659916	140337	2008586
2001	1227594	23658	35433		261361	67618	1615664
2002	1980860	15548	36739		458101	105136	2596384
2003	2810680	56892	23865		810381	90000	3791818
2004	3598316	138155	109721		748538		4594730
2005	3265442	146829	95657		793312		4301240
2006	2060230	64100	169253		416942		2710525
Grand Total	25488225	653192	1006599	135353	11047449	3539069	41869887

Source: Fearnley Fonds (2006)

3.1.2.2 The chemical tanker orderbook

764. Similar to the fleet, the orderbook is difficult to assess as some will claim that all product/IMO 3 vessels should be included, whereas others will be more conservative and only include IMO 1 and 2 classed vessels. The following table shows the orderbook split into by chemical tankers and chemical/product tankers.

	"pure chemical tankers"				"product/chemical tankers"	
	Stainless steel		Coated		Coated	
Year	No.	Dwt ('000)	No.	Dwt ('000)	No.	Dwt ('000)
2007	25	459	17	240	179	3570
2008	30	503	3	109	106	2550
2009	6	135	2	93	29	1046
2010					2	97
Total	61	1097	22	442	316	7263

Source: Fearnley Fonds (2006)

3.1.2.3 Major chemical tanker owners

Rank	Current Owner	Number	Total	Avg Size dwt	Age
1	Stolt-Nielsen SA	70	1,709,082	24.415	15
2	Odfjell ASA	57	1,754,107	30.773	14
3	Berlian Laju Tanker	36	372.931	10.359	10
4	Tokyo Marine Co. Ltd	29	543.993	18.758	9
5	Iino Kaiun Kaisha	26	584.584	22.484	5
6	John T. Essberger	26	114.751	4.413	14
7	OMI Marine Services	26	1,047,914	40.304	4
8	Eitzen Group	26	199.06	7.656	13
9	Jo Tankers A/S	26	707.67	27.218	15
10	Chinese Gov't.	23	130.747	5.684	

Source: Clarksons (2006)

3.1.2.4 Price competition

765. There is strong price competition in the market for carrying IMO 3 type commodities. This is a result of most modern product tankers being in such IMO class and, hence, being able to operate as swing transporters, moving in and out of the easy chemicals market depending on market conditions for easy chemicals *vis-à-vis* the clean petroleum product market. As chemicals are often shipped in "parcels", the various ship sizes may compete as long as they meet the required IMO class for that specific product. Thus, we see 10-15,000 dwt ships competing alongside 30-35,000 dwt ships in the global trade lanes.

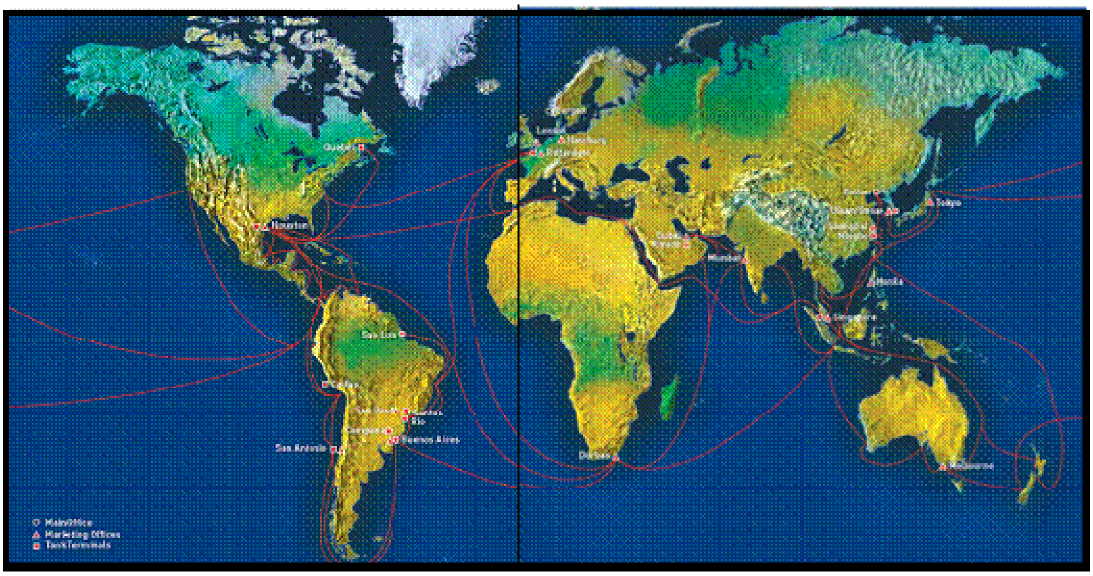
3.1.2.5 Substitutability

766. There is some substitutability between vessels in the chemical tanker market. As mentioned above, there is substitutability between modern product tankers and chemical tankers for the carriage of easy chemicals. Furthermore, a similar substitutability is also present for vegetable oils.

767. There is also some substitutability with tank containers. Tank containers are used for small consignments and for markets where "door to door" service are required.

3.1.2.6 Geographical scope

768. The trade is global and the principal trade routes are illustrated in the map below.



Source: Odfjell (2006)

3.1.3 *The LNG Market*

769. LNG mainly consists of methane (CH 4), and is formed by cooling natural gas to -160°C to form a liquid. Prior to the liquefaction process, oxygen, carbon dioxide, sulphur compounds, water and other impurities are removed from the gas. The process of liquefaction reduces the volume of the gas by 600:1 and this reduction in volume makes sea transport from areas where gas is produced to consuming countries an economically viable proposition. The unit where LNG is produced is called a train. Generally, LNG is measured in metric tonnes when it is a liquid and in cubic feet when it is in its gaseous state.

770. In international trade, LNG is transported in specially built tanks in double-hulled ships to a receiving terminal where it is stored in heavily insulated tanks. The LNG is then sent to regasifiers that turn the liquid back into a gas that enters the pipeline system for distribution to customers as part of their natural gas supply.

771. The LNG market is mainly driven by long-term contracts where a consumer, like an energy company in Japan, agrees to buy two million tonnes of LNG per annum for the next 25 years from BP starting in 2010. Based on this agreement, a vessel is ordered by BP with delivery in 2010. This is typically done for the oil majors who own their own vessels, including Statoil and BP, amongst others. The alternative is to buy a vessel on a speculative basis (without a long-term contract), and trade this vessel in the spot market.

772. However, it is not unusual that one vessel, which is on a long term contract, is relet for a short period of time. This can come as a result of a temporarily shutdown in production, spot LNG deals or just an optimisation of shipments for a given fleet. Lately, some vessels have been delivered early at the same time as the projects which they were built to serve have been delayed up to a year. This happened for instance with the vessels built for Statoil's "Snøhvit" project in Northern Norway.

773. It is difficult to say precisely which percentage share is captive, *i.e*. not available on the voyage and/or charter market. The consultants estimate that about 80% of the LNG fleet is captive, meaning that it is committed to long term contracts. 10% of the fleet is on short term time charters and the remaining 10% of the fleet is trading in the spot market.

The LNG Fleet

774. At present there are four containment systems, but there are two main designs which dominate, the membrane system[149] and the Moss design[150]. There is no difference in transport costs for shippers. The capital costs for each system is dependent on the price which has been paid for the vessel. The development in newbuilding prices is shown below. If a ship owner or operator wants to order a new large 147,000 LNG vessel, it will be a membrane vessel, as the last Moss design boat was built in 2003.

775. The Moss design has a cost advantage when it comes to floating storage projects, whereas the membrane system is preferred when it comes to trades that involve passing through the Suez Canal, as the canal fees are cheaper for the membrane system vessels than for the Moss system vessels. There are two vessels with the IHI system, and they are trading from Japan to Alaska.

LNG Fleet Development 2002-2006

Vessels size in, 000m3 at year end	**2002**	**2003**	**2004**	**2005**	**01.09.2006 No. Of ships**	**, 000m3**
<40,000 m³	256	259	260	262	14	262
40-60,000 m³	253	253	253	253	6	253
60-100,000 m³	1,159	1,159	1,159	1,159	15	1,159
>100,000 m³	14,197	16,139	19,068	21,642	178	24,103
TOTAL FLEET	**15,865**	**17,809**	**20,740**	**23,316**	**213**	**25,777**
TOTAL M. dwt	**8.9**	**10.0**	**11.6**	**13.0**	**213**	**14.4**

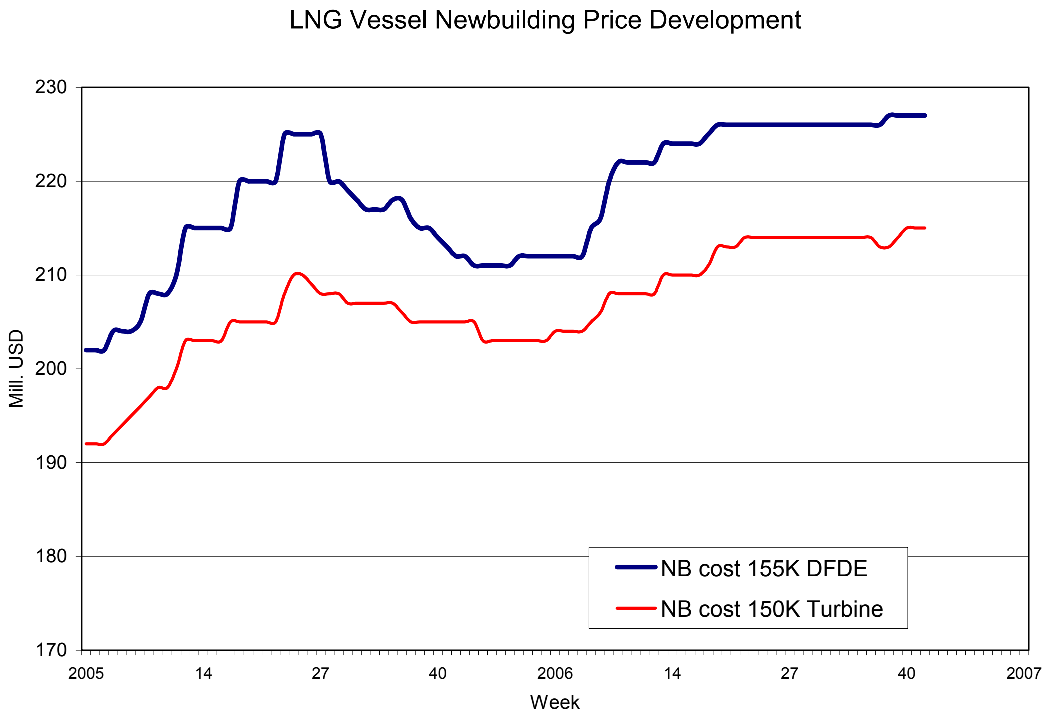
Source: Clarkson Shipping Intelligence Weekly, Issue: 736 (2006)

776. Currently, the fleet is made up of 213 units, and the vast majority of them are vessels above 100,000 m³.

777. The capital costs for such units depend on the price levels at which these vessels were bought. The development in newbuilding prices for these units is shown in the figure below.

149 Vessels that have membrane type cargo tanks. These are becoming increasingly popular, most likely due to lower construction costs.

150 Vessels with spherical aluminium tanks.



Source: Fearnleys (2006)

778. The 155,000 m³ DFDE is a vessel equipped with a duel fuel diesel electric engine, whereas the 150,000 m³ vessel is equipped with a turbine engine. There are two reasons why a DFDE vessel is more expensive than a turbine vessel: it has a cubic capacity which is 5,000 m³ larger (thus can carry more cargo, and thus has a higher revenue potential); and it uses less fuel than a turbine vessel.

3.1.3.1 The LNG Orderbook

779. There is massive orderbook in the LNG segment, and currently the orderbook stands at 83.9% of the existing fleet.

LNG Fleet Orderbook with delivery year 2006-2008

Vessels size in ,000m³ at year end	No.	,000 m³	% Fleet	2006	2007	2008+
<40,000 m³	3	46	17.4%	0	19	27
40-60,000 m³	0	0	0.0%	0	0	0
60-100,000 m³	3	225	19.4%	74	76	76
>100,000 m³	130	22,349	92.7%	1,023	5,306	16,020
TOTAL FLEET	**136**	**22,620**	**87.8%**	**1,097**	**5,400**	**16,122**
TOTAL M. dwt	**136**	**12.1**	**83.9%**	**0.6**	**2.9**	**8.6**

Source: Clarkson Shipping Intelligence Weekly, Issue: 736 (2006)

780. There is a strong tendency towards ordering larger units, as can be seen from the table above. There will be one vessel delivered every year in the period from 2006 – 2008+ in the 60-100,000m³ segment, compared to the massive orderbook of 130 vessels above 100,000m³ being delivered in the years ahead, of which most of them will be delivered in 2008.

3.1.3.2 Major LNG owners[151]

781. The largest owners in the LNG segment are presented in the following table:

LNG Gas Carrier Top ten Owners

Rank	Current Owner	Number	Total	Average size (dwt)
1	MISC	21	1,372,136	65,339
2	Shell Group	20	1,246,576	62,328
3	Mitsui O.S.K. Lines	16	1,091,989	68,249
4	Nigeria LNG Ltd.	13	1,021,233	78,556
5	Fredriksen Group	12	930,381	77,531
6	Nippon Yusen Kaisha	11	778,798	70,799
7	Bergesen Worldwide	9	608,094	67,566
8	BGT Ltd.	8	580,719	72,589
9	National Gas Shipping	8	603,610	75,451
10	Sonatrach	7	471,950	67,421

Source: www.clarksons.net, accessed 12.09.06

782. Each of the top ten owners has a fleet of vessels, which are on average nearly the same size. It is also worth noticing that the major owners are a combination of large upstream major oil companies such as the Shell Group, and more traditional shipowners such as Bergesen Worldwide.

3.1.3.3 Price Competition

783. As all LNG vessels are rather homogeneous, there is no price competition between different vessel types. However, LNG can also be transported in pipelines, and as a general rule of thumb, transport of LNG via pipeline competes with transportation by vessels for distances of less than 3000km, assuming the required pipeline infrastructure is present.

784. While there are two main designs for LNG ships, the membrane system and the Moss design as mentioned above, the trading patterns determine whether there will become a price differential through a difference in the freight rates paid for two different designs. Empirically, these freight rates are highly correlated.

785. There is also a difference between modern and old tonnage. LNG is transported in double-hulled ships specifically designed to handle the low temperature of LNG. Double-hull carriers are insulated to limit the amount of LNG that boils off or evaporates. This boil off gas is sometimes used to supplement fuel for the carriers. Older vessels will have more boil off gas than modern vessels, their service speed is slower and they are smaller than modern units. Thus, older units achieve lower rates than modern vessels, mainly due to lower performance (transport cost per transported molecule) on a voyage basis.

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151 See annex 5 for major owners and their fleet.

3.1.3.4 Substitutability Of Vessels

786. LNG can only be transported on LNG vessels. Pipelines are the only alternative.

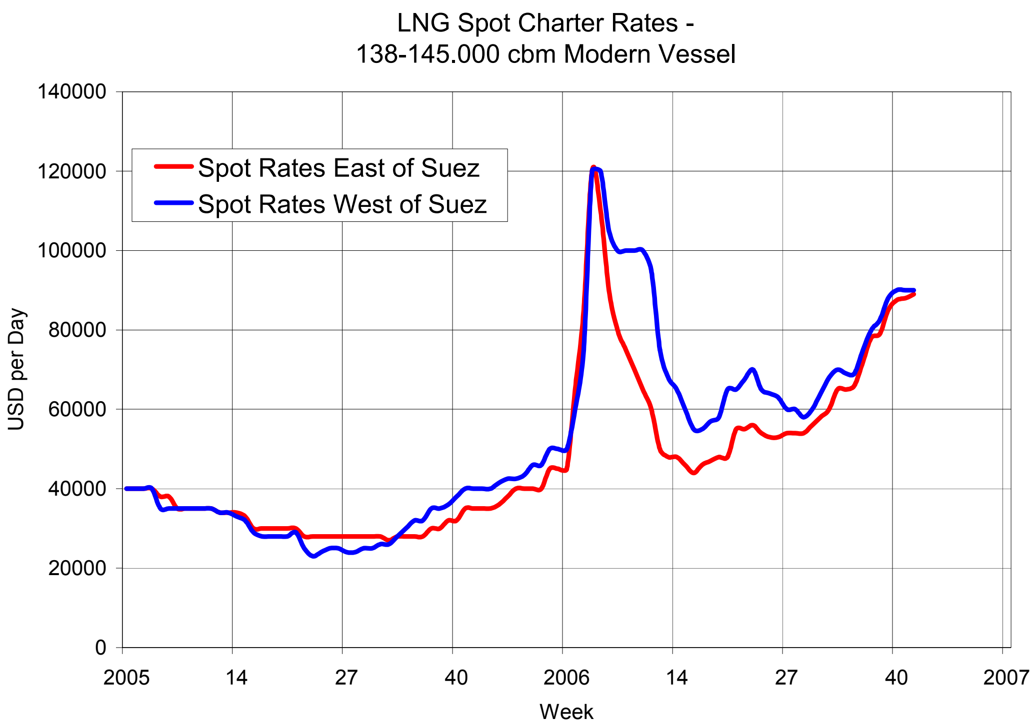
3.1.3.5 Geographical Scope

787. The main exporting areas are the Pacific Basin (Indonesia, Malaysia, Australia, Brunei, the United States and Russia), the Middle East (Qatar, Oman and the UAE) and countries in the Atlantic Basin (Algeria, Nigeria, Trinidad and Tobago, Libya, Egypt and Norway).

788. The main LNG importers are countries in the Pacific Basin (Japan, South Korea, Taiwan, China and India) and the Atlantic Basin (France, Spain, the United States, Italy, Turkey, Belgium, Puerto Rico, Greece, Portugal, the Dominican Republic and the UK),

789. There is one market East of Suez and one market West of Suez, and as one can se from the graph below, the two markets are highly correlated.

LNG freight rates 2005 – 2006



Source: Fearnleys (2006)

790. Lately, demand for gas has been strong in Korea and Japan, and the Atlantic market is short of vessel tonnage that can sail to Korea and Japan. At the same time there is a lot of tonnage in the East that is looking for hire. This market balance might turn, again depending on gas prices in different regions.

791. There is no difference in geographical scope for the large, modern vessels, as all vessels trade worldwide. There are some smaller units, which are used for intra-regional trades in the Far East.

3.1.3.6 Barriers to entry

792. There are substantial barriers to entry in the LNG market, mainly due to financing and the lack of a second hand market for modern tonnage.

793. The LNG market is very capital intensive and entering the market typically requires a long term supply contract, which secures a steady cash flow in order to buy a second hand vessel or contract a new unit.

794. LNG vessels are technically advanced, and require a specially trained crew. A new 148,000 dwt vessel could be bought for USD 200 million in China today for delivery in 2009. The second hand market is not very liquid, and no sales of modern tonnage have been reported over the past five years.

795. The only option for a new player to enter the market immediately is to buy an existing company. Clearly, the price and management associated with acquiring a company is much higher than acquiring a single vessel or fleet of vessels.

3.1.4 *The LPG Market*

796. The main commodities and/or goods for LPG tankers are:

- LPG – An abbreviation used to describe liquefied petroleum gas. The normal constituents are propane, propylene, butane and butylenes which are a by-product of the oil production process (as "associated gas" or part of the natural gas liquid, *i.e*. NGL component) or in the production of natural gas (up to 9% of the volume content). LPG is synthesised by refining petroleum or natural gas. LPG must be liquefied for seaborne transportation and then re-gasified on arrival at or near the discharge terminal.

- Ammonia – An industrial gas made from methane. It is primarily used in the production of fertilisers and other industrial chemicals. Its function is to provide the nitrogen in fertilisers and other products.

- Naphtha – A liquid fraction of crude oil. It is normally removed during production. Naphtha is used as a refinery feedstock.

- Petrochemical gases – These include VCM, butadiene, propylene, C4 and ethylene. These are intermediate products in the petrochemical industry, several of which use natural gas as the raw material base.

797. The underlying LPG product market is supply driven, which in economic terms is the total opposite of the other commodities serviced by the bulk shipping industry, because the volume of production is linked to the volume of crude oil output. The same applies to the underlying petroleum-based product also carried on LPG tankers.

798. The gas tanker freight market is a specialised shipping segment which is predominantly based on CoAs, which has led many shipowners to merge their vessels in order to provide a fleet operation rather than a single ship strategy. LPG transport by sea requires a substantial investment in liquefaction and cargo handling facilities as well as the construction of purpose built LPG gas tankers.

799. As a commodity, LPG can usually be replaced by many other products for most of its uses: by naphtha in refinery process, by natural gas for utilities, by electricity, kerosene or natural gas in domestic use. Thus, while the overall demand for energy is obviously a condition for LPG's demand development, the relative price between the alternatives governs LPG's relative position.

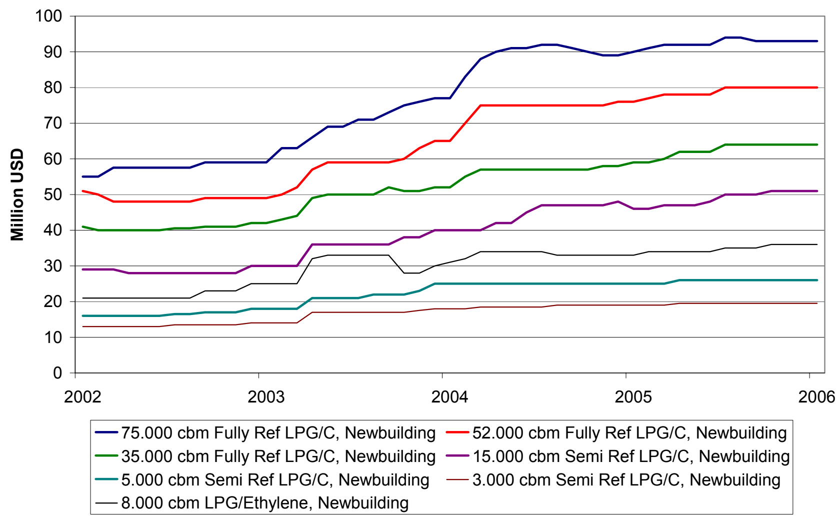
And because LPG is a small part of the global energy market, market share developments are more important in the medium term. In 2004, the seaborne trade volume of LPG was 48 million tonnes.

3.1.4.1 The LPG Fleet

800. LPG carriers are primarily classified according to two parameters; their capacity (measured in cubic meters) and their containment system/tank types. When loaded, the ships keep the gas in its liquefied state either by applying pressure or by cooling it down (or by a combination of both). Pressure is in this respect often measured in kg/cm² and the refrigeration capacity in degrees Celsius.

801. The capital costs for each vessel type are dependent on how much the ship owner or operator has paid for the ship, as is illustrated below.

LPG Newbuilding Prices



Source: Fearnleys (2006)

802. As can be seen from the table, the price of a vessel increases by its capacity measured in cubic metres. In general, the largest vessels are fully-refrigerated, and thus most expensive. In the graph above, the cheapest vessel is a small 3,000 m³ F-R vessel, and the most expensive is a 75,000 m³ VLGC. From the graph above, one can also notice that the price of a vessel increases with its m³ capacity.

803. As the cargo size increases, the weight and volume of pressurised tanks become prohibitive and refrigeration becomes a more efficient transport method. In practice, gas cargoes are transported in pressurised, semi-refrigerated or fully refrigerated vessels. Each sub-type is described below:

(a) Fully Pressurised (FP) (Typically 0°C and 17-18 kg/cm²)

804. Most of these ships have a capacity of up to 7,500 m³ and their main market is regional trade in the Far East, in addition to coastal trades in the Mediterranean and North West Europe. LPG and petrochemical gases are carried under high pressure.

(b) Semi-Refrigerated (SR) (Typically –48°C and 8-12 kg/cm²) or Semi-Pressurised/Fully Refrigerated

805. These vessels vary in size from a few hundred m³ up to about 22,000 m³, and they are able to carry refrigerated product (LPG and petrochemical gases) with the cooling sometimes combined with pressure. Main trades are regional trades in the Western hemisphere (both LPG and petchems) and deep sea/long-haul petchem voyages. The largest semi-refrigerated ships are from time to time fixed in ammonia as well.

(c) Ethylene (E) (-104°C and 5-8 kg/cm²)

806. Actually as subgroup among the semi-refrigerated ships, this is the most sophisticated segment of LPG carriers. These ships are built to carry ethylene, a petrochemical gas which has a boiling point of around minus 104 degrees Celsius. The "standard sizes" within the ethylene segment are 5,000/8,000/12,000 and 16-18,000 m³ (newbuildings). Many ethylene carriers trade worldwide, doing both deep sea and regional voyages. Under "normal" market conditions it is not unusual to see especially the bigger ethylene carriers trading in LPG.

(d) Fully Refrigerated (FR) (Typically -48°C and 0 kg/cm²)

807. The fully refrigerated ships are the biggest among the gas carriers, and are often classified according to their m³ capacity as follows:

- <u>Mid-sized Gas Carriers (MGCs) – 20,000-40,000 m³</u>

70% of these ships are engaged in ammonia trade (both long haul and regional), with the Black Sea and the Caribbean being the most important loading areas. The remaining 30% trade in LPG. Historically, the main drivers have been price differentials in the ammonia market and LPG flows resulting in shorter trades. The size range should be changed from 35,000-38,000 m³ to 20,000-40,000 m³. The reason for this 70/30 split is that in terms of size, MGCs group is very suitable for the ammonia trade.

- <u>Large Gas Carriers (LGCs) – 60,000 m³</u>

A real niche in gas shipping, where the combined world fleet consists of only 27 vessels, these vessels predominately do long-haul ammonia and medium-to-long haul LPG with the split being about 50/50. This is due to lot sizes which are standard in the ammonia trade because the trans-Atlantic ammonia trade employs roughly half of the LGC fleet. These vessels can also carry chemical gases. The main loading areas are: Black Sea, Caribbean North and West Africa. Historically, the main driver in this market has been price differentials in the ammonia market.

- <u>Very Large Carriers (VLGCs) – 78/84,000 m³</u>

The biggest LPG carriers, responsible for lifting the majority of the world's seaborne LPG exports. These vessels can also to some extent also carry CPP. The main trade consists of LPG parcels of about 45,000 metric tonnes from the Arabian Gulf to the Far East. Historically, the main driver in this market has been MEG oil production and Japanese gas prices.

808. The empirical split between MGCs and LGCs split between ammonia and LPG trades comes as a result of the available shipments of varying lot sizes in different regional markets. It is an empirical adjustment based on the existing trading/demand patterns.

809. There are both a spot and a time charter market, and the export trades are mainly from Middle East OPEC countries to Japan, Western Europe and the United States.

810. The LPG fleet evolvement since 2002 is shown in the table below. There has not been a massive increase in the fleet over this period, and the segments which have increased the most over the time period have been 20-40,000 m³ as well as 40-60,000 m³.

LPG Fleet Development 2002-2006

LPG Carrier Fleet, 000m³ at year end	**2002**	**2003**	**2004**	**2005**	**No. Of ships**[152]	**, 000m³**
<5,000 m³	1,292	1,289	1,290	1,279	602	1,306
5-20,000 m³	1,793	1,833	1,815	1,790	212	1,840
20-40,000 m³	1,609	1,645	1,726	1,800	66	1,911
40-60,000 m³	1,152	1,336	1,407	1,466	26	1,466
>60,000 m³	8,022	8,297	8,218	8,283	108	8,444
Grand Total Fleet	**13,867**	**14,399**	**14,456**	**14,618**	**1,014**	**14,967**
Grand Total Million dwt	**10.9**	**11.3**	**11.3**	**11.4**	**1,014**	**11.7**

Source: Clarkson Shipping Intelligence Weekly No: 735 (2006)

811. The LPG fleet is made up of 1,014 vessels with a total cargo capacity of 11.7 million cubic metres. The vast majority of the ships are small units, as 602 (or 59.4%) vessels are smaller than 5,000 m³. When measured in cargo capacity, the vessels over 60,000 m³ have a capacity which is about 30% larger than the combined capacity for the other vessel sizes combined.[153]

3.1.4.2 The LPG Orderbook [154]

812. The LPG Orderbook is relatively large, and the VLGC market, in particular, will experience a rapid increase in the fleet over a short period of time. The majority of the tonnage is project based, indicating that the ships are purpose built for increased production capacity. However, there is also a small fraction of the ships which are ordered on a speculative basis, meaning that they are not ordered as a part of an oil production project, but rather intended for the growing spot market.

813. The current orderbook stands at 44.5% of the existing fleet, and is described in the following table.

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[152] At 1.8.2006.

[153] However, as the vessels carry different types of cargo and use different cargo systems, this is not a very sound measure.

[154] The orderbook is presented in the standard form from Clarksons.net. It is not possible to break it down in further details, and this is not common to break down the order book into smaller segments either.

LPG Fleet Orderbook with delivery year in thousand m³

LPG Orderbook & Delivery Schedule	No.	, 000m³	% Fleet	2006	2007	2008 +
<5,000 m³	29	96	7.4%	34	34	29
5-20,000 m³	76	632	34.4%	89	180	363
20-40,000 m³	23	679	35.5%	76	343	260
40-60,000 m³	6	359	24.5%	0	0	359
>60,000 m³	60	4,892	57.9%	330	742	3,820
Grand Total Fleet	**194**	**6,659**	**44.5%**	**529**	**1,299**	**4,831**
Grand Total Million dwt	**194**	**4.70**	**40.3%**	**0.39**	**0.93**	**3.39**

Source: Clarkson Shipping Intelligence Weekly No: 735 (2006)

3.1.4.3 Major LPG Owners[155]

814. The largest LPG owners based on number of ships are as follows:

LPG Carriers Top ten Owners based on number of ships owned

Rank	Current Owner	Number	Total m³	Avg Size
1	Bergesen Worldwide	47	2,007,574	42,714
2	Stealth Maritime	28	116,984	4,178
3	J. Lauritzen	27	99,931	3,701
4	Iino Kaiun Kaisha	25	192,096	7,683
5	Naftomar Shpg & Trad	21	632,089	30,099
6	Eitzen Group	20	153,322	7,666
7	I. M. Skaugen	19	163,252	8,592
8	Nippon Gas Line	18	26,003	1,444
9	Sloman Neptun Schiff	16	88,013	5,5
10	Hartmann Schiff.	16	93,262	5,828

Source: www.clarkson.net, accessed 12.09.06

815. From the table we see that there are six owners which have a fleet larger than 20 vessels. The largest company by a sizeable margin is Bergesen, which is primarily active in the large gas carrier segment, compared to both Stealth and J. Lauritzen, which are more active in the smaller segments. In addition to their owned vessels, they typically operate additional vessels on time charter or bareboat contracts.

816. The three largest owners are described in greater detail below:

(a) Bergesen Worldwide Gas[156]

817. BW Gas owns a fleet of 47 LPG carriers. The company has gradually developed into the world's leading independent owner and operator of large gas carriers. BW Gas is primarily involved in the largest markets, but is also operating a small number of MGCs and SRs. Their market share is largest in the 40-60,000-m³ size, where they operate nearly 70% of the fleet.

155 See Annex 5 for major owners and their fleet.

156 BWG are mentioned here in their capacity of shipowners. Source: www.bwgas.com, accessed 25.1.2007.

(b) Stealth Maritime[157]

818. Stealth Gas has a fleet of 28 vessels ranging in size from 1,600 m³ to 7,500 m³, and is the largest operator in its niche market from 3,000 to 8,000 m³. They primarily transport propane, butane, butadiene, isopropane, propylene and vinyl chloride monomer (VCM).

(c) J. Lauritzen[158]

819. At the end of 2005, Lauritzen Kosan directly and via associates controlled a combined fleet of 57 gas carriers (58 vessels year-end 2004) of which 27 vessels are fully-owned, owned through associated companies or on bareboat charter.

820. J. Lauritzen owns 27 vessels, with an average size of 3,700 m³. The total fleet which the company controls is 57 gas carriers. Lauritzen Kosan specialises in regional, ocean transport of liquefied gases all over the world. The company also contributes tonnage to partnerships (Sigas Kosan and Unigas Kosan) which makes them a leading operator in the segments in which they operate, namely the SR, pressurised and ethylene markets. The J. Lauritzen Group operates in four business areas: dry bulk cargoes (Lauritzen Bulkers), liquefied gases (Lauritzen Kosan), reefer goods (NYKLauritzenCool and LauritzenCool Logistics) and crude oil, oil products and chemicals (Lauritzen Tankers).

821. The total fleet which the Lauritzen Kosan controls is 57 gas carriers of which J. Lauritzen owns 27 vessels, with an average size of 3,700 m³. Lauritzen Kosan specialises in regional, ocean transport of liquefied gases all over the world. The company also contribute tonnage to partnerships - Sigas Kosan and Unigas Kosan – which make they a leading operator in the segments in which they operate, namely the SR, pressurised and ethylene markets.

3.1.4.4 Price Competition[159]

822. LGCs and VLGCs operate with very different lot sizes, but both operate deep sea. MGCs and smaller units are used for short sea trading with different commodities and/or goods. There is not any significant competition between the various sized segments.

823. Price competition between owners or operators operating different vessel sizes/types, all capable in principle of carrying the same commodities and/or goods, is determined by the interplay between freight rates and parcel sizes. Generally, owners or operators will attempt to find the closest possible match between the vessel size and the parcel size. It is, however, possible for them to use arbitrage to obtain a better rate than the prevailing market rate for a given vessel, and so "play the market". Under the right circumstances that might, for instance, allow a VLGC to be fixed on a typical LGC fixture, but this is more of a hypothetical occurrence. Vessels compete on the same dollar per metric tonne rate, regardless of vessel size.

824. A typical VLGC lot is 45,000 tonnes of LPG, an LGC lot about 30-35,000 tonnes, or 10-15,000 tonnes smaller. As the owner or operator is paid in USD per tonne shipped, the difference between the two rates has to be very large to make it worthwhile for a VLGC ship owner or operator or operator to consider offering a charter at rates competing with LGC rates without making a loss. Normally he would need to obtain higher revenues from transporting 35,000 tonnes of LPG than from transporting 45,000 tonnes of LPG. Examples of such arbitrage are

157 http://www.stealthgas.com/index.php.

158 http://www.j-lauritzen.com/.

159 Price competition within each segment is determined by freight rates. Based on the given freight rates, the ship owner or operator will choose where he will try to find hire for his ship.

therefore relatively rare. Vessels compete on the same dollar per metric tonne rate, regardless of vessel size.

3.1.4.5 Substitutability of vessels

825. Vessel trade in separate trades and are highly specialised for the segment they trade.

826. In Western Europe, for the smallest units, there exists competition between small semi-refrigerated vessels and small pressurised units, as they compete for the same lots.

827. Larger Semi-Refrigerated vessels (about 20,000 m^3) are capable of performing deep sea shipments, given that the arbitrage conditions make it profitable to do so, for instance, a transatlantic LPG voyage from Europe to the USA, but its main trades are regional.

828. Ethylene vessels are capable of taking market shares from same size and smaller semi-refrigerated units, as they can carry the same types of commodities and/or goods as SRs, in addition to ethylene (the latter cannot be carried by SRs). It might be possible in the future, given the large orderbook in the ethylene segment, that ethylene vessels will start to take market shares from SRs. However, as an ethylene carrier is more expensive to build, it will not see the same return on capital as SRs. Whether shipowners want to compete for the cargo is a commercial choice, as vessels can load and discharge in the same port, but is more likely under poor market conditions.

829. MGCs are typically not trading deep sea, but if the ammonia market is paying high freight rates, they can carry a shipload from the Black Sea to the USA. Thus, MGCs could steal market shares from LGCs. The opposite, that LGCs will trade MGC lots, is not likely to happen, as an MGC lot size is not sufficiently large for the LGC to make profits.

830. Modern VLGCs are equipped to carry ammonia, but today's lot sizes do not make such trades profitable, and thus they trade only LPG. A few old VLGCs are also capable of trading in CPP.

3.1.4.6 Geographical Scope

831. VLGCs and LGCs operate on a worldwide basis. The two main exporting regions are West Africa and the Baltic region, where cargo is shipped to the US, Europe and Asia. Mid-size and smaller vessels do intra-regional shipping.

832. Main routes are as follows:

LPG vessel types, commodities and/or goods and main loading and discharging areas			
Vessel type	**Commodities and/or goods**	**Main loading areas/ports**	**Main discharging areas/ports**
FP <7,500 m^3	LPG Petchem	NWE Far East	Coastal trades Mediterranean and North West Europe
SR <22,000 m^3	LPG Petchem	Worldwide	Worldwide
Ethylene carrier 5-18,000 m^3	Ethylene (can also carry LPG, ammonia and petchems)	South America US Gulf Arabian Gulf Mediterranean	North West Europe Far East
MGC 35-38,000 m^3	Ammonia LPG	Black Sea Caribbean North West Europe	Mediterranean India USG NEW
LGC 60,000 m^3	Ammonia LPG	Black Sea Caribbean	US NWE Mediterranean
VLGC	LPG (can also carry ammonia and some old units CPP)	West Africa Arabian Gulf	Far East USG Turkey

3.1.4.7 Barriers to entry

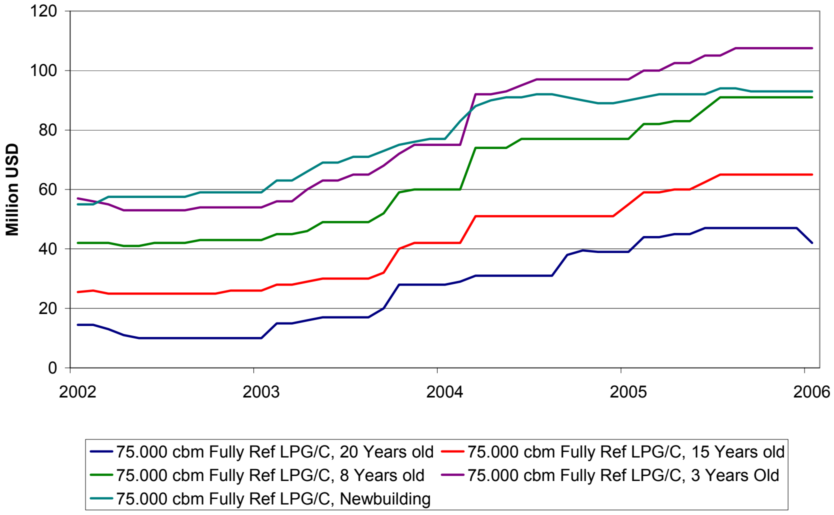
833. There exists barriers to immediate entry in the MGC, LGC and VLGC segments, as major players like Bergesen are very reluctant to sell vessels as the number of players in these segments are so few. If Bergesen sells a vessel it is essentially reducing its market share, as the vessel will be sold to a competitor. Therefore, a new player must enter through the newbuilding market if it wants a vessel larger than 20,000 m^3. A new MGC, LGC or VLGC ordered today would be delivered between 2011-2013.

834. A second hand market does exist for LPG vessels smaller than 20,000 m^3. As of November 2006, 44 LPG vessels have been sold, of which the majority are ethylene vessels (with a cubic capacity ranging from 5,000-10,000 m^3) and SR vessels with a cubic capacity ranging from 1,700-20,700 m^3. A couple of pressurized vessels of about 10,000 m^3 have also been sold during 2006.

835. Both the technical and commercial management of the vessel can easily be outsourced, making the vessel acquisition the only barrier to entry.

836. The main vessel prices ending in October 2006are illustrated and listed in the Figures below. The price developments since 2003 are included for VLGC.

VLGC Newbuilding Prices



Source: Fearnleys (2006)

LPG Newbuilding and second hand prices end January 2007

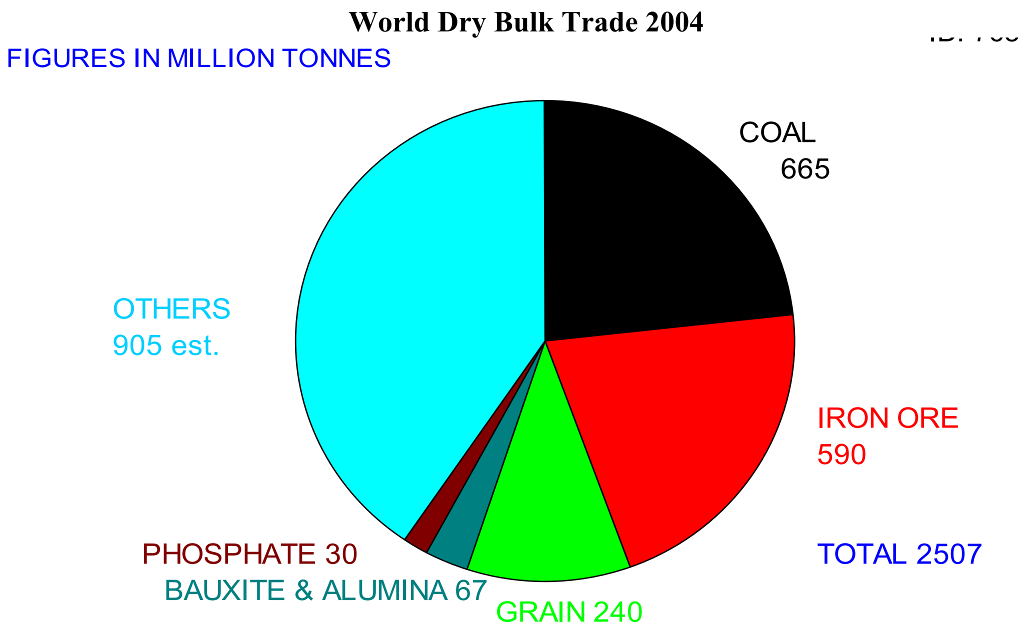
`000 cbm	N/B	3 yrs	8 yrs	15 yrs	20 yrs
3 F/P	14.5	13.5	10.5	5.0	2.5
3 S/R	19.5	20.0	15.0	11.0	5.0
5 S/R	26.0	28.0	20.0	15.5	7.5
15 S/R	51.0		44.0	31.0	23.5
24 F/R	56.0	58.0		32.5	23.5
35 F/R	64.0	68.0	58.0	42.0	29.0
52 F/R	80.0	80.0	68.0	49.0	32.0
75 F/R	93.0	95.0	82.0	58.0	37.5

Source: Fearnleys (2007)

3.2 THE DRY BULK MARKET

3.2.1 *Introduction To The Dry Bulk Market*

837. The dry bulk market is highly fragmented and the existing fleet consists of 6,247 carriers.[160]



838. The five major bulks cover the five homogeneous bulk cargoes iron ore, grain, coal, phosphates and bauxite. These are each commodities and/or goods that can be transported satisfactorily in a conventional dry bulk carrier.

839. Minor bulks covers the many other commodities that travel in shiploads. The most important are steel products, cement, gypsum, non-ferrous metal ores, sugar, salt, sulphur, forest products, wood chips and chemicals.

840. For the major bulks it can be interesting to examine the composition of trades based on commodity group in 2004.[161]

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160 Excluding some 150 OBO – Ore/Bulk/Oil combined carriers.
161 This part is based on Fearnleys tracking data for vessels above 50,000 dwt.

Major bulks in tonnes and tonne-miles in 2004

Commodity group	Seaborne trade in thousand tonnes	% Share	Billion tonne-miles	% Share
Coal	664,669	41.9	2,960	36.4
Iron ore	589,838	37.2	3,444	42.3
Grain	235973	14.8	1,350	16.5
Bauxite	33,179	2.1	136	1.7
Alumina	31,484	1.9	95	1.2
Phosphate rock	30,896	0.02	154	1.9
Total 2004	**1,586,039**		**8,139**	

Source: Fearnleys Annual Review (2005)

3.2.2 *The dry bulk fleet*

841. For Capesize vessels the captive capacity fleet in each segment is very difficult to determine.

842. It is useful to separate the fleet into different categories based on size. The different vessel categories are defined as follows:

3.2.2.1 Handysize (25 – 45,000 dwt)

Transports primarily minor bulks, which can be characterized as the most complex sector of the bulk market. This group comprises a mass of raw materials and semi-manufacturers that are shipped totally or partly in bulk, comprising steel products, forest products, sugar, non-ferrous metal ores, fertilizers, and various industrial materials such as scrap, pig iron, salt and rice.

3.2.2.2 Handymax (45 – 60,000 dwt)

Handymax vessels, which have their own cargo handling gear, transport coal, grain, bauxite and alumina, phosphate rock, iron ore, cement, logs, sugar, salt, steel, fertilizer and logs

3.2.2.3 Panamax: (60 – 80,000 dwt)

Panamax vessels transport coal, iron ore, grain, sulphur, cement, clinker, pellets, and fertilisers.

3.2.2.4 Capesize: (100,000 dwt +)

Capesizes transport primarily iron ore and coal. They can also carry grain.

843. As mentioned in the beginning of this text, the dry bulk fleet is made up of around 6,250 vessels, which can be split into the various vessel segments as defined below.

Existing dry bulk fleet by size group

10-25,000 dwt		25-50,000 dwt		50-60,000 dwt		60-80,000 dwt		80,000 dwt +		TOTAL	
No.	dwt	No.	dwt	No.	dwt	No.	dwt	No.	dwt	No.	dwt
1,070	20,138	2,628	95,664	499	26,386	1,260	89,542	790	125,452	6,247	357,181

Source: Fearnleys Bulk Fleet Update (August 2006)

844. It is clear from the above table that the largest amount of vessels is in the segment of vessels under 50,000 dwt. There is also a large fraction of Panamax vessels and Capesize vessels, equal to 1,260 and 790 vessels, respectively. Measured in dead weight tonnes, the majority of the tonnage is Capesize vessels.

3.2.3 *The dry bulk orderbook*

845. Taking a closer look at the new tonnage that will be delivered in the years to come, the orderbook split into vessel categories looks as follows:

Dry Bulk Orderbook

Bulk Carrier		**Year End**				**01-Nov-06**	
Fleet ..m. Dwt		**2002**	**2003**	**2004**	**2005**	**No.**	**m.Dwt**
Capesize*	**100,000+**	89.2	93.5	102.1	110.8	703	119.2
Panamax *	**60-100,000**	78.9	80.1	86.4	93.7	1,379	100.2
Handymax	**40-60,000**	54.5	57.2	61.2	66.5	1,477	70.4
Handysize	**10-40,000**	72.1	71.2	72.6	73.6	2,760	73.8
TOTAL FLEET		**294.6**	**302.1**	**322.3**	**344.6**	**6,319**	**363.6**
Combos in Dry		1.8	4.0	5.4	4.5	49	5.3
Laid-up		0.3	0.3	0.4	0.4	10	0.4
Storage		0.2	0.3	0.3	0.3	7	0.3

Source: Clarkson Shipping Intelligence Weekly, 24 Nov 2006

846. It is worth noting that the Super Handymaxes are currently the most popular vessels order by shipowners. There is also a tendency towards ordering larger units, and today 190 Capesize vessels are on order.

3.2.4 *Major dry bulk owners*

847. In this segment we will present the top ten owners in each vessel segment, their number of owned vessels and their percentage share in dwt. Our object is to present the various pools and establish their relative share of the market. We start out by looking at the largest dry bulk owners (all vessel sizes), their number of ships and average size.

Dry bulk top ten owners

Rank	Current Owner	Number	Total (dwt)	Avg Size
1	China Ocean (COSCO)	319	18,955,730	59,422
2	Mitsui O.S.K. Lines	143	11,371,193	79,518
3	China Shipping Group	120	4,377,864	36,482
4	Nippon Yusen Kaisha	111	9,292,508	83,716
5	Kawasaki Kisen	86	8,931,970	103,860
6	Unknown Owner	71	2,604,529	36,683
7	K. G. Jebsen	65	2,720,157	41,848
8	Polish Steamship Co.	63	1,994,557	31,659
9	Precious Shpg. Ltd.	60	1,522,699	25,378
10	Zodiac Maritime Agy.	53	6,439,369	121,497

Source: Clarksons.net, accessed 13.09.06

848. The major operators in the dry bulk segment are primarily Japanese, Korean and Chinese. However, it is very difficult to asses how many of these vessels are active in the day-to-day spot market, as many of these are tied up to long-term agreements with steel mills. Likewise, some vessels are used for asset play while others are on various time charter and bareboat charter agreements.

Panamax bulker top ten owners

Rank	Current Owner	Number	Total	% share in dwt
1	China Ocean (COSCO)	84	5,865,894	6.6
2	Kawasaki Kisen	32	2,591,045	2.9
3	Cardiff Marine Inc.	26	1,871,755	2.1
4	Mitsui O.S.K. Lines	25	1,991,248	2.2
5	Nippon Yusen Kaisha	23	1,947,649	2.2
6	Quintana Management	18	1,390,365	1.6
7	China Shipping Group	16	1,115,366	1.2
8	Golden Union	14	952,058	1.1
9	Diana Shpg. Agencies	13	968,242	1.1
10	Nissen Kaiun K.K.	13	990,111	1.1
Grand total top 10 largest owners				**22.1**

Source: Clarksons.net, accessed 11.09.06

849. As is evident in the table above, the large Chinese and Japanese ship owning companies dominate this segment. However, the largest owner COSCO only controls 6.6% of the tonnage in this segment.

850. The ownership structure in the Capesize segment is a bit more concentrated than in the Panamax segment, but the top ten largest owners only control 31.3% of the tonnage in the segment, as shown in the following table.

Capesize bulker top ten owners

Rank	Current Owner	Number	Total (dwt)	% share in dwt
1	Mitsui O.S.K. Lines	36	6,311,042	5.0
2	Zodiac Maritime Agy.	35	5,713,792	4.6
3	China Ocean (COSCO)	32	5,118,935	4.1
4	Kawasaki Kisen	30	5,265,845	4.2
5	Nippon Yusen Kaisha	26	4,666,597	3.7
6	Hanjin Shpg Co.	18	2,990,815	2.4
7	Angelicoussis Group	15	2,506,647	2.0
8	Korea Line	14	2,548,342	2.0
9	Enterprises Shpg.	13	2,188,147	1.7
10	Tai Chong Cheang	12	2,055,690	1.6
Grand total top 10 largest owners				**31.3**

Source: Clarksons.net, accessed 11.09.06

851. As is depicted in the two tables, there is a diverse ownership structure and concentration within the Panamax and Capesize markets, despite the fact that the largest owners are primarily Chinese and Japanese. In the following section the different pools and their operating segments are explored in detail. The consultants find the relative market shares for the pools compared to the fleet owned by the largest owners to be relatively small.

3.2.5 *Price Competition*

852. Price competition between the different vessel segments is determined by the types of commodities and/or goods they transport, and given that the same commodity can be transported from A to B on more than one vessel type (for instance iron ore, coal and grain); freight rates will ultimately determine which vessel type is preferred.

3.2.6 *Substitutability of vessels*

853. There is a range of commodities which can be transported on a number of ships. Harbours which are capable of discharging a Capesize vessel are also capable of handling smaller vessel types. In the end, what is transported is dependent on freight rates for the different alternatives.

854. For example, a shipment of iron ore from Brazil to China could be transported on one Capesize or split into two Panamaxes. This occurs when the difference in freight rates is sufficiently large to make this economically feasible. Recently this occurred, where the Capesize rate was USD34 per tonne ore and the Panamax rate was USD30 per tonne.

3.2.7 *Geographical Scope*

855. The typical routes which dry bulk ships operate on for the major bulks include the following:

- Fronthaul : Brazil to the Middle East or the Far East
- Transatlantic : Brazil /Central America to the European Continent
- Backhaul: Australia / South Africa to the European Continent
- Transpacific : Australia to Asia

3.2.8 *Barriers to entry*

856. The entry barriers in the dry bulk market are very low. A new player wishing to quickly enter the market is best able to do so in a liquid second hand market. The dry bulk second hand market is very active and a vessel can be delivered within 4 weeks following purchase.

857. Both the technical and commercial management of the vessel can easily be outsourced.

Second Hand Bulk Carrier Sales 1997-2005

	Size Groups in '000 dwt								Total
	10-25	25-40	40-50	50-60	60-80	80-120	120-200	200+	No.
1997	n.a.	105	40	19	90	5	28	5	292
1998	n.a.	71	27	7	34	4	20	2	165
1999	n.a.	132	53	17	85	4	18	3	312
2000	n.a.	94	36	7	66	4	20	2	229
2001	n.a.	74	26	4	56	1	21	0	182
2002	n.a.	114	79	7	88	1	36	0	325
2003	n.a.	115	73	27	99	0	43	1	358
2004	n.a.	175	74	25	122	2	46	3	447
2005	n.a.	88	56	36	95	7	45	0	327

Source: Fearnleys (2006)

858. The active market is evident by the fact that 447 bulk vessels larger than 25,000 dwt changed owners in 2004 and 327 changed owners in 2005.

3.3 THE NEO BULK MARKET

3.3.1 *The PCC Market*

859. This section covers cargo that can be transported by different types of vessels. The pure car carrier market can be split into categories based on their degree of specialisation. A distinction can be made between the following three types:

- PCC – Pure Car Carriers, built since the 1970's. Capable of transporting new and second hand cars which are rolled onto the vessel;

- PCTC – Pure Car Truck Carriers are like the PCC vessels, but with hoistable decks. The first editions had one hoistable deck. Modern units can have up to 6 hoistable decks, which make them capable of taking larger loads that can be rolled onto the vessel, such as yachts, construction equipment, railway trains *etc*.;

- Ro-Ro – Roll on, roll off. Vessels that are capable of handling a wide range of commodities and/or goods as long as it can be rolled on and rolled off. Some deep-sea units are also capable of handling containers.

860. PCC/PCTC (from now on referred to as PCC) have a design like a floating parking house. PCCs are custom designed to carry new cars from factories, second hand cars and agricultural equipment in addition to project cargo. The only difference between a PCC and a PCTC is that

PCTCs have hoistable decks. They are capable of handling containers as well, but normally it is not economically efficient for them to do so[162].

861. Although it varies most owners or operators have a product mix of cars (passenger cars, vans, SUVs), what normally is referred to as "high and heavy" and NCC (Non Containerised Cargo). High and heavy cargo is typically larger types of vehicles, agricultural machinery, *etc.* NCC are products that are too large to put into a standard ISO container, or is more convenient to transport on a Ro-Ro vessel. As an example, 50% of Wallenius Wilhelmsen's cargo is cars, about 30% is high and heavy and the remainder is NCC.

862. On the other design extreme, there are the ordinary Ro-Ro vessels, which have a design more like traditional tankers and bulkers. They are more flexible than PCCs, and carry a wide range of products, often including containers. Ro-ro vessels can handle containers, but they cannot compete on price with respect to the specialised container vessels (which only carry 20 or 40 feet containers). Ro-ros are not included in the fleet section of this Report, as these are other types of vessels, which are not as highly specialised.

863. Between these two extremes lies the hybrid, which is a modern combined ro-ro/container vessel with a design inspired by PCCs. These are typically used from West Africa to Europe, carrying cocoa and other commodities from Africa to Europe and used cars to Africa from Europe.

864. In the following we will focus on the PCC market, as this is the market which is most transparent.

865. Today's pure car carriers are distinctive looking ships with a box-like superstructure running the entire length and breadth of the hull, fully enclosing and protecting the cargo. They typically have a stern ramp and a side ramp for dual loading of their cargo. A major advantage with this ship design is its ability to provide fast port turnaround without any special cargo handling facilities. On a modern vessel, some of the decks are hoistable, whilst the majority of the decks are not. A modern vessel typically has ten to 13 decks, of which about five to seven are hoistable.

866. Most of the leading providers are offering integrated, multimodal logistics solutions. Wallenius Wilhelmsen Logistics offers total supply chain management solutions, which include ocean services, technical services (that is modifying the vessels to the local regulations and requirements) as well as inland transportation from factories and ports on to dealerships around the world.

3.3.1.1 The PCC Fleet

867. The PCC market is not characterised by pool type cooperation, but has a small number of suppliers that control a large share of the modern and efficient tonnage, here defined as vessels with a car carrying capacity of above 5,000 cars. The total PCC fleet is composed of 553 units, with a total car capacity of nearly 2.5 million cars. The fleet has developed as follows for selected years since 1986.

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162 However, on some selected trades, it could be economically feasible to use PCC vessels instead of containerships.

PCC Fleet development 1986-2006

	1-1.999 CEU		2-2.999 CEU		3-3.999 CEU		4-4.999 CEU		5-5.999 CEU		6.000+ CEU		Total	
YEAR	**No.**	**CARS**	**No.**	**CARS**	**No.**	**CARS**	**No.**	**CARS**	**No.**	**CARS**	**No.**	**CARS**	**No.**	**CARS**
1986	39	56,400	64	159,700	88	292,800	69	307,400	43	231,000	14	87,100	317	1,134,600
1990	24	33,800	42	105,800	78	260,400	87	394,900	64	347,600	22	136,500	317	1,278,900
1995	20	28,900	41	103,600	76	252,300	88	395,300	78	418,100	26	160,300	329	1,358,600
2000	37	51,089	35	87,675	87	289,535	113	512,147	117	639,617	34	206,810	423	1,786,873
2005	46	62,842	33	81,490	93	313,686	140	631,706	117	640,215	88	551,200	517	2,281,139
2006	47	67,338	36	87,890	94	316,979	144	648,683	114	619,875	118	747,040	553	2,487,805

Source: Fearnleys PCC Report (2006)

868. Since 1986, the fleet has more than doubled its car carrying capacity, with strong growth seen in the number of large vessels. In 1986 there were only 14 vessels with a car carrying capacity of more than 6,000 cars, and today the same number is 118. The same numbers for the 5,000-5,999 CEU category are 43 and 114, respectively. The biggest reduction has been in the segment capable of transporting 2,000-2,999 cars, as this segment of the fleet has been reduced from 64 to 36 vessels.

3.3.1.2 The PCC Orderbook

869. Taking a closer look at the orderbook for PCC vessels, it is evident that the major operators are also very active and dominate the orderbook, especially for the largest units.

PCC Orderbook by major operators and vessel size

	2-2.999 CEU		3-3.999 CEU		4-4,999 CEU		5-5.999 CEU		6,000+ CEU		Total	
OPERATOR	**No.**	**CARS**	**No.**	**CARS**	**No.**	**CARS**	**No.**	**CARS**	**No.**	**CARS**	**No.**	**CARS**
EUKOR	-	-	-	-	2	9,800	2	-	19	123,500	23	143,900
NYK	-	-	1	3,900	3	14,700	4	20,850	14	90,500	22	129,950
CIDO	-	-	-	-	5	20,500	-	-	16	102,400	21	122,900
WW+WALL	-	-	-	-	-	-	-	-	17	121,000	17	121,000
MOL	2	4,400	-	-	1	4,000	-	-	16	102,400	19	110,800
K-LINE	-	-	-	-	5	20,900	-	-	9	54,000	14	74,900
HØEGH	-	-	-	-	-	-	4	20,800	5	33,500	9	54,300
GRIMALDI	-	-	-	-	6	27,100	-	-	-	-	6	27,100
CHINA	-	-	-	-	2	9,800	-	-	2	12,800	4	22,600
CSAV	-	-	-	-	4	19,600	-	-	-	-	4	19,600
STXPANOCEAN	-	-	-	-	3	14,700	-	-	-	-	3	14,700
KESS	2	4,400	-	-	-	-	-	-	-	-	2	4,400
UNKNOWN	5	10,200	-	-	8	36,000	-	-	3	19,200	16	65,400
Grand Total	**9**	**19,000**	**1**	**3,900**	**39**	**177,100**	**10**	**52,250**	**101**	**659,300**	**160**	**911,550**

Source: Fearnleys World PCC Fleet Update (2006)

870. As can be seen from the table below, the majority of the ships on order are in the 6,000 cars + segment. It is also worth noticing that there are only 10 vessels under 4,000 car capacity on order, compared to 101 (or 63.1% of the total order book) vessels above 6,000 cars capacity. Taking a closer look at the 6,000 + car orderbook, the major operators have placed 95.1% of the orders in this segment.

6,000 cars + Orderbook

Operator	6,000+ CEU		% OF TOTAL[163]
	No.	CARS	
EUKOR	19	123,500	18.7
WW+WALL	17	121,000	18.4
CIDO	16	102,400	15.5
MOL	16	102,400	15.5
NYK	14	90,500	13.7
K-LINE	9	54,000	8.2
HØEGH	5	33,500	5.1
Total	**101**	**659,300**	**95.1**

Source: Fearnleys World PCC Fleet Update (2006)

871. EUKOR has the largest orderbook, but Wallenius Wilhelmsen's orderbook is about the same size. As we have explained earlier, EUKOR is owned by Wilh. Wilhelmsen and Walleniusrederierna[164], Sweden, both with 40 percent each, and the Hyundai Motor Group with 20 percent. Thus, WWL and EUKOR control 37.1% of the orderbook in this segment. Italian CIDO and Japanese owners MOL and NYK are also controlling a substantial part of the orderbook.

3.3.1.3 Major PCC Owners

872. There are ten owners or operators that own vessels with car carrying capacity over 5,000 cars. The two largest are both large Japanese companies, namely NYK-Line (with 16.7% of the total fleet) and MOL (controlling 15.5% of the total fleet). However, the third largest entity measured in cars, EUKOR, is owned 40% by Wilhelmsen and 40% by Wallenius (and the remaining 20% of the ownership is split between car manufacturers KIA and Hyundai). Wallenius Wilhelmsen Lines (WWL) is the fifth largest operator. The list of the largest operators is presented in the following table:

164 In 2002, Norwegian shipping owner Wilhelmsen Lines acquired an 80 percent stake in the car carrier division of Hyundai Merchant Marine, with the remaining 20 percent going to Hyundai Motor and Kia Motors. Wilhelmsen Lines later merged with Wallenius Lines, a Swedish shipping group, which now holds a combined 80 percent share ownership in Eukor. Source: http://www.koreaherald.co.kr/SITE/data/html_dir/2006/11/08/200611080025.asp.

PCC Fleet by operator

	1-1.999		2-2.999		3-3.999		4-4.999		5-5.999		6.000+		Total	
Operator	**No.**	**CARS**	**No.**	**CARS**	**No.**	**CARS**	**No.**	**CARS**	**No.**	**CARS**	**No.**	**CARS**	**No.**	**CARS**
NYK	4	4,865	5	13,895	12	38,894	15	67,428	33	177,714	18	113,540	87	416,336
MOL	4	5,700	4	10,600	19	62,190	17	78,600	8	44,150	29	183,800	81	385,040
EUKOR	2	3,000	4	9,600	16	54,880	25	113,540	9	49,300	20	130,000	76	360,320
K-LINE	3	4,800	3	7,770	7	24,220	25	112,690	19	99,380	12	75,100	69	323,960
WWL	2	3,934	-	-	5	19,000	6	26,945	25	138,525	12	80,350	50	268,754
HØEGH	-	-	1	2,300	8	28,905	7	30,720	3	17,010	20	122,000	39	200,935
GRIMALDI	1	1,975	1	2,780	8	25,650	25	108,900	-	-	-	-	35	139,305
CIDO	3	5,270	7	16,950	3	10,800	12	54,930	5	26,215	1	6,250	31	120,415
TOYOFUJI	8	11,754	-	-	-	-	3	14,180	-	-	5	30,000	16	55,934
ARC	-	-	-	-	-	-	-	-	8	46,380	-	-	8	46,380
UECC	8	9,819	4	8,395	6	18,480	-	-	-	-	-	-	18	36,694
NMCC	-	-	-	-	2	6,800	1	4,800	4	21,201	-	-	7	32,801
ECL	3	4,466	-	-	3	10,800	-	-	-	-	-	-	6	15,266
CSAV	-	-	1	2,200	1	3,000	2	8,750	-	-	-	-	4	13,950
ACT	-	-	-	-	1	3,200	2	8,600	-	-	-	-	3	11,800
ZIM	-	-	-	-	-	-	2	9,700	-	-	-	-	2	9,700
NEPTUNE	4	5,355	2	4,000	-	-	-	-	-	-	-	-	6	9,355
VWT	-	-	1	2,500	2	6,560	-	-	-	-	-	-	3	9,060
SUARDIAZ	5	6,400	-	-	-	-	-	-	-	-	-	-	5	6,400
GAL	-	-	-	-	-	-	-	-	-	-	1	6,000	1	6,000
DAEWOO L	-	-	-	-	-	-	1	4,600	-	-	-	-	1	4,600
KESS	-	-	2	4,400	-	-	-	-	-	-	-	-	2	4,400
PASHA	-	-	-	-	-	-	1	4,300	-	-	-	-	1	4,300
CCNI	-	-	-	-	1	3,600	-	-	-	-	-	-	1	3,600
KKRN	-	-	1	2,500	-	-	-	-	-	-	-	-	1	2,500
Grand Total	**47**	**67,338**	**36**	**87,890**	**94**	**316,979**	**144**	**648,683**	**114**	**619,875**	**118**	**747,040**	**553**	**2,487,805**

Source: Fearnleys World PCC Fleet Report, 2006

873. As can be seen from the table, the largest ship owning companies are controlling the majority of the largest vessel categories. The smaller owners, *i.e.* those with a total capacity less than 200,000 cars, are mostly more active in the segment less than 5,000 cars.

874. The dominance of the largest players is especially large in the 6,000+ segment, where the six largest owners control more than 94% of the vessels.

Distribution of 5,000 + car capacity by largest owners or operators

	5-5.999 CEU		% OF TOTAL[165]	6.000+ CEU		% OF TOTAL[166]
Operator	**No.**	**CARS**		**No.**	**CARS**	
NYK	33	177,714	28.7	18	113,540	15.2
MOL	8	44,150	7.1	29	183,800	24.6
EUKOR	9	49,300	8.0	20	130,000	17.4
K-LINE	19	99,380	16.0	12	75,100	10.1
WWL	25	138,525	22.3	12	80,350	10.8
HØEGH	3	17,010	2.7	20	122,000	16.3
Total	**114**	**619,875**	**84.9**	**118**	**747,040**	**94.3**

Source: Fearnleys World PCC Fleet, 2006

875. NYK is the largest owner in the 5,000-5,999 cars segment and MOL is the largest owner in the 6,000 + cars segment.

876. Below are the major operators in the PCC markets with the fleet they operate. These vessels do not necessarily have to be owned by the company, as some of them are on time charter or bare boat charter into the various operators[167].

(a) NYK-Line

877. NYK-Lines offer global transport logistics solutions, and they are the single largest firm operating a fleet of 87 vessels in all vessel size categories, capable of performing both deep sea and short sea services. Currently their orderbook is the second largest, with 22 vessels. The total capacity on order is equivalent to 129,950 cars. All of the vessels on order are larger than 3,000 cars, and the majority (14 units) are in the 6,000 cars + category.

(b) Mitsui O.S.K Lines

878. Japanese based MOL is the second largest operator in the PCC segment, and serves the global auto industry with a fleet of 81 vessels totalling 385,040 cars. Their orderbook is currently 19 vessels or 110,800 cars, of which the majority (16 units) will have above 6,000 cars capacity. There are also three smaller vessels on order, two of which are between 2-3,000 cars and one with a capacity of 4,000 cars.

(c) Eukor Car Carriers[168]

879. The company was established in December 2002 and is owned by Wilh. Wilhelmsen and Walleniusrederierna, Sweden, both with 40 percent each, and the Hyundai Motor Group with 20 percent. Their base is the export of Hyundai Motor and KIA Motors from Korea, but EUKOR also serves most of the other global automotive leaders including Daimler Chrysler, Volkswagen, Volvo, BMW, General Motors, Ford, Mazda and Suzuki.

880. EUKOR directly operates about 85 specialised vessels, and has 15 - 20 further ships on short-term arrangements at any given point in time - annually transporting over 3 million cars to 160 different ports in 110 countries, utilising a global network of offices and agents.

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165 Here calculated as percentage of total capacity in cars.
166 *Ibid.*
167 Source: Fearnleys World PCC Fleet Update 2006.
168 http://www.ww-group.com/index.asp?sid=1000160&strUrl=1001651i, accessed 25.1.2007.

881. Their orderbook currently stands at 23 vessels, with a total capacity of 143,900 cars, of which 19 are in the 6,000 + category, 2 in the 5-5,999 segment and two are in the 4-4,900 cars category.

(d) Wallenius Wilhelmsen Logistics

882. The company was established in 1999 and is jointly owned by Wilh. Wilhelmsen and Walleniusrederierna in Stockholm, Sweden with 50% each. They currently operate 50 vessels, with a total car carrying capacity of 268,754 cars. Their orderbook include 17 vessels, all with more than 6,000 cars capacity.

883. Wallenius Wilhelmsen Logistics (WWL) is a leading independent global provider of outbound vehicle logistics services.

(e) Höegh Autoliners

884. Höegh Autoliners has transportation contracts with many of the world's leading vehicle manufacturers and is a leading carrier of second-hand vehicles, as well as "high & heavy" construction equipment and other rolling stock.

885. Its current fleet of 39 vessels, varying in size from 2,300 cars to vessels with a capacity of more than 6,000 cars, will be supplemented by another 9 vessels which are on order. The newbuildings vary in size from 5-5,999 cars (four) and 6,000 cars + (five).

886. Höegh Autoliners presently operates 13 deep-sea ro-ro services under its own brand name, in addition to the Japan-New Zealand used-car trade operated by its subsidiary Kiwi Car Carriers and a short sea feeder service in the Caribbean.

3.3.1.4 Price competition

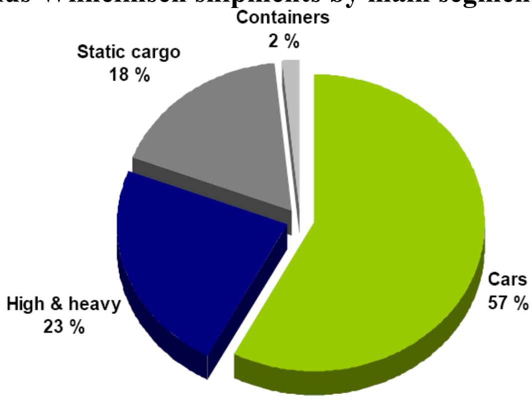
887. The degree of price competition in this segment is very difficult to determine, as PCC fixtures and contract details are business secrets. The consultants only have a handful of rates which were estimate based on their market knowledge for three vessels.

3.3.1.5 Substitutability of vessels

888. A car or wheeled cargo can be transported onboard PCCs, reefers, ro-ros or containerships (if the cargo can be put into a container). PCCs transport cars, high and heavy equipment, static cargo[169] and containers. A typical PCC operators cargo mix is here illustrated by Wallenius Wilhelmsen's shipments by main segment:

[169] Such as trains, turbines, aircrafts *etc*.

Wallenius Wilhelmsen shipments by main segments in 2004[170]



889. Initially, some 30 years ago cars were carried only onboard PCCs and Ro-Ro cargo were transported onboard ro-ro vessels only. Today, PCC vessels are capable of transporting long, tall and heavy static cargo up to 40 meters long, 6.3 meters high and weighing 420 tonnes. Thus, PCC and Ro-Ros are capable of transporting much of the same cargo. A substitutability matrix for the main PCC/PCTC (from now on referred to as PCC) commodities and/or goods by vessel type is illustrated in the table below:

PCCs – Substitutability by cargo type				
Commodities and/or goods	**PCC**	**Ro-Ro**	**Container**	**Reefer**
Cars – Cars, SUV's, MPV's etc.	Yes, purpose built for carrying cars & high and heavy equipment	Yes, if car-deck and spare capacity	Yes, if the car is put in a container	Yes, both containerised or wheeled
High and heavy – Wheeled construction and agricultural equipment etc.	Yes	Yes	No	No
Static cargo - Yachts, turbines, aeroplanes	Yes	Yes	No	No
Containers	Yes	Yes	Yes	Yes

Source: Fearnleys (2006)

On deep-sea shipments of new and factory used cars, and high and cargo, PCCs face little competition from both Ro-Ros, reefers and container vessels, as they are purpose built for these trades. When it comes to short sea transport of the same commodities, PCCs face competition from Ro-Ros. Modern ro-ros are basically smaller versions of PCC vessels specialised in transporting plant machinery, agricultural machinery, non-containerised cargo, boats, cars and buses short sea. In addition, Ro-Ros transport trailers (which are transported between ports in Europe).

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170 Source: http://hugin.info/177/R/933626/128526.pdf.

3.3.1.6 Geographical Scope

890. The largest players in the market have a worldwide presence and offer services related to shipments of new and second hand cars, agricultural equipment and project cargo on the following main worldwide routes:

- Asia to North America, Europe, Central & South America, Oceania, Middle East & Africa
- Europe to North America, Middle East, South Africa, Australia, New Zealand
- North America to Central & South America, Middle East, Mediterranean, West Africa, South Africa and South East Asia

891. The consultants do not monitor trading patterns for car carriers in the same manner as they do for dry bulk carriers and tankers. For the purposes of this Report however, we have studied the service routes as indicated by some of the major operators as given on their web sites. It appears that they all compete alongside in the main East-West and West-East trade routes and that there are similarities in the other operations as well. In the two tables below we have listed the main routes for five out of the six major operators controlling some 60% of the entire fleet.

Operator	**Routes**	
	From	**To**
Wallenius Wilhelmsen[171]	North America	Europe Asia Oceania Middle East
	South America	North America
	Asia	North America Europe
	Europe	North America Oceania (via US East Coast) Oceania (via South Africa)
	Oceania	Asia
	China Express Service	To/from China & Japan (transshipment)
	SEA Express Service	South East Asia trade
Eukor[172]	Far East	Europe North America South America C.America & Caribbean Middle East & Africa Oceania
	Intra Asia	

171 http://www.2wglobal.com/www/productsServices/oceanServices.jsp accessed 16/10/2006.

	Europe	Asia South & East Africa
Hoegh Autoliners[173]	Asia Europe North America	North America Europe Central & South America, Oceania Middle East & Africa North America Middle East South Africa Australia New Zeeland Central & South America, Middle East Mediterranean West Africa South Africa South East Asia
NYK[174]	Asia Intra Asia Europe North America	North America Europe S & C America Oceania Middle East & Africa North America S & C America Middle East
K-line[175]	Far East Short Sea Europe Japan Inter Asia Service North America	NW Europe Mediterranean North America Europe C.America S.America Caribbean Australia South East Asia West Africa South Africa Europe Mediterranean C.America S.America

172 http://www.eukor.com/homepage/manage/service_routes.jsp accessed 16.10.2006.
173 http://www.hoegh.com/autoliners/products_and_services/ accessed 16.10.2006.
174 http://www2.nykline.com/nykinfo/car_carrier_services/service_network/index.html accessed 16.10.2006.
175 http://www.kline.co.jp/biz/car/map/e_map_e.htm accessed 16.10.2006.

892. As an example, the table below shows the trading routes including the main ports of call for Eukor.

EUKOR Car Carriers Service Routes[176]		
Route	**Frequency**	**Main ports of call**
Far East to Europe	10-11 voyages per month	Ulsan / Pyungtaek / Kunsan / Incheon Red Sea - Jeddah / Aqaba / Tartous / Limassol / Derince / Piraeus / Koper / LivoRno / Tarragona / Valencia / Algier Setubal / Dublin / Liverpool / Sheerness / Tilbury / Southampton / Antwerp / Rotterdam / Bremerhaven / Drammen / Fredericia / Wallhamn
Far East to North America	13-16 voyages per month 6-8 voyages per month	WEST COAST Ulsan / Pyungtaek / New Westminster / Tacoma / Portland / Richmond / Hueneme EAST COAST Ulsan / Pyungtaek / Brunswick / Baltimore / Newark
Far East to South America	1 voyage per month 1 voyage per month	WEST COAST Ulsan / Kunsan / Nakanoseki / Toyohashi / Yokohama / Buenaventura / Esmeraldas / Callao / Matarani / Iquique / San Antonio EAST COAST Ulsan / Kunsan / Nagoya / Vitoria / Montevideo
Far East to C. America & the Caribbean	1 voyage per month	Ulsan / Pyungtaek / Incheon / Mazatlan / Puerto Quetzal / Acajutla / Corinto / Puerto Caldera / Balboa / Puerto Cabello / Guanta / Fort De France / Point A Pitre / San Juan
Far East to Middle East and Africa	3-4 voyages per month	Ulsan / kunsan / Yokohama / Nagoya / Sakai Port Sultan Qaboos / Sharjah / Dubai / (Bahrain) / (Doha) / Dammam / Kuwait / Iraq / Bandar Abbas / Mombasa / Dar Es Salaam / (Maputo) / Durban / Pointe Des Galets
Intra Asia	2-3 voyages per month	Ulsan / Pyungtaek / Taichung / Batangas / (Hongkong) / Muara / Singapore / Port Kelang / Jakarta
Far East to Oceania	1 voyage per month 2-3 voyages per month	WEST COAST Ulsan / Pyungtaek / (Jakarta) / Frementle EAST COAST Ulsan / Pyungtaek / Brisbane / Sydney / Melbourne / Adelaide
Europe to Asia	4 voyages per month	Bremerhaven / Gothenburg / Antwerp / Southampton (Tilbury) / Aqaba / Jeddah / Dubai / Abu Dhabi / Dammam Singapore / Hongkong / Keelung / Taichung Far East - Nagoya / Toyohashi / Masan / Inchon
Europe to South & East Africa	1 voyage per month	Tilbury / Antwerp / Bremerhaven / Durban / Dar Es Salaam / Mombasa

176 http://www.eukor.com/homepage/manage/service_routes.jsp accessed 16.10.2006.

3.3.1.7 Barriers to entry

893. The barriers to entry in the PCC market are high for immediate entries, as there is a very limited second hand market for modern tonnage as the major operators do not have a tonnage surplus. Without purchasing in the second hand market, a ship would have to be ordered, delaying entry into the market for a couple of years.

894. The purchase price of a new PCC vessel to be delivered in 2010 would be approximately USD 73-75 million for a 6,500 CEU vessel or USD 52-53 million for a 4,300 CEU vessel. It is important to note that one vessel will not enable a lucrative business. To become a worldwide sea operator one would need to have a fleet of no less than 20 vessels with a capacity above 4,000 ceu.

895. Management of these vessels is not considered a barrier to entry as both commercial and technical management of the vessel can easily be outsourced.

3.3.2 *The Reefer Market*

896. A typical modern reefer vessel offers a combination of under deck storing capacity as well as containers on deck. This can be illustrated by one large, modern unit, such as 2002-built 626,011 cubic feet, mv Lombok Strait, which has a deck area around 7,340 cubic metres in addition to the possibility of carrying up to 440 TEU[177] (or 220 FEU[178], which is a 40-foot container) on deck.

897. Reefers are operated both as liners and as tramp shipping vessels. A number of the major fruit exporters own their own vessels[179] directly through subsidiaries while also time chartering in modern ships on one to three year charters. There are a number of pools operating that arrange CoAs with fruit and meat exporters. Reefer services are increasingly run as liner services (at least in season), especially on the backhaul routes. Older tonnage tends to be utilised on a spot basis, often during the peak three month season, and put into lay up for long periods.

898. There is competition between the bulk and liner services for carriage of refrigerated cargo. Reefer vessels ship part of the trade[180], whilst the other part is shipped in reefer containers on liner services whose vessels are equipped to handle such containers.

899. Specialised reefers are capable of carrying perishables, fresh, frozen or otherwise processed fruit, vegetables, bananas, fish or any other commodity, whether loaded break bulk, palletised or in containers.

900. Most vessels are equipped with cargo gear that takes care of loading and discharging. Consequently, although reefer vessels are specialised in the carriage of refrigerated cargo, they can also carry dry cargoes and project cargoes, ranging from a full load of bagged cocoa beans to a full load of cars. Also, single pieces such as trucks, excavators and America's Cup yachts have been transported onboard reefers. This, however, represents a minor percentage of cargoes overall and is mainly found on the backhaul routes.

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177 TEU is defined as a Twenty Feet Equivalent Unit, that is a standard 20-foot dry-cargo container.

178 Fourty-foot equivalent unit. A term used in indicating container vessel or terminal capacity. Two 20-foot containers equal one FEU.

179 Although Chiquita is trying to sell out its fleet of twelve vessels.

180 Ships that are totally dedicated to the carriage of reefer cargo with insulated holds, however, modern vessels also have reefer slots, which can carry containers as well. Reefer vessels sail both as liner services as well as trading in the spot market.

901. Specialised reefer vessels offer a number of advantages compared to reefer containers, although their importance varies according to the type of product. With up to 90 total air changes per hour, the specialised reefer vessels have an incomparable ability to reduce hold temperatures. On modern vessels, one can adjust both CO_2 levels and humidity, as well as monitor the temperature of the cargo itself. Specialised reefer vessels may offer a cost advantage when transporting large volumes and flexibility in a seasonal market. Nevertheless, since at least the early 1990s there has been a steady increase in the volumes of cargo carried on reefer containers compared with that carried on specialised reefer vessels.

902. Transported volumes of reefer goods have experienced a historical growth rate of 3-4 % per annum, say 40% in total over the last ten years. Most of that additional reefer volume represents new reefer container capacity and not new specialised reefer cargo, which has seen static or negative growth. According to Green Reefers[181], there has not been any major change in the container share of reefer volumes, which they estimate to be just over 50%, but in the consultants' view that statement needs to be viewed with some caution. This point is illustrated in the table below.

Reefer ships: indicative daily bunker consumption and costs[182]

The assumed price averages (US$/tonne) for fuel oil and diesel are:

Size Cu. Ft		Year	200,000	260,000	380,000	450,000	550,000	600,000
Speed	Knots		14	17	20	18	20	21
Fuel Oil	Tonnes/day		15	20	31	27.5	42	60
Diesel	Tonnes/day		2	3.5	4	5	5	7
Bunker price ($/tonne)	Fuel oil	2006	324	324	324	324	324	324
		1999	57	57	57	57	57	57
	Diesel	2006	568	568	568	568	568	568
		1999	89	89	89	89	89	89
Daily cost	Fuel oil	2006	4,860	6,480	10,044	8,910	13,608	19,440
	Diesel		1,136	1,988	2,272	2,840	2,840	3,976
	Total	$ per day	5,996	8,468	12,316	11,750	16,448	23,416
	Fuel oil	1999	855	1,140	1,767	1,568	2,394	3,420
	Diesel		178	312	356	445	445	623
	Total	$ per day	1,033	1,452	2,123	2,013	2,839	4,043

Source: Drewry(2006)

3.3.2.1 The Reefer Fleet

903. The reefer fleet[183] is currently made up of 1,241 vessels totalling 332.7 million cubic feet (or 7.3 million dwt). The exact fleet distribution with fleet development since 2002 is shown in the following table[184]:

181 www.greenreefers.no, accessed 5.9.2006.

182 Notes: assume "normal" sea conditions. Diesel cost may increase in port, notably if using ship's gear. The price based used is Rotterdam.

183 Reefers over 10,000 cu.ft.

184 This vessel categorisation is based on data from Clarkson and cannot be split further down.

Existing Reefer Vessel Fleet [185]

Vessels size in cubic feet at year end	2002	2003	2004	2005	01.08.2006 No. of ships	Mill. cub.ft
< 100,000 cu ft	18.4	18.1	17.9	17.6	301	17.6
100-199,999 cu ft	39.8	39.7	38.8	38.3	254	38.3
200-299,999 cu ft	54.9	53.5	52.8	52.5	207	51.7
300-449,999 cu ft	82.6	79.5	75.4	74.6	196	73.8
450-549,999 cu ft	97.1	96.7	95.2	94.7	191	94.2
> 550,000 cu ft	57.5	57	56.4	56.4	92	57
TOTAL FLEET	**350.4**	**344.4**	**336.4**	**334.1**	**1,241**	**332.7**
TOTAL M. dwt	**7.7**	**7.6**	**7.4**	**7.3**	**1,241**	**7.3**

Source: Clarkson Shipping Intelligence Weekly NO:735 (2006)

904. As can be seen from the table, the reefer fleet has been steadily declining over the past few years when measured in cubic feet capacity. The scrapping of vessels has averaged approximately 3% of the fleet during the past decade. Taking the age structure of the fleet into consideration, one can expect to see scrapping continuing at the same level in the years ahead. However, a more buoyant reefer market may slow this trend to some degree. So far nine vessels have been scrapped in 2006 which equals 1.0% of the fleet. During the whole of 2005, scrapping amounted to 0,8 % of the fleet.

3.3.2.2 The Reefer Orderbook

905. The present orderbook looks as follows:

Reefer Fleet Orderbook with delivery year 2002- 2008

Vessels size in cubic feet	No.	m.ft³	% Fleet	2006	2007	2008+
< 100,000 cu ft	0	0	0.00	0	0	0
100-199,999 cu ft	6	0.9	2.40	0.3	0.6	0
200-299,999 cu ft	0	0	0.00	0	0	0
300-449,999 cu ft	0	0	0.00	0	0	0
450-549,999 cu ft	1	0.5	0.50	0	0.5	0
> 550,000 cu ft	7	4.2	7.40	0	4.2	0
TOTAL FLEET	**14**	**5.68**	**1.70**	**0.35**	**5.33**	**0**
TOTAL M. dwt	**14**	**0.12**	**1.60**	**0.01**	**0.11**	**0**

Source: Clarkson Shipping Intelligence Weekly No.:735 (2006)

906. Newbuildings on order total 1.7 % of the current fleet measured in cubic feet (or 14 vessels). Of this, seven vessels are above 550,000 cubic feet, one vessel is in the range from 450,000-599,000 cubic feet, and the remaining six on order are from 100,000 – 199,900 cubic feet. The majority of the vessels will be delivered in 2007, except for two vessels in the smallest size group, which will be delivered 2006. Relatively long delivery times from the yards, high newbuilding prices and competition from container operators still seems to restrain contracting.

185 This table could not be broken down more, as this is the industry standard for presenting the reefer fleet.

3.3.2.3 Major Reefer Owners [186]

(a) STAR Reefers[187]

907. STAR Reefers is one of the leading global reefer operators and controls 42 vessels (of which they own 29), including 3 newbuildings on order, totalling over 21 million cubic feet. The fleet is one of the most modern available to charterers and shippers of fruit and other perishable food. STAR Reefers is presently the owner, bareboat charterer or time charterer of 30 vessels specialised in the transport of refrigerated commodities and/or goods. According to STAR Reefers' website[188], all three of their newbuildings on order and their last newbuilding, delivered in 2006, are on 10-year time charters. Their newbuildings are not available in the spot market, as they are on 10 year time charters.

908. Ship sizes range from 370,000 cubic feet up to 670,000 cubic feet, with an average age profile of twelve years. As well as operating a fleet with good on-deck container capacity, their vessels also have the added advantage of being some of the fastest vessels in the industry.

(b) Green Reefers[189]

909. Green Reefers owns 22 vessels and operates a fleet of 31 vessels totalling 8.3 million cubic feet[190] of which 18 are Green owned and four are chartered, with a further nine vessels believed to be made available through a pool (for which no details were available at the time of writing).

910. Green Reefers offer integrated shipping solutions, and are thus capable of providing ocean transport, terminal handling/storage as well as inland transportation and distribution. They operate six terminals which provide cold stores and reefer storage capacity

(c) NYK-LauritzenCool [191]

911. NYK Reefers and LauritzenCool received clearance from the European Commission to merge their reefer activities in August 2005. The new company, NYKLauritzenCool AB, owned on a 50:50 basis by NYK Reefers and J. Lauritzen, became one of the world's largest reefer shipping companies, operating a fleet of 65 specialised reefer vessels between 378,000 and 760,000 cubic feet, in all major reefer trades, with a total capacity of nearly 35 million cubic feet. Almost all of the vessels have additional reefer plugs as well as cargo handling gear (*i.e.* cranes and/or derricks). All vessels are known to be operated on time charter, including a majority in the form of long-term time charters from each of the two shareholders, but also including some long-term time charters from independent owners.

912. NYKLauritzenCool does not as such operate its vessels in a pool with other vessel owners. It does not in fact own any vessels at all, and so is a pure operator, but charters in tonnage at arm's length on standard time charter terms from relevant subsidiaries in its two shareholders'

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186 See annex 5 for major owners and their fleet.
187 http://www.star-reefers.com, accessed 6.9.2006.
188 *ibid.* accessed on 15.9.2006.
189 http://www.greenreefers.no, accessed 5.9.2006.
190 http://www.newsweb.no/cdco/atmnt/GF_18052006.pdf?id=45625#search=%22green%20reefers%20%2B%20ppt%22, accessed 5.9.2006.
191 http://www.nyklauritzencool.com/start.html, accessed 1.9.2006. Details of the Lauritzen Cool fleet were not available to the consultants.

respective groups and from outside owners. The fleet of vessels operated by it are referred to as the Leonina fleet and the system of operating them as the "Leonina System".

3.3.2.4 Price Competition

913. Reefers typically have an advantage over containerships on long haul trades with a large variety of commodities. However, market observers say reefer services are hit hard if volumes are low. Half-full reefers make a service uneconomical. The same is true for boxships, although they can also fill slots with other types of cargo and have more ports of call, thus making containerships more flexible.

914. Containerships and Ro-Ro vessels are taking market shares from reefers. Reefer operators are losing the battle with container lines for market share in the transpacific trades, such as beef export from Australia to Japan. Besides the price competition from containerships, there is competition between reefer ships of different sizes and ages. Information is not available about which differences in freight rates make specialised reefers preferred over containerships, and on which trades this occurs.

915. Price competition between reefers and containerships, given that they can carry the same commodities and/or goods, is determined by freight rates. Price competition determines the cargo split between specialised reefer companies and reefer container companies. These can co-exist, but the growth of the reefer container companies' market share continues, despite something of a "fight-back" from the specialised reefer companies.

916. The impact of containerisation (and the undisputable fact that container shipping has taken an increased market share of reefer cargo year-by-year) has altered the focus of the specialised reefer companies. Specialised reefer companies have developed programmes specifically designed to "combat" the growing threat of containerisation and have re-directed their attention to more customer-focused service offering, for example, a door-to-door product and/or a liner service.

3.3.2.5 Substitutability of vessels

917. There is a distinction between different vessel sizes and the products they carry. The largest reefers, with a cargo capacity of more than 450,000 cubic feet trade solely trans-Atlantic with bananas. Smaller vessels, typically around 270,000 cubic feet trade in a more complex, global pattern including the trans-Atlantic trade with juice, meat, fish, fruit, *etc*.

918. The reefer container industry has built larger and larger vessels with an increased percentage of reefer slots, presumably to benefit from economics of scale. It has also improved technology and quality in a number of different ways. Most importantly, it has been able to convince the exporters and importers that it has responded to their demands and developed a suitable, attractive product accordingly.

919. Conversely, the specialised reefer industry has taken a somewhat different approach. The industry itself has certainly not acted uniformly, with some operators developing strong logistical arms to their business and others barely paying lip service to the concept. Nevertheless, these differing approaches all appear to be successful.

920. Boxships continue to pose a major threat to conventional reefers. Boxships now have more than double the reefer capacity, at 800 million cubic feet, than the conventional reefer fleet. The sector now has taken over half of the total refrigerated cargo trades, with ships that are faster and more fuel-efficient.

921. As mentioned earlier, a substantial amount of refrigerated cargo is now transported in reefer containers that are fully insulated. Some have their own refrigeration plants which can be

plugged into an electric socket on the ship (both general containerships and reefer vessels), while others rely on receiving cold air from a central shipboard system in reefer container ships. The advantage of reefer containers is that temperature can be more closely and accurately regulated than is possible in the hold of refrigerated ships. In addition, they facilitate transfer of refrigerated cargo through ports which have no refrigerated storage capacity.

922. The consultants have spoken to sources in both the reefer and the container business. The Danish company Mærsk, claims that all types of cargo that can be transported onboard reefers can also be transported on containerships. If asked the same questions, a reefer shipbroker argue that the lack of air circulation onboard containers make it impossible for some vegetables (like tomatoes) to be transported in full-stacked containers. However, given technological improvements in the container business, it is probably just a matter of time before all commodities can be transported in containerships. Importers and traders lose up to 10% in earnings through damaged goods caused by the lack of proper humidity conditions in containers, an important factor in persuading shippers to shy away from the boxship alternative.

923. There are some positive signs for the long-term future of reefers. A design has been developed for a fast-service Ro-Ro reefer that is able to travel at 30 knots, close to seven knots faster than fuel-efficient modern boxships with reefer slots. These ships would be able to transport chilled goods one way and cargo, such as cars and trucks on return voyages. Additionally, logistics remain tricky for the boxship sector. Commodities and/or goods are still exported in break-bulk form in many cases, which makes it better suited for conventional reefers. Reefers also have a lower draught, allowing them to enter the smaller ports of exporting countries. These ships are geared and do not depend on port infrastructure for loading and unloading, making them better equipped for many trades. Containerships of over 2,800 TEU usually are not geared.

924. The reefer business operates on a worldwide basis, but not as a regular liner shipping service. The business could best be described as a seasonal liner service. The reefer-liner services operate mostly during the summer months when fruit trades enter the low cycle.

925. Despite the stagnation in the specialised reefer fleet capacity and the massive decrease in container capacity over the next years, it is not accurate to say that the volume of cargo carried by the specialised reefer fleet will decrease. Cargo volumes are forecast to continue to increase and whilst individual trades may move, to a greater or lesser extent, from specialised reefer tonnage to reefer container tonnage.

3.3.2.6 Geographical Scope

926. Some selected reefer harbours are listed in the table below[192]. The most important European port is Rotterdam.

Selected European reefer ports	
Country	**Harbours**
Netherlands	Rotterdam, Flushing
Belgium	Antwerp, Zeebrugge
Russia	Vladivostok, St Petersburg
Germany	Bremerhaven
Turkey	Mersin
Italia	Ravenna, Genoa, Salerno
France	Brest
Poland	Gdansk

927. Typical trading routes for a selected number of products include:

- Fish from the Northern Areas to the Baltic, Black Sea, Continent and USA.
- Juice from Florida to the Continent.
- Fruits from Central America to US East Coast and US West Coast, Europe, Japan, Russia, China and Canada.
- Fish/Fertilizer from the Continent to West Africa.
- Chicken/Meat products from Brazil to Russia.

928. The principal world reefer trades are as follows.

World Reefer Trades			
Product	**From**	**To**	**Transport mode**
Bananas	Caribbean	Europe	Specialised/Containerised
	C/S America	Europe, USA	Specialised
Deciduous	Chile, South Africa	Europe, USA, Far East	Specialised/Containerised
Deciduous/Dairy/Meat	Australia	Europe	Containerised
	New Zealand	Europe	Specialised/Containerised
Vegetables	Israel	Europe	Containerised
Citrus	Israel	Europe	Specialised
	Florida	Japan	Containerised
	South Africa	Europe, USA, Far East	Specialised/Containerised

Source: Drewry (2006)

929. Seaborne trade has increased from approximately 56.5 million tonnes in 2000 to 64.6 million tonnes in 2004. There is a "North-South" trade route to the majority of the reefer trades – with the major import regions being Europe (Western Europe, Eastern Europe and the Mediterranean)

[192] Ports are found using vessel tracking of modern 1990s built specialised reefer vessels.

and North America. This differs from many of the established container trades which tend to operate more on an "East – West" trade route basis.

930. The figure below shows total world reefer trade by commodity in million tonnes.

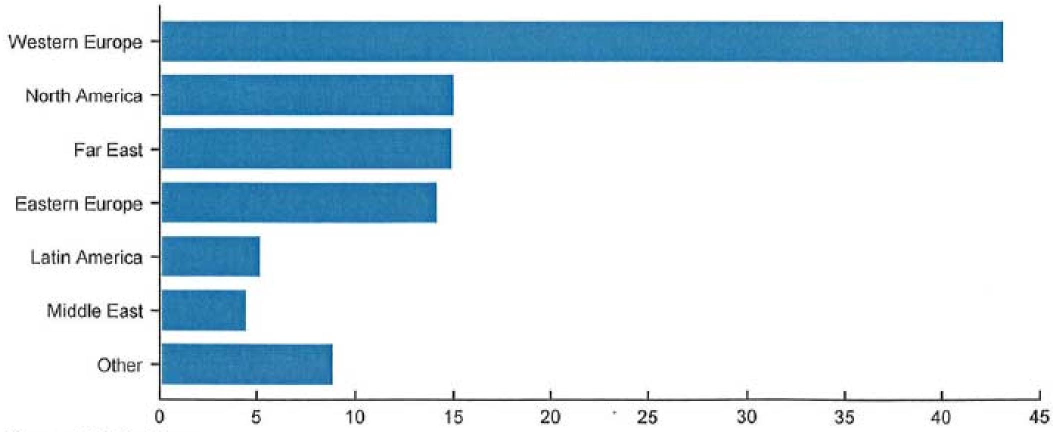
Total Seaborne reefer trade 2000-2004 in million tonnes

Commodity Group	2000	2001	2002	2003	2004
Bananas	*14.66*	*13.93*	*14.19*	*15.17*	*15.26*
Oranges	3.88	3.84	4.09	4.36	4.30
Lemons/limes	0.80	0.84	0.93	0.95	1.04
Grapefruit	0.58	0.55	0.59	0.56	0.57
Other Citrus	0.02	0.03	0.02	0.03	0.02
Total Citrus	*5.28*	*5.26*	*5.63*	*5.90*	*5.93*
Apples	2.63	2.70	2.90	3.20	3.34
Pears	0.82	0.90	0.92	0.97	1.04
Grapes	1.39	1.35	1.37	1.48	1.55
Total Decidious	*4.84*	*4.95*	*5.19*	*5.65*	*5.93*
Pineapples	0.95	1.04	1.18	1.32	1.54
Kiwi Fruit	0.50	0.54	0.51	0.55	0.62
Avocados	0.18	0.17	0.21	0.22	0.25
Total Exotic	*1.63*	*1.75*	*1.90*	*2.09*	*2.41*
Fish/Seafood	*11.55*	*12.67*	*12.95*	*13.21*	*13.47*
Poultry	3.45	3.75	3.79	3.98	3.73
Pork	2.53	2.61	2.91	3.11	3.32
Beef/Veal	2.78	2.51	2.77	2.81	2.82
Offal	0.85	0.84	0.90	1.02	0.96
Sheep meat	0.47	0.43	0.43	0.43	0.46
Total	*10.08*	*10.14*	*10.80*	*11.35*	*11.29*
Cheese/Curd	1.40	1.47	1.54	1.65	1.75
Butter	0.57	0.57	0.60	0.67	0.68
Total Dairy	*1.97*	*2.04*	*2.14*	*2.32*	*2.43*
Tomatoes	1.81	1.96	2.05	2.15	2.30
Frozen Potatoes	1.12	1.18	1.22	1.27	1.40
Stone Fruit/Berries	1.38	1.51	1.53	1.49	1.58
Frozen Vegetables	0.81	0.86	0.87	0.92	0.95
Total Others	6.47	6.91	7.12	7.39	7.91
Total All Cargoes	*56.48*	*57.65*	*59.92*	*63.08*	*64.63*

Source: Drewry (2006)

931. Trade in reefer commodities can be broken down into "live" cargoes (primarily chilled commodities and/or goods) and "non-live" cargoes (primarily hard-frozen commodities and/or goods such as meat). The single most important commodity to the specialised reefer industry is bananas. Split into importing regions, the picture looks as follows:

Total world reefer trade in million tonnes by importing region, 2004



Source: Drewry(2006)

932. As can be seen Western Europe is by far the single most important market for reefer products.

3.3.2.7 Barriers to entry

933. The reefer industry is a very mature industry facing growing competition from container lines and is thus, not an attractive market for a new player. The growth in refrigerated containers has led to an active second hand market. Recently, Green Reefers signed a letter of intent to buy 20 reefers worth between USD175 million and USD180 million, 12 of which belong to Seatrade.

934. To become a player in the specialised reefer market, you could buy vessels in the second hand market or order a new vessel on a shipyard for delivery in 2009. A newbuilding could be ordered on the basis of a long-term bareboat charter deal with a purchase option at predetermined future-price levels. Today a 550,000 cbf. vessel is priced at USD 40 million and a 380,000 cu.ft vessel is priced at USD 30 million. In 2003, the prices were USD 22 million and USD 27 million, respectively.

935. Both the technical and commercial management of the vessel can easily be outsourced, making the vessel acquisition the only barrier to entry.

3.3.3 *The OHBC market*

936. In this section the supply side for vessels serving parts of the forest products markets will be described. This will exclude the market for transportation of logs (whether saw logs or pulpwoodlogs) as these are considered to be served by bulk carriers.

937. The ship type in question is the "open hatch, box shaped bulk carrier" (OHBC) specifically used for transporting pulp, paper, and lumber.

938. The main forest products carried by sea are:

Paper: Includes newsprint, magazine paper, kraftliner and corrugated board, *etc.* and are usually rolled on reels. Global trade in 2004 (latest data available) was approximately 111 million tonnes. No estimate for seaborne trade is available.

Pulp: An intermediate product between the wood and finished paper; usually packed in bales. Global trade in 2004 is estimated at 40.6 million tonnes. Seaborne trade not known.

Lumber: Sawn logs, usually with a squared cross section and the largest "box" possible to get from roundwood. It could also be cut into standard dimensions for lumber and it is normally packed in bundles: "Truck-packed" (various lengths of each individual piece but bundled so that one end of the bundle is even) or, "Length-packed" (all pieces equally long). No data on seaborne trade could be found.

939. As all these cargoes are "unitised" a ship with squared holds (boxed holds) will enable a very good stowage in the ships cargo holds without the need for dunnage in order to avoid the cargo to shift during passage. Furthermore, if the opening of the hatches has the same dimensions as the bottom of the hold, there is no need for horizontal movement of commodities and/or goods during loading/discharging operations.

940. A further refinement is the use of gantry-cranes. These are portal cranes moving back and forth in the ships length direction on rails. At the same time, the loading hook may be moved transversely from the ship. By using such cranes one has very good control of the loading/discharging operations. This has been a very popular, and to a certain degree, necessary feature in these trades. However, as the trades change, OHBCs with ordinary jib-cranes are used and competing with the gantry-craned vessels.

941. As outlined under Para 85 of this Report, trades in forest products are global. However, some countries and regions dominate the exports scene. On the other hand, Europe, the USA, New Zealand and China are all major exporters as well as importers.

942. The OHBC operators, at least the largest ones, tend to operate services which, to a certain degree, are similar to those in the car carrier trades. Usually, operators have a service loop in which they call some main ports, but will call other ports upon inducement. However, the nature of the contracts (with minimum and maximum volumes) means that these operators generally have to secure other cargo in the ports they call at. These cargoes will be secured on a spot basis.

943. The main forest products for OHBCs today are pulp and lumber. The ship type has lost significant market shares to containers over the past two years as container lines (in need of repositioning empty containers) have offered freight rates so low that charterers are better off using containers. Hardly any paper is exported from the US West Coast and Canadian West Coast these days, and carried in OHBC as the product is shipped as a backhaul cargo on container carriers for repositioning purposes.

944. Apart from forest products, these vessels carry substantial volumes of steel, non-ferrous metals, concentrates and minerals.

3.3.3.1 The OHBC Fleet

945. As previously mentioned, the OHBC fleet may be divided into two parts. However, from a competition point of view, all OHBC (irrespective of crane types) compete with each others.

946. In international trade we seldom see vessels below 10-12,000 dwt competing. However, the largest are about 53,000 dwt.

947. The fleet consists of 169 gantry craned vessels totalling 6.5 million dwt and 358 jib-craned vessels totalling 9.9 million dwt

	In numbers of ships			In deadweight		
Year Built	**Gantry**	**Jib**	**Grand Total**	**Gantry**	**Jib**	**Grand Total**
1967	2		2	24994		24994
1968	1		1	12497		12497
1969	1		1	19082		19082
1970		3	3		92110	92110
1971	2	3	5	63778	91044	154822
1972	1	2	3	28016	80176	108192
1974	6	2	8	222911	46846	269757
1975	2	4	6	67499	116005	183504
1976		5	5		128382	128382
1977	14	10	24	492199	253959	746158
1978	13	23	36	420624	656539	1077163
1979	9	14	23	327335	354255	681590
1980	2	7	9	62494	155778	218272
1981	5	13	18	194697	327336	522033
1982	2	17	19	78218	429990	508208
1983	5	15	20	157139	364408	521547
1984	7	13	20	267992	338812	606804
1985	21	18	39	792702	553898	1346600
1986	12	15	27	487826	453787	941613
1987	4	5	9	170349	120332	290681
1988	1	4	5	23853	148956	172809
1989	1	9	10	23853	253170	277023
1990		10	10		163031	163031
1991	5	6	11	190346	74565	264911
1992	4	4	8	178416	82421	260837
1993	1	1	2	23847	38680	62527
1994	5	10	15	234278	305351	539629
1995	6	21	27	270600	577816	848416
1996	5	22	27	231501	640668	872169
1997	8	26	34	410095	798956	1209051
1998	4	38	42	187283	1188582	1375865
1999	3	18	21	131382	533881	665263
2000	5	11	16	198755	243732	442487
2001	2	5	7	70430	155012	225442
2002	4	3	7	181901	111938	293839
2003	2	1	3	96000	32149	128149
2004	4		4	189160		189160
Grand Total	169	358	527	6532052	9912565	16444617

Source: Fearnleys (2006)

3.3.3.2 Major OHBC owners

948. More than 200 different owners of OHBCs can be identified, and the following list indicates the largest owners.

	In deadweight			In number of ships		
Owner	**Gantry**	**Jib**	**Grand Total**	**Gantry**	**Jib**	**Grand Total**
Gearbulk Shipowning Ltd	2189873	242992	2189873	52	6	52
Oldendorff,Egon		1052135	1052135		40	40
Masterbulk Pte Ltd	868115		868115	22		22
NYK Line	714287		714287	15		15
Grieg Shipping AS	580693		580693	14		14
Sanko Kisen		576232	576232		12	12
Spliethoff's		486900	486900		45	45
Hoegh ASA, Leif	342253		342253	8		8
Chilena Interoceanica		270140	270140		5	5
Van Ommeren		208892	208892		5	5
Dockendale Shpg.		189231	189231		7	7
Thoresen Thai		186715	186715		7	7

Souce: Fearnleys (2006)

949. As can be observed, the owners follow different strategies and tend to focus on only gantry-craned vessels, or jib craned vessels only. It should furthermore be noted that Masterbulk and Grieg Shipping are the two partners of the Star Shipping pool, and NYK and Hoegh are the two partners in the Saga Forest Carriers Pool, the only OHBC pools.

3.3.3.3 Orderbook

950. The orderbook for OHBC is quite small and consists of 31 vessels totalling 1.4 million dwt. 20 of the ships are fitted with travelling gantry cranes, whereas the remainder are fitted with jib cranes.

Name	Dwt	Gear type	YoB	Operator	Owner	Shipyard
Gearbulk TBN	54000	Gantry	2008	Gearbulk	K.G. Jebsen	Oshima
Gearbulk TBN	54000	Gantry	2009	Gearbulk	K.G. Jebsen	Oshima
Gearbulk TBN	54000	Gantry	2009	Gearbulk	K.G. Jebsen	Oshima
Gearbulk TBN	72800	Gantry	2009	Gearbulk	K.G. Jebsen	Oshima
Gearbulk TBN	72800	Gantry	2009	Gearbulk	K.G. Jebsen	Oshima
Mitsui TBN	51900	Gantry	2009	Mitsui OSK	Mitsui OSK	Oshima
Saga TBN	46627	Gantry	2007	Saga Forest Carriers	Saga	Oshima
Saga TBN	46627	Gantry	2007	Saga Forest Carriers	Saga	Oshima
Saga TBN	46627	Gantry	2007	Saga Forest Carriers	Saga	Oshima
Saga TBN	46627	Gantry	2008	Saga Forest Carriers	Saga	Oshima
Saga TBN	46627	Gantry	2008	Saga Forest Carriers	Saga	Oshima
Saga TBN	46627	Gantry	2008	Saga Forest Carriers	Saga	Oshima
Star TBN	46580	Gantry	2006	Star Shipping	Grieg Shipping	Mitsui
Star TBN	48800	Gantry	2009	Star Shipping	Grieg Shipping	Hyundai
Star TBN	48800	Gantry	2009	Star Shipping	Grieg Shipping	Hyundai
Star TBN	48800	Gantry	2009	Star Shipping	Grieg Shipping	Hyundai
Star TBN	48800	Gantry	2010	Star Shipping	Grieg Shipping	Hyundai
Westwood Fraser	46395	Gantry	2007	Westwood Shipping Lines	Westwood Shipping	Gdynia
Westwood Cascade	46395	Gantry	2008	Westwood Shipping Lines	Westwood Shipping	Gdynia
Westwood Fraser	46395	Gantry	2008	Westwood Shipping Lines	Westwood Shipping	Gdynia
Jebsens TBN	33500	Jib	2007	Jebsens Management	Jebsens Management	Nantong Mingde
Jebsens TBN	33500	Jib	2007	Jebsens Management	Jebsens Management	Nantong Mingde
Jebsens TBN	33500	Jib	2007	Jebsens Management	Jebsens Management	Nantong Mingde
Jebsens TBN	33500	Jib	2007	Jebsens Management	Jebsens Management	Hantong Shipyard
Jebsens TBN	33500	Jib	2008	Jebsens Management	Jebsens Management	Hantong Shipyard
Jebsens TBN	33500	Jib	2008	Jebsens Management	Jebsens Management	Hantong Shipyard
Hartmann TBN	37000	Jib	2008	Hartmann	Hartmann	Saiki HI
Hartmann TBN	37000	Jib	2008	Hartmann	Hartmann	Saiki HI
Oldendorff TBN	37000	Jib	2007	Oldendorff Carriers	Egon Oldendorff	Saiki HI
Oldendorff TBN	37000	Jib	2007	Oldendorff Carriers	Egon Oldendorff	Saiki HI
Unknown	32800	Jib	2008	Unknown	Unknown	Shin Kochi

3.3.3.4 Price competition

951. Very little is known about prices in this segment in general as it is quite small and information is kept tight. Furthermore, it is common to enter into contracts on the basis of liner terms. In that case, the freight rate includes the cost of moving cargo across terminals as well as the cost of loading. Thus, it is virtually impossible to determine the freight on an FIO basis.

3.3.3.5 Substitutability of vessels

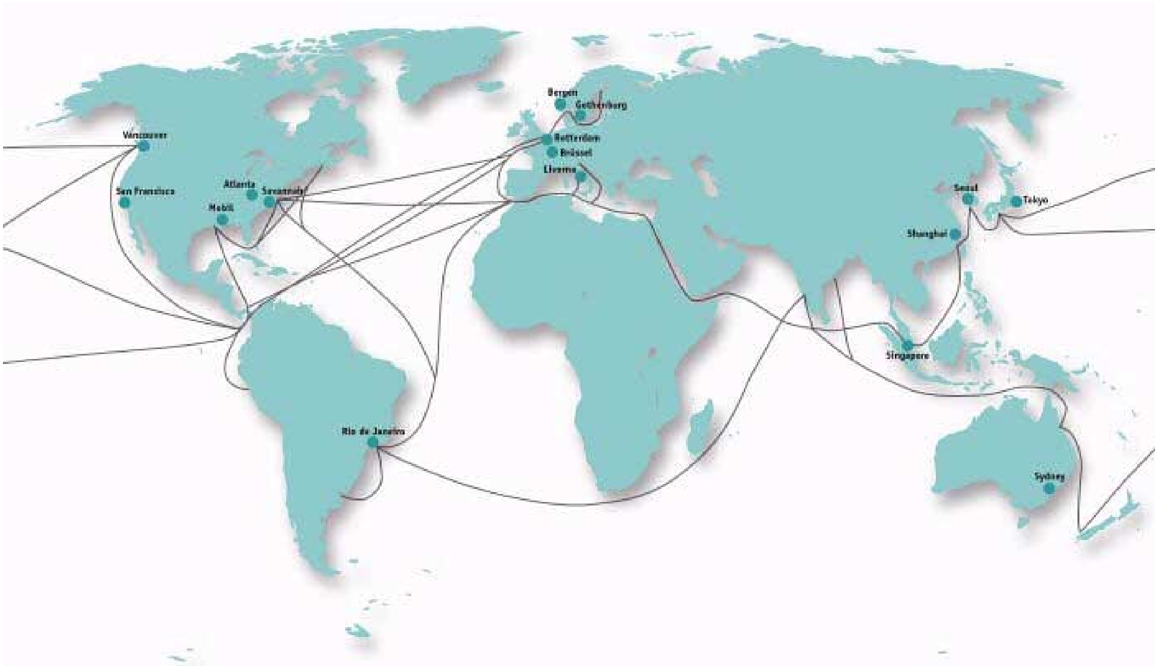
952. As mentioned above, the difference between jib craned and gantry craned vessels is becoming less important these days and they compete in the same markets. Technically, a RoRo carrier may substitute OHBCs. However, OHBCs are fairly effective and it will be hard to compete on freight for a RoRo (unless in niche trades).

953. Finally, OHBCs are in competition with containers. Paper and lumber are containerised to a certain degree.

3.3.3.6 Geographical scope

954. The largest players in the OHBC forest product market (Saga, Gearbulk, and Star) trade worldwide and the trading pattern is best exemplified by the following map of trade lanes for the Star Shipping pool[193].

[193] http://www.starshipping.com/images/full_worldmap.jpg, accessed November 2006.



Source: Star Shipping (2006)

955. This map shows, in principle, the key trading routes in forest products. There are however, some differences between the three operators as they have a larger presence than their competitors in certain areas. The main trade lanes can be summarised in the table below. It should be noted that the operators have services in the opposite direction from each of the routes indicated. For example, Gearbulk and Star each operate a service from Oceania to Europe, but they also operate a service from Europe to Oceania:

Routes		Operators
From	**To**	
US West Coast & BC	East Asia	Gearbulk, Saga, Star
	Europe	Gearbulk, Saga, Star
	Oceania	Gearbulk, Saga, Star
US East Coast & EC Canada	Europe	Gearbulk, Saga, Star
	SE/E Asia	Gearbulk, Saga, Star
EC South America	Europe	Gearbulk, Saga, Star
	North America	Gearbulk, Saga, Star
	SE/E Asia	Gearbulk, Saga, Star
	South Asia	Gearbulk, Star
	South Africa	Gearbulk
WC South America	Europe	Gearbulk, Star
	US East Coast	Gearbulk, Star
	Far East	Gearbulk, Star
Oceania	SE/E Asia	Gearbulk
	Europe	Gearbulk, Star
	South Asia	Star
Europe	Middle East	Gearbulk

956. The operators have a set of main ports called at in each service but are willing to deviate to other ports upon inducement. Their operations are quite similar to those of the car carrier operators.

3.3.3.7 Barriers to entry

957. There are several barriers to entry in the OHBC market. The fact that the loading and discharging of pulp, plywood, pre-slung cargoes and vacuum equipment necessitates special equipment, in particular so-called "Unihooks" means that the cost of investment for such equipment is high. Furthermore, the costs of sharing and maintaining such equipments are very high might also prove an obstacle to entry in the OHBC market. Finally, the fact that large investments in vessels as an OHBC newbuilding prices since 1990 have been about 73%-114% higher than the prices for Handymax/Supramax newbuildings shows that the prices of such newbuildings could deter new players to enter the OHBC market rather than another.

4. ASSESSMENT OF HORIZONTAL CO-OPERATION SCHEMES

4.1 INTRODUCTION TO THE FUNCTIONING OF POOLS

958. This Report is designed to assist the European Commission with the application of the EU competition rules in the tramp shipping sector. To this end, the consultants were required to carry out an in-depth analysis of the nature of the different forms of cooperation between carriers and their impact on competition. The principal form of horizontal cooperation[194] between carriers is the shipping pool. Accordingly we begin with an introductory explanation of what a shipping pool is and how it operates. It should, however, be understood that there is no universal, single model for a shipping pool and each of the markets which have been analysed reveal a variety of different pooling structures, albeit with a number of similar features and typical provisions.

959. The provision of tramp shipping services involves both the provision of a service, namely the service of transporting cargo from place to place in line with the customer's requirements, and the provision of appropriate physical vessel space on or in which the cargo is to be carried. The supplier of the tramp shipping service need not have a vessel at his immediate disposal but can enter into a number of arrangements with third parties, either before or after the service contract is concluded, to procure appropriate vessels. Vessel procurement can occur through a number of contractual agreements such as time charter, period charter or CoA, through any number of forms of pools or cross-charter arrangement, or on a "spot" basis through voyage charters.

960. The reasons for creating pools and the characteristics of pools are discussed below. The facts have been gathered from the pool agreements assessed by the consultants, their experience and from Packard[195] and Haralambides[196].

4.1.1 *Reasons for creating a pool*

961. The predominant reason for carriers creating a pool is to achieve more efficient fleet deployment and spread risk. Given the cargo volumes and the timing considerations involved, for example, in the fulfilment of a CoA, many small to medium-sized ship owners or operators might feel that they either do not have the required capacity (physical or managerial) to bid for such business alone or, if they do, they may feel that the risks involved may be higher than what they would normally be prepared to accept. The establishment of a pool with other ship owners or operators with similar vessels would therefore be the solution. In the case of dry bulk, pools can offer increased flexibility for the charterers such as steel mills, mining companies and power plants, as they consist of similar units with respect to size and performance. The services offered by ship owners or operators and demanded by charterers in the dry bulk market are homogeneous and there exists very little product differentiation.

962. In the chemical market, pools can also accept parcel CoAs, such that they combine cargoes from different cargo owners in different tanks. This is a unique feature of the chemical market, and is a practice adopted by Odfjell. Pools are therefore used as a way of making additional tonnage available for each of the pool members to use for the purpose of providing shipping services to their customers. They provide a more flexible commercial arrangement than alternatives such as outright purchase, or full-function joint ventures, or the acquisition of competing operators with existing tonnage. The exit provisions in pool agreements typically provide a pool member with

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194 Other forms of horizontal cooperation are discussed in section 4.5.

195 Packard, William V., Shipping Pools, Lloyd's of London Press, 2nd edn. 1995.

196 Haralambides, H.E, "The Economics of bulk shipping pools", extract from *Maritime Policy & Management*, 23(3): 21-237 (1996).

more flexibility than if the member had either committed to purchasing one or more newbuildings, with all the resulting financing obligations to the banks, or a fully fledged joint venture with its own independent structure and management.

963. Pools will normally spread the risk by entering into a mix of CoAs and open market charters. Such a chartering mix should not only be seen as a tactical objective, but also as a result of operational necessities; CoAs are mainly constituted by one-way-traffic and the need for minimising ballast legs is imperative. However, this can only be achieved if the pool fleet has a size well above its contractual requirements. To state the obvious, a small to medium-sized owner is less able to pursue such a cautious trading policy by himself with only a limited number of vessels under his direct control. Such owners are also less likely to be able to manage the whole process of chartering in of additional spot vessel capacity to meet increased demand. It is up to the ship owner to decide how many ships they want to enter into a pool. For pools which are organised as a separate undertaking (referred to below as administration-controlled) it may be important to the individual owner to enter the same number of vessels as the other owners, as the number of vessels affect the number of votes and therefore the owners' influence over pool decisions.

964. What characterises "modern pools", is that they separate the spot business from longer-term contracts, FFA cover and period time charters. [197] This enables the pool manager to offer different risk profiles to ship owners[198], and allows the owner to choose its preferred level of risk. The modern pool offers owners various levels of risk from a minimum guaranteed income or a fixed income, exposure to CoA and period time charters to pure spot market operations, where the pool manager acts as the charterer for the ship owner. The "elastic band" of open market charters gives an owner the possibility to take advantage of favourable market developments but at the same time exposes the owner to the risk of falling incomes in poor markets. Pools are therefore useful as a way of spreading risks between a number of owners and providing an individual owner with additional safety from troughs in the market cycle and thus greater financial stability.

965. Pools also create a means for small to medium-sized owners to avoid the cost and burden of creating their own commercial operating structures, as they enable the commercial management of the pooled vessels to be "delegated" to either an independent commercial pool manager or to another pool member with a vertically integrated commercial management structure already in place. It can be argued that economies of scale are an incentive for ship owners to pool their vessels as entering into a pool may render the ship owners' chartering department redundant.[199] In addition pools may have favourable purchasing agreements with their suppliers on bunkers *etc*.

966. Consequently, ship owners can secure stable incomes at the same time as reducing their total costs when the commercial management of their vessels is outsourced. In the LPG fleet, Bergesen LGC is an example of this. Pools extend the range of business models available to owners and are therefore a popular entry route for new owners who want to enter into the shipping industry by only buying a vessel as a financial investment (including KG-type structures). Banks and financial institutions may favour pool membership as a stable source of income, given that the pool is willing to allow this vessel to enter and offer for instance a long term CoA or time charter in return.

967. None of the evidence reviewed indicates that pools are more or less prevalent in any one segment of the tramp shipping market, apart from in the LNG and PCC segment where the consultants are

[197] Examples are the dry bulk pools Baumarine and Bulkhandling operated by Klaveness, and the new tanker pools Norient, Jacob Scorpio and Panamax International (ex-Steelcase).

[198] Pool members need not own their vessels directly but may time charter or bareboat charter them in as appropriate.

[199] Haralambides. See footnote 196.

not aware of the existence of any pools and in the reefer market where there is only one pool. The consultants have not identified any commercial or legal obstacles that would prevent pools being used as an appropriate business model across all market segments, and no conclusions can be drawn from the fact that pools exist in some segments and not in others.

968. There is also the possibility for ship owners to choose to place some of their vessels in pools and keep some vessels out of pools. Ship owners are then able to access information relevant to the pool, and then carry out a bench-marking exercise between their pool vessels and those vessels which have not been entered into the pool.

969. Achievement of a strong marketing position, high image and company profile, better financing possibilities, penetration of protected markets and sharing of patented technologies have also been mentioned by Haralambides as reasons for creating a pool.[200] However, to what extent this argument holds empirically is somewhat unclear. The achievement of a strong marketing position is relevant as the pool is branded as one entity, while in reality consists of a large number of participants. However, freight contracts are not contracted solely on the basis of an attractive brand name; it is reliability that is the important factor. When it comes to penetration in protected markets, this could of course be true if there is no pool, where the number of players that can compete for large contracts would be lower. We have no examples of the sharing of patented technologies, but pools have very advanced IT-systems that are used to offer transparency to their members.

4.1.2 *Pool characteristics*

970. The general characteristics of shipping pools summarised by Haralambides coincide in principle with those found by the consultants. These could be described as:

(a) *Similar tonnage* – The required tonnage should be of a more or less similar type and size.

(b) *Central administration (pool management company)* – The day-to-day operations are delegated from the individual ship owners to a "Pool Manager" which could either be a (separate) company or one of the members performing the functions of a Pool Manager, referred to as administration-controlled pools and member-controlled pools respectively.[201]

(c) *Joint marketing* – The pool is marketed as a single entity offering transport solutions regardless of whose ship performs the actual voyage.

(d) *Negotiation of freight rates* – The vessels are operated by a central administration (generally the Pool Manager or one of the members as described above) who fixes the vessels on agreed terms and conditions in accordance with the ship owners' agreed operating instructions for the pool. Some vessels might be deployed in the spot market, whilst others would be fixed on longer time charter contracts.

(e) *Centralisation of incomes and voyage costs* – The pool's income is usually collected by the Pool Manager or its equivalent and revenue is distributed to the participants based on a complex system of calculating each vessel's share. Pool expenses, often referred to as voyage costs, are generally paid by the Pool Manager and will affect the pool's earnings.

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[200] Haralambides. See footnote 196.

[201] The distinction between administration-controlled and member-controlled pools was originally suggested by Packard, in his book cited at footnote 195.

(f) *Financing* – Pools can be attractive to financing institutions as they can offer time charters or CoAs.

971. Each of these will be dealt with below.

4.1.2.1 Similar tonnage

972. As explained above, one of the reasons for creating a pool is to attract CoAs (and time charters to a lesser extent). Unless the pool offers the same or similar vessel types it will not be able to offer full flexibility and be able to substitute vessels where and when necessary. Pools are therefore specialised in a certain product market and sometimes even in a specific geographical market. Similar tonnage also facilitates the allocation of so-called pool points for each vessel.

4.1.2.2 Central administration

973. Almost all pools have a central administration. This function is usually referred to as the "Pool Manager". The term "Pool Management Company" (PMC) has been used as well.[202] The Pool Manager may be a member of the pool to whom the other members of the pool delegate this function. The Pool Manager could also be an independent management company either created by the pool members and jointly owned by them or independent for all of them. We have also encountered pools where the manager is legally constituted as the agent of each of the members, acting on behalf of each of them in obtaining business and receiving payments from customers.

974. The Pool Manager will usually have the responsibility for going out into the market and fixing the vessels. Typically the clause will give the pool manager the power to "market services on behalf of the pool including but not limited to negotiating and concluding time charters, voyage charters and CoAs".[203]

975. It will also usually give the manager duties of commercial operation, namely "supervising and arranging bunkering, appointing agents and negotiating tugboat service contracts, to include period contracts for such services"[204].

976. One of the most important tasks the Pool Manager performs is collecting the freights and distributing the revenues, which will be dealt with further below.[205]

977. An advantage of a centralised system is that the Pool Manager acquires a useful network of charterers, brokers *etc*. that benefits all members.

978. It can be argued that strategies between the two differently administered pools differ.[206] According to Haralambides, a member-controlled pool is a pool between one or two owners with the objective of undertaking large CoAs for existing customers, whereas in the administration-controlled pools the strategy is to build up a fleet of several different ship owners which eventually will have a large enough fleet to compete for attractive contracts.[207] The consultants have not found any evidence of different business strategies between the two different categories of pools. All pools have the object of maximising profits.

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202 *Ibid* [http://www.maritimeeconomics.com/downloads/papers/HH_Bulk%20Shipping%20Pools.pdf].
203 Haralambides. See footnote 196..
204 *Ibid.*
205 See 4.1.2 Centralisation of incomes and voyage costs.
206 Haralambides. See footnote 196.
207 *Ibid*.

979. Nearly all pools provide for joint marketing that is usually undertaken by the Pool Manager. Joint marketing is a very important feature of a pool and means that third parties do not regard the various pool vessels and their respective owners or operators as separate entities but as one entity only. This is often emphasised by the fact that some pool vessels have the name of the pool painted on the side of the vessel. In order to attract the best business it is vital to have a good reputation and be known in the market. Joint marketing is one way of spreading a good reputation.

4.1.2.3 Negotiation of freight or charter rates

980. The freight or charter rates are usually negotiated by the Pool Manager. This feature enhances the view of the pool as a single entity. The process of negotiating freight rates is precisely the same as has been described in section 1.7. The only difference is that the pool manager (be it an individual or a pool management company) acts on behalf of the owners of the vessels in the pools, using either an in-house or an outsourced chartering department.

4.1.2.4 Centralisation of incomes and voyage costs

981. In general, the distinguishing feature of pool agreements is the "formula" for distribution of revenue where each ship in the pool stands to earn from the total pool earnings. If the pool participants cannot agree on the terms which are critical for the functioning of the pools, such as, for instance, the distribution of the net revenue, then the pool could potentially break up.

982. Inevitably, the distribution of revenue requires a centralised financial function, which is the key function performed by the Pool Manager.

983. The Pool Manager relies on a system decided by the members of the pool on how much of the revenue determines the ship's share of the total pool income and how much will be distributed to each vessel. This system is referred to as the "Distribution Key" or the "Distribution Formula".[208] There are usually provisions for review of the distribution key at periodic intervals, requiring the consensus of all the members.

984. One significant factor of the Distribution Key is a vessel's pool points. The pool points are an attempt to assess a vessel's technical and commercial attractiveness and are often based on age, cargo capacity, bunker consumption, speed, days on hire, the number of vessel in the pool and total net revenue. Examples of Distribution Keys can be found in Annex 7.[209] Haralambides sometimes refers to pool points as weights.

985. Voyage costs are defined by Stopford[210] as variable costs incurred in undertaking a particular voyage". The examples given are fuel costs, port dues, tugs and pilotage and canal charges. In a net revenue pool voyage costs are deducted from the pool gross revenue by the Pool Manager before distributing the net revenue to the individual earnings.

986. As for age, new vessels are regarded as more attractive than older vessels, and will therefore attract more pool points, mainly due to innovation and technical features, such as the ability to carry more cargo, use less bunkers and a higher operating speed than older units.

987. Cargo capacity is considered important, particularly if it relates to cargo versatility. A vessel that can be used for different types of commodities and can easily be switched between commodities is

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208 Haralambides. See footnote 196..

209 See Annex 7 for The table of pool clauses. Annex 7 is confidential and is not included in the published version.

210 Stopford, Martin: Maritime Economics, Routledge, London 1997

more valuable to the pool and is therefore assigned more points. As mentioned above, a main reason for creating a pool is to offer flexibility, which is facilitated with versatile ships. This factor may be in addition to other design related factors, which in turn may affect speed and bunker consumption. It can be argued that pools have a system where smaller vessels are given more pool points as they are more attractive in poor markets where freight rates are low. This stems from the fact that smaller vessels can have higher load factors and therefore more possibilities for employment.[211] The consultants have not come across this particular system in the specific pool agreements which they were able to assess.

988. Bunker consumption and speed are typically included as factors in the pool points, as a vessel consuming less fuel would be more cost efficient and therefore more attractive. It has been argued that it may not always be wise to include these factors int the key as "once incorporated, it is likely that one ship will have a permanent inbuilt advantage or a disadvantage when compared with another".[212] However, the same argument would apply to other factors that are also inherent in a ship's design, such as cargo capacity. It is up to the members to take a view on what factors are important to their pool.

989. Another important factor in the Distribution Key is Days-on-Hire. Such vessel's share of the total distributable income relates to the number of days the vessel has been employed. Dry-docking and similar off-hire periods are excluded from the calculation as they are considered necessary. Decisions of lay-ups of vessels usually require consent from all members or from the board as they will affect the financial result of the pool.

990. Occasionally a technique is used in determining a ship's pool points based on the "reference ship method". In this system the pool vessels are compared with a "reference ship" which is given a certain number of points, say 100, based on the factors mentioned above. The reference ship then serves as a benchmark to which all other pool vessels are compared (vessels are given a number above or below 100).

991. There is a potential problem with the reference ship method, which is identified by Haralambides. When participants consider entering newbuildings into the pool, it may be appealing to design ships so they can obtain maximum points in relation to the reference ship. Although this would be attractive to the individual member, the fleet becomes too homogeneous and the result may be that the pool looses flexibility which affects all members of the pool. Having said that, most pools seem to favour the pool points system, which incentivises the members to maximise earnings of the entire pool ("all for one, one for all"), and act as a disincentive to selfish behaviour.

992. Haralambides indicates that many pools use a "mix" of design-related factors as described above, together with some "earnings" criteria, in order to avoid too much emphasis on design which may not benefit all members. One way of measuring the earnings criteria is to estimate the revenue from voyages on the major trading routes that will be representative for the pool vessels. The vessels are thereafter "test-run" through the estimates and their earning potential is converted into pool points.[213]

993. Another way of avoiding the design focus reflected in the pool points is to ask brokers to estimate the freight rate for each pool vessel which is then translated into a factor that counts towards pool points. However, it has been argued[214] that it may be important that not only to take into account

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211 Haralambides. See footnote 196.

212 Packard, *cit*, at p.55.

213 Haralambides. See footnote 196..

214 *Ibid.*

current freight rates but also equivalent historical earnings if the pool is mainly in the business of carrying out CoAs and is not active on the spot market.

4.1.2.5 Financing

994. The consultants have identified an additional factor, which may occasionally come into play, namely financing. Pools have a useful role in providing secure employment for newbuildings and in turn better security for lenders. There are also a few examples of pools that derive their financing from German KGs (limited partnerships) or from business start-ups via an initial public offering (IPO). An example of the former is the tanker pool Jacob Scorpio, which was founded by Scorpio Ship Management and Jacob Tankschiffahrt, a joint venture between Ernst Jacob, KG specialist Hansa Hamburg and Warburg Bank.

4.1.2.6 Conclusions

995. Clearly, delegation by independent owners of duties such as marketing and other commercial functions to a common pool manager and giving that manager the freedom to contract their vessels on their behalf (including the fixing of freight and charter rates and selection of customers) raises issues of competition law.

996. The question nevertheless arises whether the existence of pools (by reducing the potential number of supply-side players) has any appreciable restrictive effects on competition, or whether it has positive effects on the market despite the apparent reduction in competition.

997. These issues must be considered in the light of the relevant markets. The previous sections of this Report have drawn a certain number of conclusions about the way in which the tramp shipping sector is organised and thus how such relevant markets should be defined[215].

4.2 ASSESSMENT OF POOL AGREEMENTS

4.2.1 *Scope*

998. The assessment of pool agreements is aimed at providing the European Commission with an overview of clauses used in the various agreements in accordance with the Tender Specifications, "Detailed market information on co-operation and other arrangements in tramp shipping"[216].

999. All 17 agreements to which we have had access, have been assessed. All agreements have been renamed anonymously as Pool 1, Pool 2 *etc.* and the information is collected and tabulated in Annex 7. Annex 7 is however confidential and is not included in the published version of the Report.

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215 See Chapter 5 on relevant markets.

216 Specifications to Invitation to tender COMP/2006/D2/002, at section 3.2 a-e.

Segment	Number of pools
Tankers (Crude, product and chemicals)	5
LPG	8
LNG	0
Reefers	1
PCC	0
Dry Bulk	3
Grand total	**17**

4.2.2 *Methodology*

1000. Twelve agreements were sourced through the consultants and five agreements were sourced from the European Commission. It is common practice for the parties to use several agreements to record their pool arrangements, *i.e.* one for the appointment of the pool manager, or one commercial and administration agreement, one shareholders' agreement, one agreement setting up the company that will perform the pool agreement, one transportation agreement, that could be, but is not always, the main pool agreement and/or other varieties. The assessment that was carried out by the consultants was based on those agreements available, which have usually included the pool agreement, but not always the accompanying agreements. The result is that not all information wass available for all the pools assessed.

1001. The main information provided is divided into the description of the arrangement, the structure of the pool, the objectives of the pool, and the rules for the members of the pool and how the pools function. The information is presented in tabular form, pool by pool, with factual information under the following headings: arrangement, number of vessels, value/volume of cargo, number of members, degree of integration, dominant members, objectives, specific clauses, term/notice, lay-up, control mechanism/amount of vessel capacity, compensation for breaches, disputes, decision-making bodies, function/authority, role of pool manager, corporate identity, administration and revenue sharing/distribution key.

1002. The information under "role of pool manager" and "administration" will often be found under the heading "Function/Authority" as the Pool Manager has a certain function and authority to carry out various tasks and make certain decisions. The pool manager is also often the one who carries out the administration.[217] The reason for this slight inconsistency is that the cells occasionally became too large and therefore some information had to be moved.

1003. The heading "Specific clauses" is for information concerning competition issues or information exchange where there are clauses raising such issues in the agreements.

1004. The numbers of vessels and the numbers of members have been checked against information available in the public domain in February 2007, but the numbers of vessels each pool may have changed since.

1005. The names of the pools have been excised as all agreements were provided to the consultants under obligations of confidentiality.

[217] For information about remuneration of pool managers, see Function/Authority and Role of Pool manager in Annex 7. Annex 7 has been omitted from the published version for reasons of confidentiality.

1006. The table containing a summary of pool clauses in of all the various agreements that were assessed is to be found in Annex 7. Annex 7 is, however, confidential and is not included in the published Report.

4.2.3 *Conclusions*

1007. All the pool agreements we have seen provide for the pooling of commercial management and operation rather than technical operation (*viz*. compliance with ISM and ISPS Code requirements, maintenance and replacement of marine equipment, submission to class inspections), although these latter functions need not be retained by the owner himself but may be outsourced to a third party technical manager(s) (who might at the same time offer the same services to others).

1008. In contractual terms it is fair to say that, unlike with charter parties, there is no common or standard form of pool agreement and each one that we have seen differ in its detailed terms.

1009. Generally, all agreements contain clauses relating to jurisdiction and disputes, decision-making bodies, the authority of those bodies and revenue sharing, with the latter being fairly complicated.

1010. The agreements assessed are all pools in terms of their arrangement and most pools have as their main stated objective to maximise profits, usually through joint commercial operation and minimising expenses.

1011. Regarding "Specific clauses", most pools for which this information has been provided have clauses dealing with information exchange, non-competition and exit clauses. Certain agreements have provisions regarding lay-up and usually a board or an owners' decision is required.

1012. None of the pool agreements assessed contains provisions for information sharing other than information necessary to operate the pool. The term "necessary" is not defined in any of the agreements assessed.

1013. In some agreements, members are requested to restrict the information exchanged to a bare minimum and information sharing regarding other commercial operations outside the pool is not permitted.

1014. Most agreements contain provisions in which members are asked to refrain from directly competing with the pool. Exceptions are, in a majority of the pool agreements examined, usually made for vessels which are not in the pool or limited to certain trade routes.

1015. There are usually several levels of decision-making, but most pools (all but one) have a pool manager or similar who carries out the day-to-day operations and the commercial management. In addition most pools have an annual or bi-annual meeting at which long term, strategic decisions are taken. The technical management is dealt with by the owners or the members themselves.

1016. The majority of pools assessed are net revenue pools in which the pool manager collects the freights and other income and pays the voyage-related expenses before distributing the earnings to the members. The earnings are frequently based on each vessel's pool points and the number of days the vessel has been on-hire and various other factors, which vary from agreement to agreement.

1017. Most agreements contain provisions for the withdrawal of vessel from the pool. The notice period usually differs between six and twelve months, the latter being more frequent.

1018. Finally, most agreements (all but one) are governed by English Law and typically provided for disputes to be referred to arbitration in London. The number of arbitrators varies.

4.3 IDENTIFICATION OF HORIZONTAL CO-OPERATION

1019. The information provided in this Section is information which is available in the public domain and has been gathered from websites and in some cases from companies' annual reports. Some websites provide more information than others, hence the uneven degree of information relating to each pool. In addition, the consultants have spoken to in-house brokers at Fearnleys, as well as obtaining both written and oral evidence from pools and other sources in the shipping community. The sources used are specified for each pool.

4.3.1 *Liquid bulk pools*

4.3.1.1 Tanker Pools

1020. We have identified 20 tanker pools. Altogether they control a fleet of about 17% of the entire tanker fleet larger than 10,000 dwt.

(a) Aframax International[218]

1021. In 1996, OSG and PDV Marina, S.A. co-founded and today commercially manage Aframax International. The pool consists of 32 Aframax tankers, totalling over 3.2 million dwt. The company is made up of six pool partners, and these are: PDV Marina, Saarland Shipping Management, Hansa Treuhand, Overseas Shipholding Group (OSG) Inc., Koening & Columbia Tanker Ltd and Phoenix Energy Navigation Ltd. The major contributor in this pool is OSG, with around 65% of the vessels.

1022. Although primarily positioned in the spot market, the pool balances employment of its Aframax fleet among multi-year CoAs, short-term time charters and third-party lighterage operations.[219] 75% of all voyages are contracts/CoAs. Typical routes include Venezuela, East Coast Mexico, the North Sea and the Mediterranean to destinations in the U.S. Gulf, U.S. Atlantic Coast ports, Canada, Northwest Europe and the Mediterranean, as illustrated in the map below:

[218] Source: http://www.aframaxinternational.com/.

[219] The exact distribution is unknown.

OSG Aframax Trading Routes[220]

Source: OSG.com (2006)

(b) Alliance[221]

1023. Alliance Chartering is a co-operation in practice between Frontline and OMI Corp. for the chartering of the companies' Suezmax tankers. Alliance maintains a significant share in the Suezmax market segment, and today there are 30 vessels in the pool, which operates on a worldwide basis.

1024. The Alliance pool uses a combination of spot and time charter fixtures, but they is also willing to do CoAs if requested. It operates its vessels from the Middle East Gulf (MEG)/Red Sea, Africa and the North Sea to Europe, America and the Far East.

(c) Handytankers KS[222]

1025. Handytankers K/S is a limited partnership between Seaarland, d'Amico Tankers, A.P.Møller and Motia operating a large fleet of 73 modern double hull product tankers between 27-40,000 dwt. Handytankers' main trade is the transport of clean and dirty petroleum products in Europe and the Mediterranean.

(d) Heidmar pools[223]

1026. Heidmar was founded in 1984, and has been built up on the concept of operating a service business through pools and information technology without owning ships.

1027. Heidmar was acquired by Morgan Stanley in June 2006. The sale was confirmed with no price announced.

220 Source: http://www.osg.com/pdf/Aframax.pdf.
221 Source: http://www.frontline.bm/company/history.shtml.
222 http://www.handytankers.com.
223 Source: www.heidmar.com.

1028. Heidmar today operates four pools, and these are Star Tankers Panamax pool, the Dorado clean product pool, the Sigma Aframax pool and the Marida small tanker pool. Each pool will be described in greater detail below.

(i) Dorado Pool[224]

1029. Dorado Tankers is managed by Heidenreich Marine and the pool is made up of 17 vessels, totalling 740,000 dwt. The vessels vary in size from 37,000 dwt to 50,100 dwt and are built between 1986 and 2007. The pool is made up of the following ship owners: Avin International, CSC Oil Transportation, Dalian Ocean Shipping Company, Heidmar LLC, Mercator Lines Limited, Morgan Stanley, Nanjing Tanker Corporation, the Shipping Corporation of India, and Unicorn Shipping.

(ii) Marida Tankers[225]

1030. Marida Tankers is a new small tanker pool, open to modern double hulled tankers between about 5,000 and 18,000 dwt, which was set up in mid-2005 with the support of customers and existing partners of Heidmar's Star, Dorado and Sigma Tanker Pools.

1031. The pool participants are Allocean, Canterbury Tankers, Harren & Partners and Heidmar and together they control 12 vessels.

1032. Marida will operate predominantly in North West Europe, but is planning to expand to other parts of the world as the fleet numbers grow, drawing on the long established relationships enjoyed by Heidmar with the major oil companies and traders.

(iii) Sigma Pool[226]

1033. Sigma is Heidmar's Aframax pool and it operates in the Atlantic basin. It is a partnership where seven ship owners or operators have pooled a total of 12 vessels.

1034. The pool is made up of the following companies: Atlas Maritime Ltd, Cardiff Marine, Chemikalien Seetransport, Emarat Maritime, Emirates Trading Agency, Heidmar and Varun Shipping.

(iv) Star Tankers Pool[227]

1035. Star Tankers controls a fleet of 38 Panamax vessels. The pool participants are: Capital Ship Management, Cardiff Marine, Chemikalien Seetransport, Dalian Ocean Shipping Co., Heidmar, Ionia Management, Liquimar Tankers, Paradise Navigation, Pleiades, Sanko and Tsakos Shipping & Trading.

1036. The roots of Star Tankers can be traced back to 1 January 1998 when Heidenreich Marine and Pleiades Shipping Agents SA formed a pool named Heidmar-Pleiades Pool Inc. At that time, the combined fleets of Heidmar and Pleiades controlled approximately 20% of all the Panamax tankers trading in the Atlantic basin.

1037. On 1 January 1999, the name of the Heidmar-Pleiades pool was changed to Star Tankers as a result of the addition of three new Pool members and the continued interest of several other ship owners to join the Pool. Star Tankers controls a fleet of 38 Panamax vessels. The pool participants are:

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224 *Ibid.*
225 *Ibid.*
226 *Ibid.*
227 Source: www.heidmar.com.

Capital Ship Management, Cardiff Marine, Chemikalien Seetransport, Dalian Ocean Shipping Co., Heidmar, Ionia Management, Liquimar Tankers, Paradise Navigation, Pleiades, Sanko and Tsakos Shipping & Trading.

(e) Jacob-Scorpio Pool Management s.a.m[228]

1038. Jacob-Scorpio controls two pools, one LR1 pool and one Panamax pool. The pool was founded by Scorpio Ship Management s.a.m and Ernst Jacob. In November 2005 Ahrenkiel joined the pool. The two pools have 16 vessels combined.

1039. The LR1 pool consists of 9 vessels (two of which will be delivered in 2007), ranging in size from 68-71,400 dwt.

1040. The Panamax pool consists of 7 vessels (one of which will be delivered in 2007), ranging in size from 68-81,500 dwt. The vessels are built between 2001 and 2004.

(f) Mærsk Small Tankers Pool[229]

1041. The Mærsk Small Tankers Pool is made up of 8 vessels which vary in size from 15,000 dwt to 16,700 dwt. The pool is a cooperation between Teekay shipping and Mærsk Tankers.

(g) Norient Product Pool A/S[230]

1042. Norient Product Pool A/S is a limited company registered in Denmark and owned 50/50 by the founding partners: Interorient Navigation Company Ltd and Dampskibsselskabet "NORDEN" A/S. Norient Product Pool commercially manages 35 product tankers from 35,775 to 51,000 dwt trading worldwide.

(h) Odfjell Seachem Pool[231]

1043. Odfjell is a leading company in the global market for transportation and storage of chemicals and other speciality bulk liquids. Odfjell owns and operates parcel tankers in global and regional trade as well as a network of tank terminals. The Odfjell Seachem pool consists of 94 vessels, of which about 60% are owned and the remaining 40% are on time charter into the company.

1044. The major trade lanes are from the US and Europe to Asia, India, the Middle East and South America. In addition there is a considerable bilateral trade between the US and Europe. Seagoing transport from the Arabian Gulf to destinations both in the East and in the West is increasing as new production capacity is being developed in this area.

1045. Odfjell also has direct investments in fully owned tank terminals in Rotterdam and Houston as well as in partially owned terminals in Singapore, Onsan in Korea, and two in China. Odfjell also works closely with seven terminals in South America through associated companies. They are currently expanding their tank terminal activities with new facilities under construction in China and Oman.

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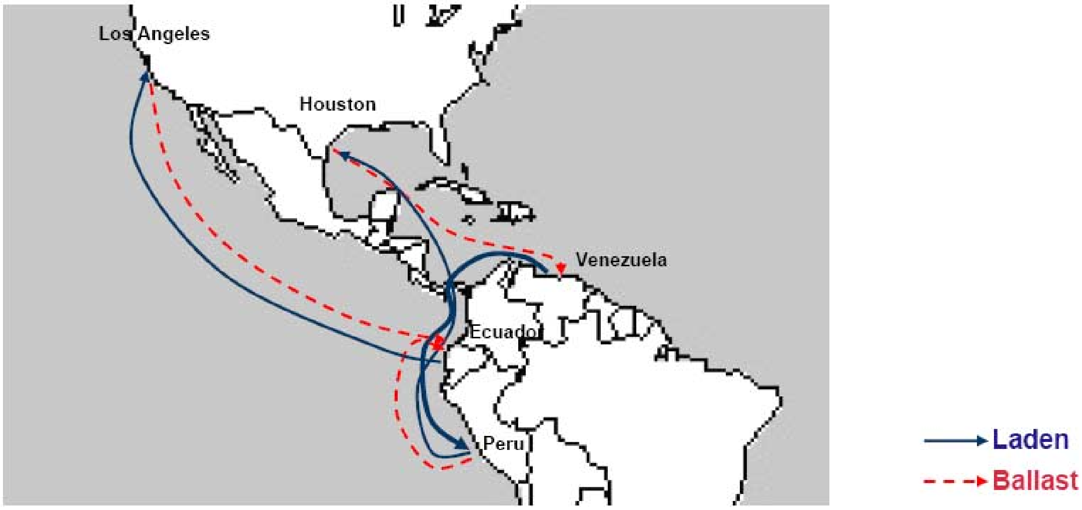
228 Source: http://www.jacob-scorpio.com/.
229 Source: http://www.maersktankers.com.
230 Source: http://www.norientpool.com/.
231 Source: www.odfjell.com.

(i) Panamax International[232]

Illustration of OSG Panamax Pool's sailing route



Source: OSG.com (2006)

1046. Panamax International consists of 16 Panamax vessels which trade crude and petroleum products. The pool, which was established in 2004, is a partnership between Sociedad Anónima de Navegación Petrolera S.A. of Chile (SONAP) and OSG.

(j) Tankers International

1047. Tankers International has responsibility for the commercial management of the vessels in the Tankers International Pool and oversees and authorises all fixtures arranged through its subsidiary company Tankers (UK) Agencies Ltd. It is a pool made up of 44 vessels, of which 40 are VLCCs (about 290,000-320,000 dwt) and 4 ULCCs, which TI define as V-Plus vessels (each about 441,000 dwt).

1048. Tankers International (TI) was formed when A.P. Møller, Euronav, Frontline, Overseas Shipholding Group, Inc., Osprey Maritime and Reederei "Nord" Klaus E. Oldendorff agreed to establish "Tankers International LLC" (Tankers) to pool their Very Large Crude Carrier (VLCC) Fleets in 2000.

1049. In May 2002, Frontline announced its decision to withdraw its vessels from Tankers International. Whilst the real reason for Frontline's withdrawal from Tankers International will probably never be made public, it is the case that the company had obtained a series of time charter fixtures with a major oil company. It appears that the company had decided that the income stream from this source was more consistent with the company's long term strategy for its VLCCs than leaving them in pool. Another of the founding members which chose to leave the pool was A.P Møller.

1050. The current members are Euronav, OSG, Reederei "NORD" Klaus E. Oldendorff, Oak Maritime (HK) Inc., Ltd., Petronas, Sanko Line, Shinyo International Group Ltd. and Wah Kwong Shipping Group.

1051. 40% of all voyages are contracts/CoAs. The remaining are spot and time charter trips. [233] The vessels trade primarily from the Arabian Gulf (AG) and Africa to Europe and China, respectively.

232 Source: http://www.osg.com/uploadedFiles/pw_164522_051806resentation.pdf.

Tanker International's sailing pattern

Source: OSG.com (2006)

1052. 40% of all voyages are contracts/CoAs. The remaining are spot and time charter trips. [234]

(k) Team Tankers Pool[235]

1053. The fleet consists of different types and sizes of tankers, with a predominance of stainless steel vessels and epoxy-coated vessels, concentrating its activities in the easy chemicals market. The number of vessels in the pool is variable, but as of 25 January 2007 the pool managed approximately 18 vessels.

1054. Team Tankers AS is a pool company operating many of the larger vessels of the chemical fleet of Eitzen Chemical Shipholding AS (Songa Shipholding AS) together with Consultores S.A.

1055. Eitzen Chemical Shipholding AS has built its business around Trans-Atlantic trade, with some West coast Americas, Western Mediterranean and West Africa routes, with the recently acquired Eitzen Chemical Spain & Navale Française operating along the West coast of Africa.

(l) The TORM Pools[236]

1056. TORM's product tankers carry refined products, such as naphtha, gasoline, gas oil, and jet fuel and diesel oil. These vessels trade worldwide. TORM employs all of its owned and chartered product tankers in three pooling arrangements, the LR2 Pool, the LR1 Pool and the MR Pool, along with vessels from several other shipping companies. The manager of each pool has the responsibility for the commercial management of the participating vessels, including the marketing, chartering, operation and bunker (fuel oil) purchases for the vessels.

1057. TORM owns and operates three sizes of product carriers. The largest vessels are Aframax tankers of approximately 100,000 to 105,000 dwt, which primarily transport naphtha between the Arabian Gulf and Japan and other East Asian countries. The other two sizes of product tankers, Panamax, which are tankers of approximately 80,000 to 85,000 dwt, and Handymax, which are tankers of

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233 http://www.osg.com/uploadedFiles/pw_164522_051806resentation.pdf.
234 *Ibid.*
235 http://www.eitzen-chemical.com/data/File/eitzen_chemical/EitzenChemical_prospekt_web.pdf.
236 Source: http://stocks.us.reuters.com/stocks/fullDescription.asp?symbol=TRMD.O&WTmodLOC=L2-LeftNav-8.5-FullDescription.

approximately 40,000 to 50,000 dwt, operate in the areas of the United States, Africa, Europe and the Caribbean.

1058. TORM employs all of its owned and chartered product tankers in three pooling arrangements, the LR2 Pool, the LR1 Pool and the MR Pool, along with vessels from several other shipping companies. The manager of each pool has responsibility for the commercial management of the participating vessels, including the marketing, chartering, operation and bunker (fuel oil) purchase of the vessels.

1059. Torm's first pool, the LR1 Pool, was originally established in 1991 with the former Burwain Tankers International, Copenhagen. The LR2 Pool for larger tankers of around 100,000 dwt and MR Pool for 45,000-dwt tonnes, were created in 1998, also focusing on the clean products trade.

1060. From the outset the stated aim of these pools has been to achieve critical mass, increase unit income for owners and provide better services to customers. Size is increasingly important as the oil companies require ever larger volumes to be transported, both short and long term. One obvious reason is the consolidation taking place among the oil majors, creating very large units such as ExxonMobil.

1061. Average contract cover is only around 20%, which means that the pools have been able to capitalise on market spikes. The pools have a core of mainly spot charters that includes names like Shell, BP, Vitol and ExxonMobil. More than 70% of Torm's turnover comes from roughly 10 customers, either major oil companies or traders.

1062. Each pool contains basically identical tankers, with any differences relating to deadweight, draught, fuel consumption, speed and age reflected in the assignment of pool points. A reference ship is 100 on the index. Risks and benefits are spread across individual fleets by averaging out earnings, regardless of where a vessel is positioned geographically.

1063. Earnings are shared according to pool points and trading days on a semi-monthly basis, with a pool bank account for all voyage incomings and outgoings. Owners receive a net-income statement following each voyage, the pool being responsible for paying all voyage-related expenses such as canal fees and brokerage commissions, as well as collecting payments such as freight and demurrage. Participants can follow online how the pools are performing using a secure web-based extranet, with position reports, voyage results and other data.

1064. Vessels in the three pools remain owned and under the technical management of their separate owners, including technical vetting by oil companies. Nevertheless commercial operations and negotiations with customers are, as would be expected, handled by the pool manager, Torm, itself for the MR and LR1 fleets, and jointly with A.P. Møller's Tokyo office for the LR2 Pool. A.P. Møller personnel also sit in Torm's Copenhagen office. Typically, in each pool there is also a technical committee, meeting at regular intervals, to ensure identical onboard procedures. These and pool boards are important tools to ensure homogeneity between members and ships[237]

1065. The three pools will now be described in more detail

(i) Torm LR1 Pool

1066. The Torm LR1 pool is made up of 38 vessels. The Company formed LR2 Management A/S to serve as the commercial manager of the LR2 Pool.

[237] Source: Tradewinds, 3 March 2006.

1067. The other participants in this pool are Primorsk Shipping Corporation, Reederei Nord Klaus E. Oldendorff Ltd. and Rederi AB Gotland.

(ii) TORM LR2 Pool

1068. The Torm LR2 pool is made up of 21 vessels, and TORM serves as the sole manager of the pool. As of 31 December 2005, nine of TORM's owned and chartered vessels participated in this pool.

(iii) TORM MR Pool

1069. The MR Pool is a pooling arrangement TORM had entered into with Prisco Singapore Pte Ltd. and Sanmar Shipping for the pooling of 24 Handymax product tankers. TORM serves as the sole manager of the MR Pool. As of 31 December 2005, 17 of TORM's vessels participated in this pool.

(m) UPT Handy Pool[238]

1070. The UPT Handy Pool consists of 24 double hull product tanker vessels in the size range from 33-40,000 dwt. The pool includes vessels from Columbia Shipmanagement and Donnelly Tanker Management.

1071. UPT is a Hamburg based shipping company, which provides commercial management, marketing, chartering & commercial operations services to the tanker shipping industry. UPT's core activity is the commercial management of the UPT Handy Pool

1072. The vessels in the pool mainly transport clean and dirty petroleum products in Europe, the Mediterranean and the USA. Key customers include oil companies, traders, government entities and other logistics providers.

(n) USC – United Seatrans Chempool

1073. The joint pool of the Chemical Tankers of Seatrans (SET) and United Chemical Transport (UCT) has been operating since early 2004. The pool is currently made up of 17 vessels.

1074. The pool trades in the core area of Northwest Europe/Mediterranean and also includes SET and UCT business from Europe to South America and back. Other Seatrans/SET services are not included in the joint venture. The pool is based on the combined expertise built up both in Hamburg, where UCT has its head office, and Bergen, where SET has its head office, since the early 1970s.

4.3.1.2 LPG Pools[239]

1075. There are a total of eight LPG pools which the consultants have identified. These pools trade in different products in different geographical areas. This is presented in the table below.

[238] Source: http://www.uptankers.com/upt-handy-pool.html.

[239] Source: Fearngas, when other sources are used they are mentioned explicit. Pools mentioned involve vessels above 3,000 m³, and thus the 2001 launched partnership between Tschudi & Eitzen and J. Lauritzen to launch Sigas Kosan, primarily involved in the below 3,000 m³ market is not involved.

LPG Pools – Geographical scope by main cargoes				
Pool name	**Petchem**	**LPG**	**Ethylene**	**Ammonia**
ENGC	Worldwide			
GasChem/Gas Mare	Mediterranean North West Europe		Mediterranean North West Eur	
Skandigas	Worldwide	Worldwide		Trans-Atlantic (occasionally)
Unigas International	Worldwide	North West Europe		
Unigas Kosan		Far East		
Anthony Veder		North West Europe Mediterranean	North West Europe Mediterranean	
Exmar MGC		Worldwide		Worldwide
Bergesen LGC		Worldwide		Worldwide

Source: Fearnleys (2006)

1076. In the following section we give a brief schematic overview of the different pools which exist in the LPG segment based on vessel type. We have chosen to present this by vessel type to enhance the importance of the ethylene segment, as this would not have been so clear if we had presented the pools by vessel capacity in cubic metres.

(a) ENGC[240]

1077. ENGC was established by Eitzen Gas A/S and I. M. Skaugen ASA in January 2006. The pool commenced commercial operations in September 2006. The total fleet consists of 32 vessels (or 279,500 m³). ENGC provides customers with transport of petrochemical products on a full range of semi-refrigerated ethylene carriers from 6,000-12,500 m³, as well as three non-ethylene semi-refrigerated gas carriers between 5,000-8,000 m³ in size.

1078. In February 2006, Norway's Camillo Eitzen & Co and IM Skaugen announced a new alliance that replaced the MNGC pool that previously included A.P. Møller -Mærsk. The Eitzen Norgas Gas Carriers (ENGC) revenue-sharing pool started off with 26 ships of 5,000 m³ to 12,000 m³. Eitzen contributed ten vessels and Skaugen 16. The focus is on ethylene cargoes but ENGC also carries other petrochemical gases, such as propylene, vinyl chloride monomer and LPG. The stated aim of the pool was the ability to offer large scale freight contracts and to become a more integrated part of the customers' supply chain

1079. The old Mærsk Norgas Gas Carriers (MNGC) pool was a pool between Mærsk and Norgas, and fell apart early in 2006 when Eitzen gave notice that it would be pulling out 10 vessels from the MNGC pool. The move, in effect, destroyed the MNGC set-up. The MNGC pool, which was formed in 2003 by Norgas Carriers and A.P. Møller -Mærsk, had an initial fleet of 37 units of 5,000 m³ to 12,500 m³ , which represented about 330,000 m³ (or 60%) of the world's ethylene fleet. The stated aim of the parties in setting up this pool was to improve service and explore cost

240 http://www.engc.com/, accessed 25.1.2007.

synergies.[241] The MNGC partnership lasted until the parties in ENGC came into operation in the second half of 2006.

(b) Anthony Veder [242]

1080. Anthony Veder is specialised in transportation of petrochemical gases including ethylene and LPG. Their fleet consists of 31 vessels, owned by C Eitzen and Norgas.

1081. The company offers worldwide service with a focus on North West Europe, but also has ethylene vessels trading East of Suez and LPG tankers in the Caribbean.

(c) GasChem/GasMare Pool[243]

1082. This pool came about as result of a restructuring in 2003 of the Gas Chem-Medgas Pool which was founded in 1998 by GasChem Tankers in conjunction with the Medgas Pool. The pool came about as a result of the two companies fleets traded in the same market: and finding it beneficial to merge their interests, at a time when the petchem market had been weak for many years prior to the establishment of the pool. GasChem Services is the manager of the pool GasChem Tankers and the German/Italian joint venture GasChem-Gasmare Pool.

1083. The GasChem/GasMare Pool (GG) is engaged in the deep sea and coastal carriage of olefinic/chemical gases and LPG under contracts of affreightment with major chemical / oil companies and trading houses as well as in the international spot- and time charter gas market. The GG Pool operates in the gas tanker market segment, and the vast majority of the vessels are between 4,000 and 10,000 m^3. Two ethylene carriers of 10,500 m^3 and a semi-refrigerated vessel of 22,500 m^3 are also in the pool.

1084. The total pool fleet consists of 33 tankers, of which 25 tankers are ethylene carriers. The pool is jointly managed from offices in Hamburg (GasChem Services) and Saronno (Gasmare).

(d) Skandigas

1085. The Skandigas Pool consists of 24 semi-refrigerated vessels varying in size from 12,000 to 20,500 m^3. The pool is managed by A.P. Møller. The other pool members currently are: Bergesen, Ofer/Zodiac, Bernhard Schulte and Ultragas. About two thirds of the fleet has time charter coverage.

1086. Until mid 2006 the pool also included 15 ethylene vessels entered into the pool by Eitzen and Norgas, which, however, left the pool because they felt that A.P. Møller did not have a positive outlook in relation to the ethylene market, which resulted in tensions between the companies. This led Norgas and Eitzen to form the ENGC pool.

(e) Unigas International

1087. Unigas has a fleet of ethylene and semi-refrigerated vessels. All existing vessels are below 9,000 m^3. The total fleet comprises 27 vessels, totalling 158,145 m^3. There are 8 ethylene carriers and 19

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241 Source: Tradewinds, internet article http://www.tradewinds.no/daily/article186240.ece.

242 http://www.anthonyveder.nl/, accessed 25.1.2007.

243 Source: http://www.gaschem.de/pool.html, accessed 25.1.2007 in addition to Fearngas. There is a discrepancy between the figures presented on the web-page and the numbers which we report. This is because Fearngas' information is used.

SRs. In addition they have a newbuilding programme comprising 6 units, where all six are ethylene carriers, of which three are of 9,000 m³ and three of 10,000 m³ capacity.

1088. The owners participating in the pool are: Sloman Neptun, Othello, and Bernhard Schulte.

(f) Unigas Kosan

1089. Unigas Kosan is a pool for small pressurised vessels in the 3,000 - 5,000 m³ segment comprising 20 vessels. The single largest owner participating in this pool is Othello, which own nine vessels. Other owners include; Kinki Corporation, Maryse Shipping, Kosan, East Gate Shipping, Dosco and World Marine.

(g) Exmar MGC[244]

1090. The Exmar pool operates 33 vessels varying in size from 20,000-43,000m³.

1091. The pool consists of vessels owned by Exmar (eight) and vessels under commercial management which are owned by; Bergesen Worldwide Gas (eight), Wah Kwong (two), A.P. Møller-Mærsk (two), Varun (seven), Unique(one), Solvang (one) and Fouquet Sacop Group (one).

(h) Bergesen LGC Pool.

1092. The Bergesen LGC pool consists of 20 vessels, varying in size from 52,408 m³ to 60,237 m³. The vessels are owned by BWGas (13, but 2 partially owned by F. Laeisz), Solvang (4) and GOIC (3).

1093. The vessels in the BW Gas LPG Fleet operate on spot voyages, contracts of affreightment (CoAs) and short to medium-term time charters, which are considered to include all time charters for a period of five years or less.

4.3.1.3 LNG market pools

1094. There are no pools in the LNG segment.

4.3.2 *Dry bulk pools*

1095. The following table describes various dry bulk pools and categorises them on the basis of vessel size.

1096. As can be seen from the table, the pools in this market are not significant in terms of market share, regardless of the fact that some of the pools operate vessels which span more than one vessel category. The single largest pool, the Baumarine Panamax Pool, which operates 60 vessels, only accounts for 4.8% of the vessels in the 60-80,000-dwt segment. This would make them the second largest operator in this segment, as we compared to the largest owner COSCO, which owns 84 vessels.

1097. The regional focus for dry bulk pools has been traced and summarised in the table below:

244 Sources: Fearngas and www.exmar.be, accessed 11.10.2006.

Pool Name	Regional focus	Commodities
Baumarine	Worldwide; Europe, South Africa, South America, USA and Asia/Pacific.	Coal/petcoke, grains, iron ore, bauxite/alumina, clinker and clinker cement
Bulkhandling		
CSL International	Europe, the Caribbean, South Africa, South America, and Asia/Pacific.	Iron ore, coal, grain, gypsum, aggregates and limestone
CTC Capesize	Worldwide; Europe, the Caribbean, South Africa, South America, USA and Asia/Pacific.	Iron ore, coal
CTP Panamax		Iron ore, steel, logs, coal and alumina
IMC Transasia	From Indonesia to China and India	Cement, steel products, bulk minerals, grain and logs
IMC Transocean	From Morocco to Mexico	Phosphate
IMC Transworld	Far East	Grain, coal and iron ore
International Handybulk Carriers	From; Australia, New Zealand, the USA, Canada to North Asia	Forestry products, cement, fertilisers, grains, coal, minerals, iron and steel products
International Handymax Pool		
JJ Ugland	The Atlantic	Logs, timber, cement, fertilisers, scrap
LB/IVS Pool	Out of out East Africa/ Mozambique/ South African and Namibian ports to the North West Continent, UK, USA and the Mediterranean. Australia to Europe, South Africa and Mauritius. Europe to South Africa and Mauritius. South Africa to Japan and Korea. South America to South Africa. South Africa to Argentina. Intra Europe.	Chrome ore, ferrochrome and ferromanganese alloys, manganese ore, zircon sand, rutile sand, titanium slag, ilmenite, pig iron, vermiculite, andalusite, lead and copper concentrates, fluorspar, coal/anthracite, phosphates, grains and break bulk cargoes such as steel, stainless steel, aluminium and granite.

Source: Fearnleys (2006)

1098. In the following sections, the different pools will be described in greater detail.

4.3.2.1 Pacific Basin [245]

1099. Pacific Basin was formed in 1987 and has been listed on the Hong Kong stock exchange since 2004. They now operate one of the world's largest fleets of modern shallow-draught and geared Handysize bulk carriers of similar design.

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[245] http://www.pacbasin.com/pdf/200505PBBrochureEng.pdf, accessed 25.1.2007.

1100. Pacific Basin is engaged in the transportation of a broad range of minor bulk commodities, primarily raw materials for the construction industry and foodstuffs, with forestry products, cement, fertilisers, grain, steel and coal being the most important.

1101. A key part of their operating strategy is to secure and combine "front haul" cargoes (*i.e.* from the main loading areas of Australia, New Zealand, the United States and Canada to the main discharging areas of North Asia) with "back haul" cargoes (*i.e.* moving against the standard flow of traffic) which reposition vessels back in the prime front haul loading areas, thereby reducing the number of days in ballast and increasing overall fleet utilisation.

1102. Pacific Basin controls two different pools, the International Handysize Pool (IHC) and the International Handymax Pool. Both will be described in the following pages.

(a) International Handybulk Carriers

1103. IHC was established in 2001 by Hong Kong-listed Pacific Basin. Around 90% of the fleet are ships owned or chartered in by Pacific Basin. The remainder are controlled by four third-party ship owners, including Torm of Denmark and Sinotrans.

1104. IHC does not specify a minimum period that a vessel has to be committed to the pool but members have to give a 90-day exit notice. The pool is managed commercially by Pacific Basin subsidiary International Handybulk Carriers Management (IHCM), which is responsible for marketing, chartering, operations, bunkering, accounting and earnings distribution.

1105. IHC has secured contract cover for about 36% of their estimated revenue days in 2007. A small portion of IHC's forward cover is secured with FFAs, using both the new Handysize paper market and the Handymax paper market. Using the paper market allows the pool to cover fleet earnings in advance of securing physical cargo from customers.

1106. The company's Handysize fleet comprises 58 vessels (totalling about 1.6 million dwt), including 22 owned vessels, 33 chartered-in vessels and four managed vessels. All of the Handysize vessels, with the exception of one Handysize vessel (28,730dwt), are employed in a mixture of voyage charters and time charters through the IHC Pool.

(b) International Handymax Pool (IHX)

1107. Pacific Basin started its Handymax business in November 2005 by chartering in bulkers for periods ranging from three to 18 months. The International Handymax Carriers Pool is a contractual arrangement for the sharing of revenue earned by vessels entered into by its members. IHX specialises in post-1995 built geared Handymax ships in the 40,000 dwt to 58,000 dwt range. The pool is managed commercially by Pacific Basin subsidiary International Handymax Carriers Ltd (IHX).

1108. The IHX fleet has six "core" long-term chartered and owned vessels and another 24 vessels on charter for minimum periods of less than twelve months.

1109. Pacific Basin operates over 65% of its fleet in the Pacific. The IHX fleet has built up steadily over the period, and has cover totalling 97% in 2006 and 74% in 2007.

4.3.2.2 CSL International[246]

1110. The CSL International pool consists of a fleet of 24 modern self-unloading vessels. The pool operates the largest fleet of self-unloading vessels in the world.

1111. The pool is made up of vessels from CSL, Egon Oldendorff, Marbulk Shipping Inc. and the Torvald Klaveness Group.

1112. The self-unloaders carry cement, bauxite, coal, fertiliser, grains, steel, limestone, iron ore and sulphur. The vessels operate on a wide range of worldwide deep sea trades in the Caribbean, Europe, South Africa and Asia/Pacific.

4.3.2.3 CTM[247] [248]

1113. C Transport Maritime SAM (CTM) is a Monaco based ocean transport service company, wholly owned by C Transport Holding Ltd (CTH). CTM manages two dry cargo transport pools, which are active in the Capesize (CTC) and Panamax (CTP) sector.[249]

1114. CTM promotes the concept of a hedge pool, where the focus is to secure a number of long-term time charters. To date, the Capesize and Panamax pools have cover for the remainder of the year and 2007. The Panamax operation has some cargo contracts out through to 2008 and the Capesize operation until 2015. They are spread between 20 industrial clients in Capesizes and around 12 in Panamaxes. It seems fair to assume that they are fixed at very profitable rates. It focuses on long time charterers to the Japanese.

1115. The two pools are described below:

(a) CTC Capesize Pool

1116. The Capesize Pool controls 26 vessels totalling 2.49 million dwt. CTM has contractual relationships with 20 industrial clients, including pool partner and client Mittal. Mittal Steel is the world's largest and most global steel company, with shipments of 49.2 million tonnes of steel every year, and is now the world's biggest producer of DRI. Mittal Shipping manages five modern Panamax dry cargo vessels, which are owned by Mittal Steel companies. The Group also owns one Capesize vessel.

1117. The Pool has a high level of coverage for 2006 and 2007, with long term contracts running until 2015.

1118. The following companies are members of the Capesize Pool: DryLog Bulkcarriers Ltd, Stamford Navigation Inc., LCI Shipholding Inc., China Navigation Co. Limited, Mittal Shipping Ltd. and Oceanbulk Maritime S.A

(b) CTP Panamax Pool

1119. The Panamax Pool controls 27 vessels and has contractual relationships with 12 industrial clients. The Pool has a high level of coverage for 2006 with long term contracts until 2008.

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246 http://www.cslint.com/csli/index2.html, accessed 25.1.2007.

247 Tradewinds, 10.03.2006.

248 http://www.ccmaritime.com/ accessed 25.1.2007.

249 CTM is also the commercial manager for Coeclerici Ceres Bulk Carriers (CCBC), DBCN Corporation Handymax Operation (DBCN), and Freight Trading Ltd (FTL).

1120. The members of the pool are: Augustea Imprese Maritime e di Salvataggi S.p.A., Coeclerici Ceres Bulk Carriers (CCBC), Mittal Shipping Ltd, Stamford Navigation Inc. and DryLog Bulkcarriers Ltd.

1121. Their clients are large firms in the steel, mineral and aluminium industry such as: Brasilian Steel Mills, C.V.G Ferrominera Orinoco C.A, Lucchini SPA, Mittal Shipping Limited, North Cape Minerals, Nova Scotia Power Inc., Ormet Primary Aluminium Corp, Sidmar NV and Usinor Achats.

4.3.2.4 Island View Shipping And Lauritzen Bulkers[250]

1122. The LB/IVS Pool involves the merging of all resources in the 25,000-40,000 dwt segment and the fleet currently consists of 23 vessels from J.Lauritzen and 18 vessels from IVS, thus making it one the largest modern Handysize fleets in the world totalling 41 vessels. The pool consists of tonnage which is both grab and logs fitted. The pool was formed in September 2001.

1123. IVS operates a regular bulk parcel service, scheduling 8 to 12 vessels per month out of East Africa/ Mozambique/ South African and Namibian ports to the North West Continent, UK, USA and the Mediterranean. This service carries a wide variety of bulk cargoes including chrome ore, ferrochrome and ferromanganese alloys, manganese ore, zircon sand, rutile sand, titanium slag, ilmenite, pig iron, vermiculite, andalusite, lead and copper concentrates, fluorspar, coal/anthracite, phosphates, grains and break bulk cargoes such as steel, stainless steel, aluminium and granite.

1124. The North West Continent Service is centred on Rotterdam as the principal discharge port with vessels regularly calling at Atlantic Spanish ports, Immingham, Ireland and Belgian destinations.

1125. There is also a United States Gulf Service, which concentrates on a regular service into the Mississippi River.

1126. In addition to the Bulk Parcel Service, IVS operates regularly in the following trades: Australia to Europe, South Africa and Mauritius; Europe to South Africa and Mauritius; South Africa to Japan and Korea. South America to South Africa; South Africa to Argentina.

4.3.2.5 The Torvald Klaveness Group[251]

1127. The Group provides commercial management services for owners of Handysize, Handymax and Panamax vessels, and currently operates about 113 bulkcarriers, on behalf of 25 ship owners or operators from twelve nations.

1128. Their Panamax operation is known in the market as Baumarine and their Handymax Handysize operation is known as Bulkhandling. The growing number of vessels operated by Klaveness Commercial Management worldwide has enabled it to offer a wide range of different risk structures, from spot exposure to long-term contracts of affreightment or time charter contracts. Both pools operate solely in the spot market.

1129. Both pools are active in the major bulks, and thus the cargoes carried include coal/petcoke, bauxite/alumina, clinker/cement, ore and grain. The pools operate on a global basis.

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250 http://www.ivs.co.za/about.aspx, accessed 25.1.2007.

251 http://www.tk-group.com/, accessed 25.1.2007.

(a) Baumarine Panamax Pool[252]

1130. The Baumarine Panamax pool currently consists of 60 vessels, which are owned by a large variety of owners such as Cardiff Marine, Bocimar, Klaveness, MOL, Reederei "NORD" Klaus E. Oldendorff G.m.b.H, Golden Ocean, Yasa Shipping Industry & Trading AS and Atlas Bulk Shipping.

(b) Bulkhandling Handysize Pool [253]

1131. The Bulkhandling pool consists of 29 Handymax vessels owned by, amongst others, Spar Shipholding AS, Ideenkapital, Klaveness, and Yasa Shipping Industry & Trading AS .

4.3.2.6 JJ Ugland Bulk Transport (Ubulk Pool)[254]

1132. Ugland Bulk Transport operates a pool of about 10-15 modern Handymax bulk carriers. The size of the pool depends upon the number of ships which are on time charter into and out of the pool. 3 vessels are currently on time charter out to the Klaveness Group, and an additional two vessels are on time charter to an Iranian and German company, respectively. Currently ten vessels are owned and operated, whereas the remaining one is on a time charter contract into Ugland.

1133. The vessels are employed in the Atlantic, carrying logs, timber, cement, steel and other minor bulk commodities. The majority of the vessels are equipped for the transportation of logs and timber.

4.3.2.7 IMC Pools[255]

1134. IMC Shipping operates three bulker pools ranging from Handysize to Panamaxes, IMC Transworld, IMC Transasia and the Transocean Grabbulk Pool. Around 20 ships in the three pools are chartered in on a long-term basis of five to ten years. The number depends on the market. Some additional vessels are also chartered in on a spot basis.

1135. The pools operate on a cost and profit-sharing basis and partners are treated equally. IMC does not levy any commission or fee on pool partners. The pools require owners to provide a working fund of $100,000 per vessel and to commit ships for a minimum of two years. When owners withdraw a ship from a pool, they remain responsible for commitments that are incurred before they leave the pool. They are liable for losses incurred from the commitment. Conversely, they get to enjoy any profit arising from such commitments.

1136. In general, coal accounts for 60% to 70% of the total cargo carried by the three pools; iron ore takes up another 10% to 20% of the volume, while cargoes such as cement and grain comprise the remainder.

1137. IMC Shipping Co Pte Ltd is responsible for all IMC Pan Asia Alliance Group's commercial activities. They operate three different pools, which are highly specialised in the Handymax, Handysize and Panamax sector.

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[252] http://www.tk-group.com/fleet/fleetlist/fleet_fleetlist_content.htm, accessed 25.1.2007.

[253] http://www.tk-group.com/fleet/fleetlist/fleet_fleetlist_content.htm, accessed 25.1.2007.

[254] http://www.jjuc.no/main.php?group=594 and telephone conversation 1.9.2006.

[255] Source: " IMC takes care of bulker side with pools in Handysize, Panamax and Handymax segments", Tradewinds, 10 March 2006.

(a) IMC Transocean Grabbulk Pool

1138. The Transocean Grabbulk Pool fleet currently comprises 13 vessels, two of them owned by GMV and the rest controlled by IMC. They transport phosphate from Morocco to Mexico. These vessels are mostly 42,000 to 55,700 dwt in size. Depending upon demand and market conditions, the fleet is supplemented with time chartered tonnage. This specialised fleet of self-loading / self-discharging ships services the needs of customers worldwide who, as a result of the nature of their commodity or the ports they use, require the flexibility offered by these vessels.

1139. The venture was jointly established by IMC and Hong Kong Ming Wah in 1992. But in around 2000, Ming Wah changed management and withdrew from the pool, as dry bulk was no longer its main business. IMC continued on its own until 2002, when it tied up with Malaysia International Shipping Co (MISC) to operate the pool. But in 2004, when the market was at a high, MISC sold its entire bulker fleet.

(b) IMC Transasia Pool

1140. There are 11 ships in IMC Transasia, ranging from 19,000 dwt to 36,000 dwt. The fleet includes two bulkers owned by the Malaysian government's shipping-venture fund, Global Maritime Ventures (GMV) and one by Chi-Ho Maritime of Taiwan. The remaining ships are controlled by IMC. The fleet trades from Indonesia to China and India. Of its business, 20% to 30% is supported by CoAs.

1141. IMC Transasia, which was established in the late 1980s, operates a pool of Handysize bulkers shipping commodities such as cement, steel products, bulk minerals, grain and logs.

(c) IMC Transworld Pool

1142. IMC Transworld has been operating a pool of geared and grab-fitted Panamaxes since 1994, transporting coal and iron ore. The pool is seen as among the largest of its kind, as the global fleet of geared Panamaxes numbers between 60 and 70. Six of the eight vessels are controlled by IMC, while one is owned by GMV and another by Ta-Ho Maritime of Taiwan.

1143. Around 70% of IMC Transworld's business is backed by contracts of affreightment (CoAs).

1144. Cargoes commonly carried include grain, coal and iron ore. As the largest Far-Eastern grab-fitted Panamax operator, IMC Transworld caters to major power plant operators in the Asia-Pacific region providing them with steam coal transportation and logistics management services. Additional vessels, both managed and chartered enter the pool from time to time.

4.3.3 *Neo-bulk pools*

4.3.3.1 PCC Market Pools

1145. There are no pools in the PCC market, but the ownership of the largest vessel sizes is concentrated, with only a few major operators controlling a substantial part of the fleet. Historically certain carriers have ventured into cooperative agreements based on the liner conference model but, following investigations by the European Commission, these agreements have been under review.

4.3.3.2 Reefer Pools[256]

(a) Seatrade pool

1146. There exists only one major pool in this vessel segment, and this is the Seatrade pool.[257] Seatrade is one of the world's largest operators of fully refrigerated vessels, and it operates a fleet of 135 ships with cargo carrying capacity of close to 54 million cubic feet (or space to load some 480,000 pallets under deck).[258] Measured in cubic, Seatrade controls 16.2% of the total specialised reefer fleet, or roughly 25% of the specialised reefer tonnage in the 300-450,000 cubic feet vessel segment.

1147. Seatrade Reefer Chartering, located in Antwerp, manages the fleet commercially and operationally. The vessels are employed both in liner services and in the spot market. If one wants to ship full ship's cargoes, a vessel could be fixed on time charter or on the basis of a requirements contract. In the following table, Seatrade's liner routes are presented.

Seatrade liner services including geographical scope and commodities

From	To	Cargoes
Brazil	European Continent, Russia, the US East Coast and the Far East	Frozen meat products, fruit juices and fresh fruits
Argentina	UK, the Northern Continent, Spain and Portugal.	Deciduous fruit and citrus fruit
USA	Europe	
Holland	West Africa (Nouakchott plus Dakar, Cabo Verde and Banjul)	Frozen commodities; fish, meat and poultry
Europe	New Zealand	A variety of general cargoes, rolling stock, dry and reefer containers southbound; then back to Europe with fresh fruit and frozen meat, vegetables and dairy products
Rotterdam	Paramaribo (Surinam)	Vehicles, containers, steel products, pallets and project cargo. For northbound cargoes, Seatrade offers a service on spot basis.
USA (Tampa)	Central America (Puerto Limon, Costa Rica)	Containers, general cargo, rolling stock, and fresh and frozen meats and produce.
South Africa	Southern UK, Northwest Continent and the	Fruit

256 Please note that we have not included under "Reefer Pools" the Leonina chartering arrangements entered into by NYKLauritzenCool with certain owners and operated as a single fleet under a system known as the Leonina system. These arrangements are described in more details at Section 6.6.7.

257 http://www.seatrade.com/, accessed 25.1.2007.

258 Their cargo lifting capacity can even be increased by making use of on deck container capacity.

	Mediterranean	
South America (Argentina, Chile, Uruguay and Brazil	Europe (discharge ports Vigo and Eemshaven/Velsen), Africa, Mediterranean ports and other continents.	Parcels of frozen fish, squid, shrimps, meat, lamb, et cetera carried break bulk or palletised
Turkey (Mersin)	Europe (Sheerness plus Flushing and on request Black Sea, France and the Baltic)	Fresh and palletised citrus

1148. In the following table we present their share of world specialised reefer capacity based on the different vessel sizes in the reefer segment.

1149. From the table we find that the Seatrade pool is the largest of the specialised reefer operators in terms of specialised reefer vessel tonnage below 449,999 cubic feet, and also operates roughly 25% of the specialised reefer tonnage in the 300-450,000 cubic feet vessel segment.

4.3.3.3 OHBC pools

1150. There are only two pools operating in the OHBC forest products market, namely Star Shipping and Saga Forest Carriers International. The third major operator of this type of vessels, Gearbulk, is not a pool. In the following we will describe the two pools in more detail.

1151. The OHBC market is a global market, and the principal trading routes are shown in Section 3.3.3.

(a) Saga Forest Carriers International (SFCI)

1152. The SFCI fleet consists of 23 vessels of 44,000 to 49,000 dwt. All vessels are OHBC fitted with gantry cranes. Today the SFCI pool has two members, NYK and Leif Hoegh. Seven of the vessels are owned by Leif Hoegh, and two are owned by NYK.

1153. SFCI was established in 1992 with three participants: Nippon Yusen Kaisha (NYK) of Japan and Borgestad A/S (Skien, Norway) and Aaby's Rederi A/S (Oslo, Norway). The pool originally established their headquarters in Atlanta, Georgia. In 1994, Aaby pulled out of the pool and in the late 1990s the owners of Aaby's Rederi sold all their shipping assets and left the shipping industry. Borgestad pulled out their vessels from the pool as well. We do not have any explanations as to why the two companies left the pool.

1154. In 2002, Norwegian ship owner Leif Hoegh & Co A/S joined the pool employing all their OHBC vessels, except for one ("Hoegh Mistral", see above) which due to its size does not fit very well into the fleet of SFCI.

(b) Star Shipping

1155. The Star fleet includes more than 70 vessels, 42 of which are OHBCs. The remainder are Handymax/Supramax bulk carriers operated in a separate setup. 20 of the ships are owned by Masterbulk, 16 by Grieg Shipping, or companies fully owned by the Grieg family, and the remaining 6 vessels are owned by single purpose companies that may, or may not, be controlled by the two partners of Star. At least one of these vessels is owned by Leif Hoegh AS, a partner of the other OHBC pool.

1156. Star Shipping was established as long ago as 1961 by the current two owners, Grieg Shipping AS and Masterbulk Pte. Ltd. Masterbulk is a wholly owned subsidiary of Westfal-Larsen, a Norwegian ship owner. Star Shipping, Grieg Shipping, and Westfal-Larsen are all based in Bergen, Norway.

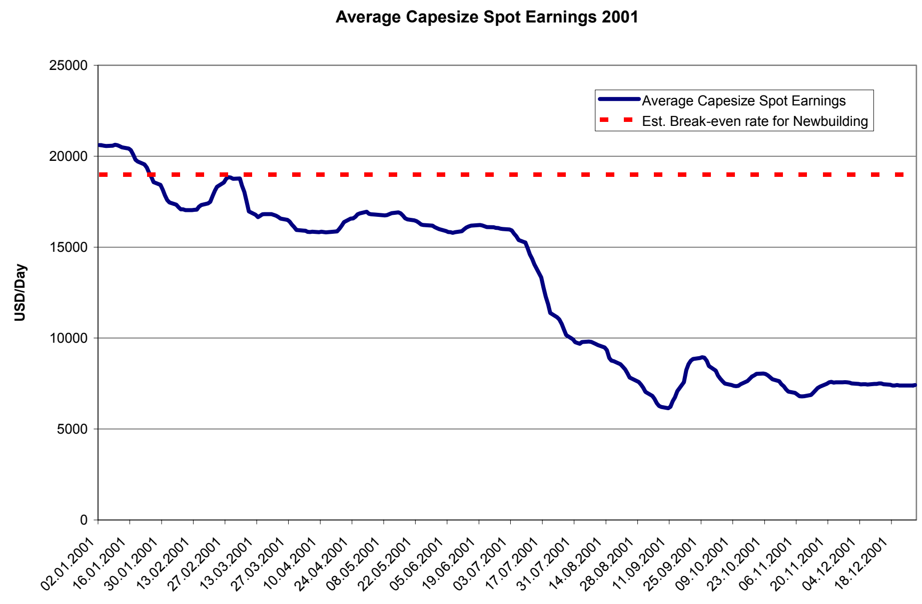
4.4 DISSOLVED POOLS

1157. In this section the reasons for the dissolution of some pools will be explained. To the best of the consultants' knowledge, there is only one notable example of this occurring in recent years, namely the break-up of the Capesize International Pool, although certain of the structural changes and changes in ownership affecting some pools have already been mentioned in the description above.

4.4.1 *Capesize International*

1158. The Capesize International Pool (CI) was founded by Belgian Capesize owner Bocimar (part of Compagnie Maritime Belgique) and UK-based Capesize owner Zodiac Maritime Agencies (associated with the Ofer Group). Along these two, Norwegian T.Klaveness Group, Danish A.P. Møller -Mærsk, and US-based Overseas Shipholding Group participated in the 80-strong Capesize pool.

1159. The pool was created and established in late 2001. At that time market conditions for Capesize bulk carriers were very poor. As can be observed from the chart below, spot earnings declined from an acceptable 20,000 USD/Day at the start of the year to around 7,000 USD/day in the second half the year. A Capesize newbuilding, contracted in early 1999 for delivery at the end of 2000, would require around 19,000 USD/day in 2001 in order to break even (covering all costs as well as yielding a reasonable return on equity):



Source: Fearnleys (2006)

1160. At the time, the founders of the pool, given the poor earnings and bleak outlook for market improvements, assumed that a larger entity providing more flexibility and better service would be the right vehicle for improving vessel utilisation and earnings and that would be able to offer more flexibility to charterers, thus attracting more business. The partners realised at the time that they could not dictate rates but were convinced that no one in the industry, charterers included, benefited from rates being so low that they hardly covered operating costs.

1161. The pool lasted only about one year and several reasons led to its dissolution. Amongst others, it is indicated that there were differences in personalities, making co-operation difficult. Furthermore, as the two leading companies sought to establish a legal structure that would have led to a formal union, they could not agree on various topics. These are thought to have included; disagreement on location of office and who would be running the new venture. Furthermore, the philosophies of the companies may have differed too much as Bocimar was considered a sharp and aggressive spot player whereas Zodiac was considered a more contract-minded company. The performance of the pool was also a disappointment.

1162. In an interview,[259] Marc Saverys, Managing Director of CMB, Bocimar's parent company, indicated that the pool was dissolved due to differences in personalities and that as soon as market conditions had improved sufficiently to bring about profits they decided go on their own.

1163. Apparently, the pooling of Capesize spot operations made sense under very poor market conditions. Controlling a large fleet enables the pool to utilise their assets for every market opportunity. However, in normal, or good, markets, pooling does not bring about any special benefits in the Capesize markets as opportunities for alternative employment (to spot operations) are widely available.

4.5 OTHER HORIZONTAL CO-OPERATION

1164. In addition to the pools described above, there are horizontal cooperative agreements, for instance common carrier agreements, to be found at the Federal Maritime Agency (FMC)[260] where the agreements are registered. The agreements are mostly liner conference agreements, but there are other interesting documents to be found as well.

1165. One example is a charter and cooperative working agreement where the purpose of the agreement is to authorise a one-way chartering of space on the vehicle carrier vessels of the other party. Under the agreement one of the parties is authorised to charter space in the trades up to the full reach of space available on the owned or chartered vehicle carrier vessels of the other party. To ensure the optimum utilisation of the vessels, the parties may discuss and agree on the capacity of the vessels provided and their scheduling, the need for space and the availability for such space and the proportion of space that will be provided and so on. The charters are provided to be on such commercial terms and at such hire expressed in such formula as the parties may agree after discussion, depending on market conditions, revenues and cost. The space user is to issue its own Bills of Lading for the cargo it ships. The term of the agreement is indefinite but can be cancelled by mutual agreement of the parties and on notice being given thereof to the Federal Maritime Commission.

1166. Nevertheless, the pools described above[261] are the most usual in the tramp shipping industry.

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259 Tradewinds, March 10th 2006.

260 www.fmc.com.

261 Section 4.3.

PART 2:

MARKET DEFINITIONS AND LEGAL ANALYSIS OF TRAMP SHIPPING SERVICES

5. RELEVANT MARKET DEFINITIONS

5.1 INTRODUCTION AND SCOPE

1167. In this Part of the Report, the consultants have sought to assess the competitive impact of pools and other types of horizontal cooperation on the provision of tramp shipping services by reference to the various different "economic markets" in which those services are provided.

1168. The determination of the relevant market is the first step required in carrying out an analysis of tramp shipping markets for the purposes of EC competition law. In this Chapter we have therefore attempted to identify the relevant markets for competition law purposes. The markets have been looked at from both a product and a geographical dimension in accordance with the Tender Specifications, "Definition of relevant markets under EC competition rules"[262] and relevant case law and practice.

1169. We did, however, limit the scope of this exercise to those relevant markets which we considered were of specific relevance to the assessment of pools. There are, however, other related markets within the tramp sector requiring a brief mention at the outset.

1170. In the first place, within each relevant product market, it is possible to distinguish two different levels. The provision of transport services (the service of shipping cargo for a customer from one port to another port) is separate from the provision of the vessel or the space on the vessel needed to provide the customer with that service. Economically speaking, these two services can be distinguished as separate relevant markets. The one (provision of vessel capacity) is an input into the other (the provision of the transport service). Having access to the relevant vessel capacity is of course a prerequisite for providing the transport services, but the two activities should nevertheless be considered as existing at two different levels of the market. Sometimes these two levels may be carried out within a single company or by different undertakings but within the same company group.

1171. It can therefore in our view be important in appropriate cases to recognise the existence of the following two market levels:

(a) the downstream level at which owners and operators provide the relevant maritime transport services, including the carrying out of voyage charters under a CoA or on a spot basis, or the chartering of vessels for a shorter or longer period, to the relevant customers ("the downstream level");

(b) the upstream level at which shipowners make vessels available to other owners or to operators, for the purpose of providing downstream maritime transport services ("the upstream level").

1172. This distinction is in our view of particular relevance in relation to pools, as they often carry out activities at both levels of the market. A pool manager's tasks usually include marketing of the pool and fixing of the vessels and these belong to the downstream level, *i.e.* the provision of shipping transport services. A pool manager may also have the authority to charter in vessel(s) on behalf of the pool when capacity is needed and this task falls under the upstream level of the market, *i.e.* the chartering of vessel capacity.

1173. In this Report, our main focus has been on the downstream level of each market, namely the provision of tramp shipping services to the customers (be they cargo owners, traders, buyers,

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262 Specifications to Invitation to tender COMP/D2/002, at Section 3.4.2.

intermediaries or whatever), and not specifically on the market for the provision of the relevant vessel capacity to meet that demand. Given this focus, we have not sought to analyse in any detail how the market for relevant vessel capacity should be defined and whether it always necessarily coincides with the market for the provision of the services.

1174. The distinction between the downstream and upstream market levels nevertheless needs to be borne in mind in the context of our analysis of pool agreements, where the pool manager is both a supplier of services to the customer and an acquirer of vessel capacity from the members of the pool who own the vessels or relevant third parties.

1175. In addition to these two different levels of the market mentioned above, there are other related markets such as the brokers' market, the container market, the demolition (scrap) market, the paper market, the sale and purchase (of vessels) market, and the shipbuilding market. These will be described very briefly below.

1176. The brokers' market has already been described under Section 1.7 of the Report, entitled "Role of Brokers".

1177. The container market is outside the scope of this Report as containers are usually used in connexion with the provision of liner services; it will nevertheless be referred to below as some operators in tramp shipping markets compete with container operators.

1178. The market for demolition/recycling of vessels is an alternative source of income, as the ship owner can sell his ship and get paid per tonne of steel in the vessel. The demolition market tends to be strong when the freight market is poor and the ship owner or ship operator predicts that his vessel(s) cannot be operated profitably in the foreseeable future and there are no buyers willing to buy the vessel. The vessel could possibly be laid up, but where this is not an option, the only way of earning money on the vessel would be to scrap it. The number of vessels being scrapped is determined by a number of factors, of which the most important ones are freight rates, both actual freight rates on the day and predicted rates in the foreseeable future, and the price of scrap metal. Most demolition activities are undertaken in India, Bangladesh, Pakistan and China.

1179. A purely financial market is the Freight Forward Agreement (FFA) market, which makes it possible to buy freight derivatives. A freight derivative is a financial futures contract between two parties, which sets an agreed future price for carrying commodities at sea. The contract does not involve freight or any actual ships. It is purely a financial agreement, much like that found in other commodity futures markets. Freight futures and options are available for tankers and dry bulk shipping. Previously, shipping companies were the predominant force in the FFA market, which allowed them to manage their risk. Increasingly now, financial institutions also use FFA volatility as a source of income, as an asset class in which either to trade or invest, although shipping companies continue to use them too as a means of hedging risk. IMAREX is the only regulated market place for maritime derivatives contracts.

1180. The sale and purchase market is where both newbuilding and second hand vessels change ownership. This market is a market where sale and purchase brokers act as middlemen between potential buyers and sellers.

1181. The shipbuilding market is the market for purchase of new vessels for delivery from a shipyard. Shipbrokers are typically used as middlemen in the negotiations between the shipowners and the shipyards.

5.2 LEGAL DEFINITIONS OF RELEVANT MARKETS

1182. By way of introduction, we briefly summarise the legal principles underlying the market definition exercise and explain some of its limitations.

1183. In the first instance it is worth recalling that the market definition exercise is merely a useful preliminary tool for the application of the competition rules. The European Commission itself acknowledges as much in the following comments:

> "Market definition is a tool to identify and define the boundaries of competition between firms. It allows establishing the framework within which competition policy is applied by the Commission. The main purpose of market definition is to identify in a systematic way the competitive constraints that the undertakings involved face. The objective of defining a market in both its product and geographic dimension is to identify those actual competitors of the undertakings involved that are capable of constraining their behaviour and of preventing them from behaving independently of an effective competitive pressure. It is from this perspective, that the market definition makes it possible, *inter alia*, to calculate market shares that would convey meaningful information regarding market power for the purposes of assessing dominance or for the purposes of applying Article [81]."[263]

1184. The Notice on the relevant market requires that "the relevant market within which to assess a given competition issue" be established "by the combination of the product and geographic markets".[264] Traditionally, for competition law purposes, one carries out a two-stage analysis, beginning with the identification of the boundaries between the different product markets, and then turning to the geographical dimension. However in reality, the product scope and the geographical scope of the market are two facets of the same coin, and the analysis tends to overlap to some extent, certainly in the case of price analysis. The analysis can be used both for defining the market in terms of product and geographical area.

1185. The "product market" can of course consist initially of relevant physical products but also, where relevant, services. In the tramp sector we shall be focusing essentially on the relevant markets for the services of transporting any one or more categories of physical products.

1186. The "relevant geographical market" has been defined by the European Commission as comprising:

> "the area in which the undertakings concerned are involved in the supply and demand of products or services, in which the conditions of competition are sufficiently homogeneous and which can be distinguished from neighbouring areas because the conditions of competition are appreciably different in those areas."[265]

1187. Such a definition is of relatively less use in the context of international trade and we have preferred to use the definition of the Court of Justice in *United Brands*[266] as:

> "the clear delimitation of the substantial part of the common market in which [the undertaking] may be able to engage in abuses which hinder effective competition and this is an area where the objective conditions applying to the product in question must be the same for all traders."

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263 Notice on relevant markets, at para. 2. See footnote 265.
264 Notice on relevant markets, at para. 9. See footnote 265.
265 Notice on relevant markets, at para. 8. See footnote 265.
266 Case 27/76 *United Brands* v *Commission* [1978] ECR 207, at para. 44.

1188. There may also be a temporal dimension to the market. As discussed in Chapter 2 of this Report. Above certain products display seasonal characteristics that may give rise to discrete market conditions at certain times of the year. The only products in which this was in fact observed are grain and fruit. In relation to both these products there were observable peaks in the dry bulk freight rates prevailing in the South American region around April, reflecting the peak grain season in the Southern hemisphere, and in the autumn for the North American region, corresponding to the peak grain season in the Northern hemisphere. However, as storage facilities improve, this variation can be expected to decrease over time. In the fruit market reefer rates on the spot market increase in October and decrease again in March, corresponding to the peak fruit season in the principal exporting markets in the Southern hemisphere.

5.3 METHODOLOGY

1189. We have attempted, to the extent possible, to identify the relevant product and geographical markets within the tramp shipping industry, applying the legal criteria set out in the European Commission's Notice on the definition of the relevant market[267].

1190. To arrive at a proper definition of the relevant market it is essential to consider all the competitive restraints. As the European Commission recognises:

> "Firms are subject to three main sources of competitive constraints: demand substitutability, supply substitutability and potential competition. From an economic point of view, for the definition of the relevant market, demand substitution constitutes the most immediate and effective disciplinary force on the suppliers of a given product, in particular in relation to their pricing decisions. A firm or a group of firms cannot have a significant impact on the prevailing conditions of sale, such as prices, if its customers are in a position to switch easily to available substitute products or to suppliers located elsewhere. Basically, the exercise of market definition consists in identifying the effective alternative sources of supply for the customers of the undertakings involved, both in terms of products/services and geographic location of suppliers."[268]

1191. In seeking to establish relevant market boundaries, we have followed the European Commission's usual starting point of first examining demand substitutability. The concept is explained in paragraphs 15 to 19 of the Notice[269].

1192. In some cases, however, it may be helpful to consider substitutability on the supply side of the market. The European Commission suggests[270]:

> "Supply-side substitutability may also be taken into account when defining markets in those situations in which its effects are equivalent to those of demand substitution in terms of effectiveness and immediacy. This requires that suppliers be able to switch production to the relevant products and market them in the short term without incurring significant additional costs or risks in response to small and permanent changes in relative prices.[271]

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[267] Commission Notice of December 9, 1997 on the definition of the relevant market for the purposes of Community Competition law, OJ C372 /5 of 9.12.97.

[268] *Ibid*, at para. 13.

[269] Notice on relevant markets. See footnote 267.

[270] *Ibid*, at para. 20.

[271] This is very typical for shipping because switching between different trades and product (e.g., coal and iron ore). It is more difficult in specialised trades. In Ethylene they can change between LPG, CPP (although this will not be a regular market and the change is only made in the event of specific problems with the ship). Reefers are specialised but can also trade cars and other palletised cargo. PCC can also trade palletised products. VLCC could

> When these conditions are met, the additional production that is put on the market will have a disciplinary effect on the competitive behaviour of the companies involved. Such an impact in terms of effectiveness and immediacy is equivalent to the demand substitution effect."

1193. The European Commission already recognises that there may be practical difficulties in finding all the evidence necessary to establish the relevant market and that, depending on the market concerned, certain types of evidence may or may not be available.

1194. The European Commission makes the further obvious point that the exercise of market definition has to take account of factors specific to each individual industry or market. As the European Commission states "[i]n individual cases, certain types of evidence will be determinant, depending very much on the characteristics and specificity of the industry and products or services that are being examined. The same type of evidence may be of no importance in other cases…. [A] decision will have to be based on the consideration of a number of criteria and different items of evidence."[272]

1195. The purpose of this exercise is principally to identify the relevant *economic* markets within which the various pools identified in Chapter 4 operate. To enable us formally to determine relevant product and geographical markets, a price correlation analysis was undertaken.

1196. The price correlation analysis was conducted on the basis of freight rates. The freight rate is the adjustment mechanism in the shipping market. Freight rate cycles occur because the supply of ships adjusts in a much slower manner than the demand for ships, such that in periods where demand exceeds supply, freight rates spike, as no further sea transport is available until new ships are delivered from the yards. Conversely, when supply exceeds demand for freight, freight rates drop.

1197. Correlation coefficients can, however, be skewed by common input factors in prices. In the case of freight rates, bunker costs are an input to each vessel (regardless of who pays the bunker costs). As a result of the common factor of bunker costs, freight rates can have higher correlation coefficients than they would if the common factor were removed.

1198. Moreover, correlation analysis does not capture lags in prices or delayed price responses without more formal analysis.

1199. In order to overcome such shortfalls in correlation analysis, there exist various additional quantitative techniques which should be used in the future with a view to testing the preliminary price correlation conclusions and strengthening the definition of relevant product markets. Such methods include the speed of adjustment test, causality tests, and price regressions, among others. They were not, however, used as they fell outside the scope of this study.

1200. We did, nevertheless, systematically calculate correlation coefficients for all routes using the price information available. The prices used are weekly average freight rate levels and the period considered stretched over 45 months starting in January 2003 and ending in October 2006.[273] This time series covers approximately 200 observations, which is a statistically sufficient amount for obtaining a reasonably reliable result.

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trade other things than crude oil. OBOs are specially designed to switch between oil, bulk and ore cargoes. , hence OBOs are very capable of adjusting to changing market conditions.

[272] Notice on relevant markets at para. 25. See footnote 267.

[273] In the price correlation analysis for the liquid bulk segment, the freight rates for LNG and LPG were only available on a monthly basis.

1201. The calculations were carried out in Excel using a standard formula for calculating correlation based on price levels:

$$Correl(X,Y) = \frac{\sum (x-\bar{x})(y-\bar{y})}{\sqrt{\sum (x-\bar{x})^2 \sum (y-\bar{y})^2}}$$

1202. It should also be noted that the relevant period chosen covers several market cycles for all dry bulk, crude oil, and petroleum product (dirty and clean) trades, as these have fluctuated strongly. Thus, all prices have shown substantial changes and not only incrementally around an equilibrium.

1203. The price data are based on time series recorded by Clarkson Research Studies (Clarksons). We elected to base our price studies on this company's time series as it has the widest coverage in terms of its collection and assessment of market prices. One could, possibly, add other sources as well (like Fearnleys, Gibsons, and the Baltic Exchange *etc)*. However, the consultants were concerned about the external validity of the results if a number of other sources were used, given the number of different methodological assumptions used by each party in compiling the relevant data, which would have been likely to create a misleading rather than a real reflection of the market prices. It must be assumed that Clarksons use the same methodology across all market segments.[274]

1204. Price data were obtained in level and index form for freight rates and time charter rates, by ship size. Once data were obtained in compatible units, patterns between the data sets were analysed to determine whether the price series moved independently or simultaneously. Price analysis was conducted for each ship size for which a detailed time series index was available. These included Capesize, Panamax and Handymax size vessels, as well as tanker vessels.

1205. Testing for interrelationships between freight rates and time charter rates is challenging because direct comparisons between freight rates and time charter rates cannot be made due to unique units. In particular, the time charter rate is inclusive of voyage related costs, such as bunkers, port costs, canal tolls, pilotage, *etc*, and is borne by the charterer. Conversely, the freight rate does not explicitly include such items. To circumvent this problem, unit-less indices calculated by the Baltic Exchange are studied. So as accurately to compare all indices, all rates were re-indexed to January 2003 (the first period of data considered). The Baltic Exchange Dry Indices by ship size represents the global spot market and is comparable to freight rates. These indices are weighted on the basis of a mix of voyage and time charter trips by route. Using Baltic Exchange Indices by ship size and comparing them to time charter rates by ship size enables a proper comparison to be undertaken between the implicit freight rates and the time charter rates.

1206. Product market definitions are not based entirely on analyses of price correlations. However, notwithstanding the absence of statistical significance to any particular level of correlation, the European Commission has previously regarded correlations above 0.80 as high and correlations below 0.65 as low.[275] We have, in general, found high correlations (above 0.80) between prices in the various sub-segments. We have chosen to present the correlations at six different levels, 0.70-0.75, 0.75-0.80, 0.85-0.90, 0,90-0,95 and 0.95-1.00. The correlations are presented for liquid bulk, dry bulk and neo-bulk, respectively.

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274 www.clarksons.net, "Sources and methods".

275 Held in Case COMP/M.2187 *CVC / Lenzing;* in Case COMP/M.1939 *Rexam/American National Can* correlations above 0.83 were stated to be "high levels of correlation" .

1207. Furthermore, production disruptions (following unplanned maintenance, accidents, strikes, *etc.*) may also have an impact on the market prices for shorter periods. Such market transient market factors will affect the prices differently for different size segments of each sub-segment and reduce the correlation factors without being a result of ships operating in different product markets. A very good example was the congestion in Australian and Chinese ports in late 2003 and early 2004. Although statistics are scarce, a substantial number of Panamax and Capesize bulkers were tied up in waiting in Australian coal and iron ore exporting ports.

1208. From the correlation tables we observed that trans-Atlantic grain trades in Panamax correlated with Capesize iron ore shipments from West Australia to Japan. For the entire period the correlation factor was 0.79. However, in the period September 2003 to June 2004 the correlation factor was only 0.16. During this period freight rates rose sharply towards the end of January 2004, and declined sharply towards June. Interestingly, when correlating the two routes for the first half of 2004, when freight rates declined, we arrived at a factor of 0.70. This example also illustrates the point that periods of low correlation can occur within one and the same product market.

1209. Following the price correlation analysis, an attempt was made to complement price correlation analysis by examining port-specific data to establish patterns, but lack of data hindered this effort. An analysis of product/service characteristics, a supply-side analysis, and finally an assessment of the relevant geographical market were, however, carried out. Provisional conclusions were then reached regarding the relevant markets. Based on these various relevant markets, market shares for pools were then calculated.

1210. Our overall approach has been to look at each commodity heading (liquid bulk, dry bulk and neo-bulk), and group them according to their principal characteristics, such as vessel requirements, vessel sizes, handling requirements, need for special equipment, port, terminal or draught restrictions and other inherent characteristics which would imply lack of substitutability.

1211. Although Community law generally requires both product characteristics and product uses to be taken into account, we have concluded that to all intents and purposes the "use" of the services is not a relevant factor in the industry. This is because freight transportation service (whatever the commodity being carried) meets a simple requirement for the transportation of cargo from point to point. The service itself does not differ according to the use to which the cargo will be put further in the supply chain (e.g. a raw material or part to be mixed in with or incorporated into a final product, or a product having different applications, e.g. grain for human consumption or use as animal feed). What is essentially being sold is the space within which the product can be carried for the period of time required. Supply side characteristics such as vessel type, age and size are characteristics of the service and not its use.

1212. The vast majority of products or commodities transported in the tramp sector are low value commodities. The need that cargo owners have for transport services and the use they make of those services is not all that different from one cargo to the next. We have only been able to distinguish two special cases, namely cars and other vehicles, and refrigerated cargo. However, transportation of these two classes of goods is not critical **in the sense that they will impact the use of them in a way that requires a highly reliable, flexible or safe transport service**. These are consumer goods and delay and/or damage to the goods will typically cause economic losses, but probably none that will have detrimental results **on the goods' saleability**.

1213. Most raw materials, however, are used in industrial processes like crude oil refineries, petrochemical plants, smelters of any kind, *etc.* For these industries, reliable supply of raw materials is critical as the cost of running out of raw materials could potentially lead to a temporary closure of a multi-billion facility and consequently damage the factory's reputation and standing *vis-à-vis* their customers. The demand for reliable, flexible and safe transport services is prevalent in all tramp markets, with the two possible exceptions already mentioned for cars and refrigerated goods. As such, however, the service itself does not normally differ according to the use to which the cargo will be put further in the supply chain, as the requirements are the same for everybody. We do not therefore see differences in use as a critical factor in determining the relevant market and have therefore ignored this as a critical factor.

1214. We have, however, addressed the applicability of the SSNIP test (a Small but Significant Non-transitory Increase in Price) to the tramp market. The European Commission traditionally favours this as a way of assessing demand substitution. It involves what the European Commission describes as a thought experiment "postulating a hypothetical small, non-transitory change in relative prices and evaluating the likely reactions of customers to that increase".[276]

1215. The SSNIP test seeks therefore to identify the relevant market as the smallest market where a 5% increase in price can be sustained for one year assuming that "the terms of sale of all other products are held constant."[277] If substitutes are available such that a 5% increase in price must be lowered to maintain competitiveness, then the relevant market needs to be expanded to include substitutes to reach a point where the 5% price increase can be sustained. To reach this point, products are added to the market one by one, testing for sustained prices after the addition of each product. For example, Coca Cola may not be able to sustain a 5% increase in price because consumers are likely to switch to Pepsi. Thus, the relevant market needs to be expanded to include Pepsi. If prices are still not sustained having added Pepsi, an additional beverage would need to be added to the market and tested.

1216. In tramp shipping, a 5% price increase would be an increase in freight rates and the substitutable goods would be the vessel types. Applying the SSNIP test to tramp shipping is certainly less straightforward than to other markets given the complexities of the industry. If the tramp markets behaved like the beverage market example above, then one would be asking whether a 5% increase in freight rates on Capesize vessels might lead to a switch to Panamax vessels. However, the ranges of commodities that can be carried on each vessel, coupled with the plethora of geographical routes where these vessels can travel, add to the complexity of the freight rates and the determination of relevant markets using the SSNIP test. In tramp shipping, one cannot simply consider the freight rate for the Capesize vessel; one must consider the freight rate for the Capesize vessel carrying, say, iron ore from Tubarao to Rotterdam, or other alternative sources, say Port Hedland or Dampier in Australia, with the same or an alternative vessel type.

1217. Unlike many markets, tramp shipping experiences geographical substitutability. In tramp shipping, most routes within the Atlantic or the Pacific Oceans are substitutable in the short term. If operating a route between the United States and Europe, a vessel can quite easily shift to operate a Europe-Caribbean route if the freight rates make it economical for the vessel to do so. Furthermore, in the case of an EU-based power utility importing coal, the coal market is relatively advanced, offering hedging and derivatives tools that provide the consumer with a number of alternatives for sourcing coal. Within the Atlantic, the coal may be sourced from a large number of places[278]. In addition, coal could be sourced from the Pacific[279]. However, as the power plant is stationary, there are probably fewer, if any, substitutes to the importing port that is normally used.

1218. In normal chartering practice it is normal for the owner/operator of the ship to grant the charterer certain options with respect to the discharging port. This is discussed in section 1.6.11.1. It is normal practice in voyage chartering (including CoAs) for the shipping company to grant the charterer a range of discharging ports. In the dry bulk market the term "one safe port, one safe

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276 Notice on relevant markets, at para. 15. . See footnote 267.
277 http://www.compecon.ie/Mktdefn.htm.
278 Russia (Barents-, Baltic-, or Black Sea ports), Poland, Norway, Canada, the USA, Colombia, Venezuela, and South Africa.
279 Australia, Vietnam, China, Russia, Australia, Indonesia.

berth Antwerp-Rotterdam-Amsterdam range" is typical and could indicate some geographical substitutability. However, if the cargo is a trading cargo this is a mere reflection of the fact that the cargo was not sold at the point of fixing the vessel. As soon as the cargo is sold, the discharging port is nominated. Hence, the options only serve to provide cargo owners with flexibility in their sales effort, and not demand-side geographical substitutability. Even in cases where the cargo is definitively sold, the charterer may need some flexibility due to uncertainties linked, *e.g.*, to available storage capacity in the range of ports agreed.

1219. Another example of geographical substitutability can be found in the case of the major power companies. The German energy conglomerate, E.On, owns/operates 23 hard coal fuelled power utilities in Germany. E.On is active in coal trading and imports hard coal for its power utilities. In this case, one could assume a certain degree of geographical substitutability from the demand side as the company may choose to discharge coal in a German Baltic Sea port or a German North Sea port. Furthermore, the company may even choose to discharge in the Netherlands or Belgium provided the coal is destined for power utilities in West Germany. In this case one could justifiably conclude that there was a certain degree of demand-side geographical substitutability, within one single organisation.

1220. This extra layer of substitutability does, however, require more formal econometric analysis to achieve a sufficiently robust level of accuracy. In this case, applying the SSNIP test requires formal calculations of the elasticity of supply, which can be calculated in a future report.

1221. We are of the opinion that, while the SSNIP test can technically be applied to tramp shipping, it is not necessarily the best method for analysis of tramp vessel services. It is important to note that the price data analysed did not show any price increases that had been sustained at a constant level for over a year. Thus, it would be difficult to draw strong conclusions on relevant markets from this method.

1222. The SSNIP test will also fail to reveal chains of substitution, whereby a product from country A acts as a substitute for the same product in country B, and the same product from country B acts as a substitute for the product in country C. Under the methods used for applying the SSNIP test, countries A and C could end up in the same relevant market but not be correlated with each other. Considering the global nature of much of the tramp shipping industry, using the SSNIP test could possibly yield inaccurate results for the purpose of relevant product markets.

1223. We also faced a number of other specific difficulties in defining the precise boundaries between the different relevant markets and calculating market shares. These have been referred to at various points in Chapters 2 and 3. Some further issues are flagged below in this Chapter.

1224. First, the reliability of our conclusions on market shares varies from market to market due to the different availability of information in each market. In light of the objectives of this Report, which is to assess the competition implications of pools, we have focused our analysis in particular on those markets where pools operate. However, we faced the difficulty that very few pools divulge any information on the type of products carried, in what geographical area, or the quantity. Thus, the consultants have had to make estimates and use what little information is available.

1225. Clearly any classification into separate service markets relies on the market data we were able to collect for the purposes of this Report and the consultants' best estimates; with more accurate data the results might be different.

1226. Secondly, any bald classification of service markets based on individual commodities being shipped fails to take full account of the restraints on competition that may be exerted on prices and demand from the supply side. We have shown, for instance, that there is a lot of switching between specialist vessels designed to carry ethylene or ammonia and ordinary chemical tankers usually used for carrying other organic and inorganic chemicals. There are of course some instances where such switching is not possible due to the configuration of the vessel. Where it is capable of occurring, however, it could indicate a broader market or act as a supply-side constraint on market power.

1227. Thirdly, market shares should normally be calculated on the basis of the suppliers' sales of the relevant products in the relevant area.[280] This has proved, however, to be impossible from the available data, whether on the basis of value of sales or their volume. It is not feasible to obtain data on value in terms of total freight revenues in the tramp shipping market, as this information is not available in the public domain, nor can it be acquired. The United Nations agency, UNCTAD, provides an estimate of world seaborne trade, but it includes both liner services and the tramp shipping market.[281] It is not possible to make reliable estimates relating to the various relevant markets in the tramp shipping market. So far as volume data for seaborne cargo transport are concerned, the same problem arises. We did not find data in the detail required for this Report. For instance, data, where available, are not split between vessels which have been put in pools and other vessels. Moreover, as many relevant markets overlap, both in their product and geographical dimensions, it is a near impossible task to estimate market shares in each relevant market based on volume and value.

1228. The fourth issue faced by the consultants was how to calculate market shares in those relevant markets where there are elements of liner trade, semi-liner trade and tramp shipping, for instance in the reefer market, where deciduous commodities are transported both on specialised reeferships and on liner-operated container vessels in temperature controlled containers.

1229. In order to determine market shares for the various pools in a consistent manner for all the relevant markets, therefore had to report to using the number of vessels each pool controls, measured as a percentage share of the total fleet in the relevant market. There is in fact some support for the validity of this approach in the European Commission Guidelines on market definition which suggest at one point that other indications may be used, such as "…units of fleet [as in aerospace]…".[282] As an approach it therefore has the merit of providing a readily measurable estimate of market share for pools and according with European Commission practice and given the importance of the relationship between supply of capacity and demand for services it is in our view a suitable tool for market measurement. At least it gives an estimate of the capacity available in the relevant market and how much of this capacity is controlled by the pools and in the circumstances seemed to us to be a reasonable proxy for market share.

1230. That said, it proved difficult to obtain a sufficient level of data to enable account to be taken of vessel size as a determinant of the relevant market. Where there is a choice of different vessel types/sizes capable of carrying a particular cargo category, there is an issue as to whether each vessel size constitutes a separate market within each commodity classification. Different vessel types/sizes do attract different freight rates and so may be said to fall in discrete markets, based on freight rate alone. This statement may be qualified by vessel characteristics and supply-side substitutability. However, it must be borne in mind that vessel size and the capacity of any particular size available in the market at any time is demand-led. Where there is an increase in demand for a range of vessel sizes (or such increase is anticipated) new capacity will usually be seen to come on stream.[283]

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280 Notice on relevant markets, at para. 53. . See footnote 267

281 Review of Maritime Transport, 2005, UNCTAD.

282 Notice on relevant markets, at para. 54. . See footnote 267

283 A similar illustration of the close relationship between bulk carrier volumes and freight rates in the coal transport market between 1950 and 1995 can be found in M Stopford, "Maritime Economics", p.128, Figure 4.6, 2nd

1231. In any event, as was explained at the outset, vessel size is generally a factor of the parcel size. However, as we have shown, prices for tramp vessel services are usually quoted (and fixed) by reference to freight rates and there is supply-side substitutability between different vessel sizes, such as where an LGC cargo is shipped on a VLGC.[284] Conversely, a supplier may use two smaller vessels to ship a larger parcel size, more frequently in the dry bulk markets, but also in the liquid bulk market between VLCC and Suezmax or between Suezmax and Aframax.

1232. The main part of this Report did identify some freight markets where there could be geographical issues or product specific constraints mandating the use of a limited number of ports, *e.g.* iron ore and timber exports from Sweden and Finland; LNG imports into the UK. We are not aware of any major differences in the trading conditions affecting ports located in different parts of the EU and we therefore posited that they formed part of the same geographical market within the relevant market for the transport of each relevant commodity. Ports where commodities are shipped are not always the end destinations and may, for instance, first be shipped to Rotterdam and then shipped on to somewhere else in Europe.

1233. Our conclusions as to relevant markets, and thus market shares of pools in any given market, need nevertheless to be read subject to the above qualifications.

5.4 BASIC DESCRIPTION OF THE TRAMP MARKET

1234. We start from the assumption that the relevant tramp vessel service markets would have different characteristics according to the different characteristics of the products or commodities being transported. Accordingly, and consistently with the principle that relevant markets should normally be defined by reference to the demand side, the starting point for our market analysis is the list of different products and commodities described in Chapter 2 of this Report, grouped under the main categories, namely the liquid bulk market, the dry bulk market and the neo-bulk market.

1235. That gives as a starting point the following list of relevant product markets for the transport of each of the following key categories of products and commodities considered in Chapter 2 within the three main categories:

(a) **Liquid Bulk**

(i) Condensates

(ii) Crude oil

(iii) Ethylene

(iv) Fuel oil

(v) Diesel oil/Gas Oil

(vi) Fuel oil

(vii) Gasoline

(viii) Jet fuel (Kerosene)

Edition. This figure shows the available bulk carrier capacity rising with a slight time lag in direct response to increases in freight rates for a particular size of ship, reflecting higher demand.

284 At section 3.1.4.5 above dealing with arbitrage between VLGCs and LGCs.

(ix) LPG

(x) Naphtha

(xi) Natural gas

(xii) Organic chemicals

(xiii) Inorganic chemicals/acids

(b) **Dry Bulk**

(i) Aggregates, sulphur and salt

(ii) Animal Feed

(iii) Briquettes, lignite, peat and coke

(iv) Cement and other non-metallic products

(v) Coal

(vi) Copper, alumina, bauxite, zinc, lead, nickel and other ores

(vii) Fertilisers

(viii) Grain

(ix) Non-ferrous metals including aluminium

(x) Oil seeds and soybeans

(xi) Phosphates and crude fertilisers

(xii) Steel and iron ore

(xiii) Sugar

(xiv) Waste paper

(c) **Neo-Bulk**

(i) Agricultural machinery

(ii) Cork and wood

(iii) Fruit and Vegetables

(iv) Meat/ dairy/ fish

(v) Metal products

(vi) Motor vehicles

(vii) Non-ferrous metals

(viii) Paperboard and products

(ix) Petcoke and other residual petroleum products

(x) Pulp

(xi) Steel

1236. We then proceeded to carry out a more detailed market analysis based on these categories, including examining the extent to which there is price correlation within and between categories.

5.5 RELEVANT MARKET ANALYSIS

5.5.1 *Liquid bulk*[285]

5.5.1.1 Price Correlation Analysis

1237. We compared weekly freight rates for crude oil, dirty petroleum products, clean petroleum products and chemicals.[286] LNG and LPG[287] rates were compared separately, as these freight rates were available on a monthly basis only.

1238. We examined a total of 56 liquid bulk rates[288], of which 20 are crude oil tanker rates (of which one was for a ULCC vessel, nine were for VLCC vessels, three were for Suezmax vessels and seven were for Aframax vessels), six were dirty petroleum products rates (all 50K cargo), 16 were clean petroleum product rates (cargo sizes varying from 20,000 to 75,000 tonnes) and 14 were rates for chemicals (both easychems and chemicals with various cargo sizes from 2,000 tonne to 10,000 tonne). In the gas market, two freight rates for LNG vessels were compared (for a modern 150,000 m^3 vessel) and eight freight rates for LPG vessels (vessel sizes vary from 3,200 m^3 to 75,000 m^3), all correlations are found in Annex 10.

1239. The analysis was carried out in two steps. First, correlations were compared between all different segments in order to determine whether there was a single liquid bulk market. Secondly, internal correlations were compared within each segment, *i.e.* crude against crude, to establish whether there exist different sub-markets within each segment.

1240. The following tables give an overview of the cumulative distribution of the correlation coefficients for liquid bulk. Since only a small fraction of the correlation coefficients are above 0.80, this can be seen as an indication that the various products are in separate markets.

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285 Due to lack of freight rates for LNG and LPG on a weekly basis (as opposed to the rates for crude oil, chemicals, clean and dirty products), correlations for liquid bulk as a whole were not possible. The correlations are therefore presented on different sheets in Annex 10.

286 Freight rates for animal and vegetable oils are included in chemical rates due to the new IMO regulations which came into force on 1 January 2007. The new rules require these commodities to be transported on IMO 3 vessels (for an explanation, see footnote 278 below and corresponding text). Freight rates for condensates are not reported separately. Freight rates for Ammonia are not reported separately from freight rates for LPG, and are therefore included in the LPG rates.

287 The freight rate for ethylene is reported together with the freight rates for LPG.

288 Excluding LNG and LPG.

Distribution of correlation coefficients for liquid bulk in percent **Liquid bulk (in percent)**						
	0.70-0.75	0.75-0.80	0.80-0.85	0.85-0.90	0.90-0.95	0.95-1.00
Chemicals, Clean, Crude, Dirty	6.8	2.7	3.4	3.0	2.5	2.7
LNG						100
LPG	3,5	0	7.1	21.4	32.1	14.3

Distribution of correlation coefficients for liquid bulk in absolute numbers **Liquid bulk (in absolute numbers)** N is the number of correlation coefficients in the respective correlation matrices						
	0.70-0.75	0.75-0.80	0.80-0.85	0.85-0.90	0.90-0.95	0.95-1.00
Chemicals, Clean, Crude, Dirty n = 1540	106	42	53	46	39	42
LNG n = 1						1
LPG n = 28	1	0	2	6	9	4

(a) Correlations across all segments

1241. Correlations between the different segments are generally very low. Even with a threshold of 0.70, there is no systematic evidence that the six various segments are in the same product market based on price correlations alone. As has been commented on above, correlations for LNG rates and LPG rates have been conducted separately, but even so there is no evidence that they correlate with each other.

(b) Intra-segment freight rate correlations

1242. In order to determine whether there are separate sub-markets within each segment, price correlations were compared between different vessel sizes and routes where available. The results are as follows.

(i) Chemical tanker rates

1243. In the chemicals segment, there are some single correlation coefficients with values above 0.8, but there is no systematic pattern between the various trade routes. This indicates separate markets within the chemical market based on price correlations alone.

(ii) Clean petroleum product tanker rates

1244. For clean petroleum products (CPP) internally, the findings are mixed. Nothing can be said generally about why certain routes are correlated, whereas others are not. We are not able to draw any conclusions based on freight rate correlations alone. This may indicate separate markets within the CPP market, based on price correlations and nothing else.

(iii) Crude oil tanker rates

1245. For crude tanker rates, all VLCC rates correlate internally above 0.881[289].

1246. Suezmax rates all correlate internally with values above 0.838, with the exception of Sidi Kerir Lavera Suezmax 135K USD/Ton against Ras Tanura Huizhou Suezmax USD/Ton, which correlates at 0.787.

1247. Aframax rates correlate internally above 0.814 with the following exceptions. Ras Tanura Singapore Aframax 80K USD/Tonne correlates below 0.686 against all the other freight rates. Sidi Kerir Trieste Aframax 80K USD/Tonne correlates below 0.726 against Curacao Texas City Aframax 80K USD/Ton and Curacao Hamburg Aframax 80K USD/Ton. The Sullum Voe Wilhelmshaven Aframax 80K USD/Ton correlates below 0.777 against Curacao Texas City Aframax 80K USD/Ton and Curacao Hamburg Aframax 80K USD/Ton.

1248. With the exception of Sidi Kerir Lavera Suezmax 135K USD/Ton, VLCC and Suezmax rates correlate above 0.787 with each other. This could indicate that the two vessel sizes are in the same market. VLCC and Suezmax rates correlate poorly with Aframax rates, only 9 of 91 correlations exceeding a threshold value of 0.80. This could imply that the Aframax segment is separate from the VLCC and Suezmax market.

(iv) Dirty petroleum product rates

1249. We have examined six dirty petroleum product (DPP) rates of which four correlate internally above 0.935. Two routes, the Milford Haven Milazzo Dirty 50K USD/Tonne correlates below 0.680 against the other rates and Milford Haven Wilhelmshaven Dirty 50K USD/Tonne correlates below 0.748 against the other rates. As all six routes are based on the same amount of cargo carried, this may suggest that there exist different markets in the overall dirty petroleum product market.

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289 There is only one rate available for ULCC, and thus the internal correlation coefficient is one.

(v) LNG tanker rates

1250. In the LNG segment, when comparing the available two spot rates for East of Suez and West of Suez on a weekly basis, from week one 2005 to week 52 2006, the correlation coefficient was calculated at 0.96.

(vi) LPG tanker rates

1251. In the LPG segment,[290] all freight rates for vessel sizes up to LGCs (54,000 m^3) correlate above 0.814. VLGC (75,000 m^3) rates are poorly correlated with the smaller vessel sizes, with the highest correlation factor at 0.720. This indicates that the VLGC market forms a separate market from the other vessel sizes (from 3,200 m^3 to 54,000 m^3).

5.5.1.2 Product/Service characteristics

1252. Although freight rates may or may not indicate various discrete markets, the product/service characteristics must be taken into account to validate any results. As the preliminary results show that the various commodities are in discrete markets, the description of characteristics has been based on commodities rather than vessel types.

(a) Chemicals

1253. Parcel tanker shipping is the ocean transport of bulk liquid chemicals, edible oils, acids and other special liquids. Parcel tankers are deep sea vessels equipped with compartments designed to carry shipments of various sizes. The temperature and other specifications of the compartments can be regulated according to the specific requirements of the type of liquid being transported.

1254. Chemicals typically require specialised vessels as most chemicals are considered as dangerous substances. There are two main types of chemical cargoes carried, either organic (methanol, MTBE, benzene, toluene, xylene and styrene) or inorganic (phosphoric acid, sulphuric acid and caustic soda), and these are transported on chemical tankers which are classified as either IMO 1, 2 or 3 depending on the type of chemical carried. IMO 1 classed vessels carry the most dangerous substances, whereas IMO 3 classed vessels carry the least dangerous substances. Each type of chemical, both inorganic and organic, has unique types of requirement for its transportation. The requirements can be found in the IBC Code book issued by IMO.[291] Within these categories there are hundreds of different cargoes with their own characteristics. There are also other cargo types, like vegetable oil, animal fat, lubricating oils and bio fuels which could come under the broad heading of chemicals.

1255. A parcel tanker can have as many as 50 different cargo holds, with different levels of IMO classification (IMO 1, 2 and 3), which makes the vessel very versatile. For example, Odfjell ASA, which specialises in transporting chemicals on IMO 2 type tankers, carried 551 different products in 2005.[292] All vessels are equipped with pumps for loading and discharging.

1256. The fleet carrying chemicals consists of a variety of ship types – both in terms of size, sophistication, number of tanks, tank configuration and other criteria of importance, of which the most important criteria for hazard evaluation of bulk chemicals are:

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290 This segment includes petroleum chemicals (petchems).

291 IBC Code, International code for the construction and equipment of ships carrying dangerous chemicals in bulk and index of dangerous chemicals carried in bulk, International Maritime Organisation, London, 2006.

292 Source: http://www.odfjell.com/internet/frames.asp?company, accessed 22.01.2007.

- Pollution category
- Tank type
- Tank ventilation
- Tank environmental control
- Fire protection
- Material of construction.

1257. Chemicals require specialised storage in accordance with their IMO classifications and only ports equipped with these facilities are able to receive chemical tankers. Some operators offer storage facilities in addition to their shipping services. The terminal facilities may be fully or partly owned.

1258. For each and every hazardous chemical, there is a unique set of requirements which must be met in order for a vessel to be able to transport a given chemical on board. Thus, it is a near impossible task to identify the relevant product market(s) for chemicals based solely on characteristics.

(b) Clean petroleum products (CPP)

1259. Clean petroleum products include clean condensates, diesel oil, gas oil, gasoline, jet fuel, marine diesel oil and naphtha. Broadly speaking, these are "white" refined products.

1260. Clean petroleum products are transported on Handysize, MR, LR1 and LR2 product tankers. Handysize, MR, LR1 and LR2 indicate the size of the vessel and the size of the parcels. Parcel sizes smaller than 30,000 tonnes are typically transported on Handysizes, but could also be transported on larger vessel sizes, such as MR. CPP vessels are primarily designed to carry clean petroleum products, and some are equipped with sophisticated pumping systems (*e.g.* deep well pumps, with one cargo pump in each cargo tank).

1261. Clean product tankers can be separated into vessels which are coated and those without coating. Coated tankers are easier to clean and are more resistant to some cargoes with corrosive effects which may in turn affect other types of cargo. Some CPP vessels are ice-classed. Modern units are double hulled.

(c) Crude oil

1262. Crude oil is primarily carried on dirty tankers, which are built to transport various quantities of liquids, especially crude oil but also dirty condensates. Vessel sizes include Handysize, Panamax, Aframax, Suezmax and VLCC/ULCC tankers. These are not generally very sophisticated tankers, and the main difference between the different types is the size. However, there are some vessels of Aframax/Suezmax size ("shuttle tankers") equipped with variable pitch propellers and side thrusters, higher cargo pumping capability, dynamic positioning systems, specific loading systems for loading cargo at offshore facilities, and reinforced hull design for fatigue prevention, which are used for transporting the oil from the oil fields in the North Sea to the major European importing ports. Another seasonal niche might be ice-classed vessels. Modern units are double hulled.

(d) Dirty petroleum products (DPP)

1263. Dirty petroleum products include dirty condensates, fuel oil, vacuum gas oil, and LSWR[293]. Broadly speaking these are "black" refined products. In order to carry DPP a heating system is required, which is capable of heating the product (typically to 57°C) in order to keep the cargo pumpable and liquid. All crude oil tankers, apart from VLCCs, and clean petroleum tankers have the required heating systems installed. Generally, if the cargo is liquid and is traded in warm climates, a heating system may not be required. Modern units are double hulled. Vessels carrying DPP may require terminals which have a heating system, in particular in colder climates as the temperature of the cargo otherwise may fall below 57°C when the cargo is being loaded and discharged.

(e) LNG

1264. Natural gas is carried liquefied on LNG carriers, which are purpose built for carrying liquefied natural gas. LNG is stored at –163°C, which reduces volumes by a factor of 600, in special, low temperature, double walled, and heavily insulated tanks that are made of such materials as nickel, steel and concrete, suitable for such low temperatures. LNG carriers are designed and constructed to international rules (IMO IGC Codes). Carriers are of a double hull construction and heavily insulated. Export and import terminals are sited, designed and constructed according to stringent national codes and international standards.

(f) LPG

1265. Gas cargoes are transported in liquid form, which reduces volumes by a factor of 300. LPG can be made liquid by some form of cooling (refrigerated vessels) to -40°C at atmospheric pressure, by pressure (pressurised vessels) or a combination of cooling and pressure (semi-refrigerated vessels). Pressurising is the cheapest mode for small lot sizes, and as the cargo sizes increase, it becomes more efficient to use refrigeration techniques.

1266. LPG can thus be transported in pressurised, semi-refrigerated or fully refrigerated vessels. Empirically, vessels below 10,000 m^3 are usually pressurised, however semi-refrigerated vessels, which use a combination of pressure and cooling, vary in size from 3,200 to 20,000 m^3. Vessels above 20,000 m^3 are typically fully refrigerated.

1267. Ethylene is somewhat different from LPG as it needs to be cooled to -104°C at atmospheric pressure. Ethylene is very corrosive, and therefore requires special lines, tanks and pumps. Ethylene carriers vary in size from 8,000-20,000 m^3. Ethylene carriers are also capable of carrying LPG; however, standard LPG vessels cannot carry ethylene.

5.5.1.3 Supply-side substitutability

1268. As mentioned above, liquid bulk products can be transported in chemical parcel tankers, clean oil and products tankers, crude oil/dirty tankers[294], LNG carriers and LPG carriers. This does not,

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293 LSWR is a by-product of the distillation stages of the crude oil refining process which can be further cracked to yield valuable products such as LPFO *etc* through a process known as Fluidised Catalytic Cracking (FCC). It can also be used to fire boilers.

294 In the previous section we made a distinction between dirty petroleum products and crude oil. The only crude carrier which is normally not capable of carrying dirty petroleum products is the VLCC, but the smaller crude oil carriers, *e.g.*. Suezmaxes, Aframaxes and Panamaxes, have installed heating systems, and are thus capable of carrying both dirty petroleum products and crude oil.

however, imply that all products can be carried on the same ships. As liquid bulk commodities are most likely in separate markets, the discussion about supply-side substitutability has taken its starting point in the different markets as opposed to the various vessel types.

(a) Vessels carrying chemicals

1269. Chemicals which require IMO 1 and IMO 2 type cargo holds can only be transported on chemical parcel tankers.

1270. IMO 3 cargoes can be carried on clean petroleum product tankers as well as on chemical parcel tankers. Clean petroleum products can be carried on tankers with IMO 3 classification. There is therefore substitutability between IMO class 3 tankers and clean petroleum product tankers. However, chemical parcel tankers ordered by the major operators (*viz.* Odfjell and Stolt-Nielsen) are often built on the basis of long-term contracts and liner-like operations, and may therefore in practice not compete with the clean petroleum product tankers for IMO 3 type cargoes.

(b) Vessels carrying clean petroleum products

1271. Clean petroleum product tankers are IMO 3 classified, and can therefore carry IMO 3 types of products. These vessels can easily switch to carrying dirty petroleum products and crude oil, neither of which requires an IMO 3 classification. However, switching back to clean petroleum products requires thorough cleaning and, typically, three consecutive voyages with clean petroleum products before the vessel is considered to be a "clean" vessel. There is no downward limitation with respect to the length of the trip measured in days. There is therefore only one-way substitutability from clean petroleum products to dirty petroleum products and not *vice versa*.

(c) Vessels carrying crude oil

1272. Crude oil, apart from being transported on crude oil tankers, is also transported on clean petroleum product tankers, combined carriers (which can carry ore, bauxite and crude oil) and on dirty petroleum product tankers. There is full substitutability between crude oil tankers and dirty petroleum product tankers. As for substitutability between crude oil and clean petroleum product tankers, there is only one-way substitutability, owing to the necessity for thorough intermediate cleaning, as explained above. The same is applicable for combined carriers.

(d) Vessels carrying dirty petroleum products

1273. No vessels are dedicated solely to carrying DPP due to the irregular supply of cargo. All tankers with heating systems installed can carry DPP, and are therefore substitutable. However, there is only one-way substitutability for clean petroleum product tankers, as they require cleaning before switching back to clean products, as already described.

(e) Vessels carrying LNG

1274. There are no vessels which can be substituted for LNG vessels when it comes to transporting natural gas. However, pipelines may often provide a substitute where they are available, subject to distance[295] and political stability in the relevant region.

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[295] Generally speaking, pipelines provide a viable alternative over a distance of up to 3,500 km.

(f) Vessels carrying LPG

1275. No vessels can be substituted for carrying LPG. The possible substitutes are transport by rail and road.

5.5.1.4 Relevant geographical market(s)

(a) Services for crude oil

1276. The largest crude oil carriers (VLCCs) trade from the Middle East Gulf (MEG) and West Africa to Asia, from MEG and West Africa to North America and Asia, from MEG to Europe, and within the North Sea. The main importing ports for VLCCs in Europe are Rotterdam, Le Havre, Bilbao and Brofjord, from which the crude oil is either refined and/or redistributed via pipelines, barges or smaller vessels such as riverboats. The reason for this is that VLCCs carry two million barrels of oil, which require substantial infrastructure in terms of storage capacity which other European ports are not able to offer. It is also possible for VLCC vessels to transship the crude oil, entirely or in part, to smaller vessels such as Suezmaxes and Aframaxes at sea. Crude oil is exported on VLCCs from Mongstad and Sture, Gdansk and Sullom Voe. It is also possible to transship the cargo from smaller vessels to VLCCs. This is regularly done with exports from the Baltic and the Black Sea outside Skaw, Denmark.

1277. Suezmax vessels trade from the Black Sea and North and West Africa to Europe, from West Africa to North America, from the North Sea to North America and from MEG to Europe. These vessels also trade regionally in the Americas and in Asia. The main European ports for imports are Wilhelmshaven, Rotterdam and Le Havre. Crude oil is exported on Suezmaxes from Mongstad and Sture, Gdansk, Sullom Voe, Primorsk and Hound Point. In sum, ports that are able to receive VLCCs are also able to receive smaller vessel types than Suezmaxes.

1278. Aframax vessels trade from the Baltic to the Mediterranean, from the Baltic to North-West Europe and from the Caribbean to North America. There is also some regional trading in Asia.

1279. The main importing ports in Europe are Wilhelmshaven, Rotterdam, La Vera, Fos and Le Havre. Several other ports are also able to receive Aframax vessels as these carry smaller cargoes which do not require the same facilities as larger vessel sizes and cargoes. Examples of smaller ports in Europe are Amsterdam and Fredericia.

1280. The main exporting ports in Europe are Sullom Voe, Mongstad, Primorsk, Tees, Scapa Flow and Sture. Other ports can also be used such as Klaipeda, Tallinn, Ventspils, Butinge and Novorossiysk.

1281. Panamax vessels primarily trade clean and dirty petroleum products and only smaller volumes of crude oil. The main trade lanes for clean and dirty petroleum products are from the Caribbean to North and Central America, and trans-Atlantic, and there is also some intra-Asian trade and some intra-European trade. All ports that can receive larger vessels also accept Panamaxes.

1282. Since the early 1990s most oil tankers have been built with double hulls and some ports in Europe and the US do not accept single hulled tankers (carrying heavy crude and fuel oil), which therefore may act as a restriction for certain vessels. Single hulled vessels are currently being phased out and will officially be banned from 2010, although there are certain exceptions.

1283. our conclusion, therefore, is that each vessel size operates on a given set of geographical routes. The largest units, the VLCCs, operate only on a few routes, which are also served by Suezmax vessels, but to a very little extent by Aframaxes. As the vessel size decreases, the complexity in the trade increases. Generally speaking, Suezmaxes are the smallest vessel size which trade intra-Europe, *e.g.* from the Black Sea to the Mediterranean. Shuttle tankers, which are large Aframaxes, operate only in the North Sea. Each vessel size is a discrete market, and for some vessel sizes there might be sub-markets for ice-classed vessels, regardless of size, and shuttle tankers in the Aframax segment in the North-Sea.

(b) Services for Ethylene

1284. Ethylene vessels only trade when there is temporary lack of ethylene anywhere in the world and where there are arbitrage possibilities. There are no specific trade routes or patterns and the market could therefore be considered as an *ad hoc* market. There are no port restrictions for ethylene vessels and they trade globally and the geographical market could therefore be regarded as global.

(c) Services for Chemicals

1285. Chemical tankers trade worldwide. More specifically, chemicals are traded from the US Gulf to Europe and the Far East. Other major trade routes are from Europe to the US East coast, from the US Gulf and South America to the Far East, and from MEG to USA, Europe and Far East.

1286. Major importing ports in Europe are Antwerp, Rotterdam, Hull and Port of Barry. Major European exporting ports are Rotterdam and Antwerp.

1287. As mentioned previously, the chemicals market is highly complex, and it did not prove achievable to assess which vessels carry which chemicals to and from the various areas. It is therefore not feasible to determine the relevant geographical market.

(d) Services for CPP

1288. Gas/Diesel oil, gasoline and naphtha are traded on Handysizes, MR, LR1 and LR2 with lot sizes between 5,000 and 110,000 tonnes. These vessels trade primarily trans-Atlantic from Europe to the US. Jet fuel is traded from MEG to Europe, the US and the Far East. The main importing ports to Europe for LR2 vessels are Antwerp, Terneuzen, Tees, Le Havre and Rotterdam. The main exporting ports for LR2s in Europe are Primorsk, Tallinn and Kaarstoe. For LR1 vessels the main importing ports in Europe are Antwerp, Rotterdam, Amsterdam, Tees, and various ports in the Mediterranean. The main exporting ports for LR1 vessels are Antwerp, Amsterdam, Rotterdam, Tallinn, Ventspils and Immingham. MR vessels are primarily involved in exports from all countries in Europe except from Denmark to North America. Any imports are on backhaul routes, although 90% of the backhaul voyages are without cargo. Of those 10% with cargo, it is mainly gas/diesel oil.

1289. Lot sizes smaller than 30,000 tonnes are traded on Handysize vessels. These vessels trade exclusively within Europe.

1290. Considering the various trade routes there seem to be global markets for the LR2, LR1 and MR vessels, whereas the market for Handysizes appears to be regional (*viz.* intra-European).

(e) Services for DPP

1291. DPP are traded on Aframax, Suezmax and VLCC[296] vessels from Europe and North Africa to Asia and the Americas. This market resembles the ethylene market in so far as it is supply-driven, *i.e.* cargo is not always available on a regularly and predictable basis as opposed to crude oil for

296 As long as heating is not required.

instance. There is no noteworthy importation to Europe of DPP. There is, however, a certain amount of intra-European trade between the Baltic's and Rotterdam and between the North Sea and Rotterdam. As for export, the main European ports are Rotterdam, Tallinn and Ventspils.

1292. In sum, the geographical market for DPP appears to be global, as the vessels trade globally and are not confined to any particular geographical areas.

(f) Services for LNG

1293. LNG is traded on LNG vessels only and is traded world-wide. Major trade routes are Australia to Japan and China; Brunei, Indonesia and Malaysia to Japan and Korea; Arabian Gulf (AG) to Japan, Korea, India, Spain and France; Egypt to the US, France, Korea, and the UK; Algeria to the US, France, Spain, Italy, Turkey, Greece and the UK; Norway to the US, Spain and France; Nigeria to the US, France, Spain and Portugal; and Trinidad to the US and Spain.

1294. There is no difference between various vessel sizes as regards trade lanes. There is relatively little spot trade and most LNG vessels have one loading and one discharging area only, which could indicate several sub-markets, although the price correlations carried out show two relevant geographical markets, *viz.* East and West of Suez respectively.

(g) Services for LPG

1295. LPG is transported on pressurised, semi-refrigerated or fully-refrigerated vessels, which trade in different areas depending on size. Pressurised vessels are used in regional trades only, whilst semi-refrigerated and fully-refrigerated vessels operate on a global basis. LPG vessels require specialised terminals for loading and discharging, which makes the trading routes more apparent than in the dry bulk market for instance.

1296. The main trade routes for VLGCs are exports from West Africa and AG to the Far East, US Gulf and Turkey. Imports to Europe are primarily from AG and Algeria and the main importing ports are Dortyol, Yarimca, Izmit, Lavera, Cartagena, Tarragona, Huelva, Terneuzen and Stanlow. There are also some exports from European ports, namely Kaarstoe, Mongstad, Stenungsund and Braefoot Bay. A small fraction of these volumes are traded intra-Europe. Statoil ships two VLGCs every month from Kaarstoe to Turkey, which is a substantial part of the intra-European trade.

1297. The main trade routes for LGCs are from AG, the Black Sea and the Caribbean to the USA, North West Europe and the Mediterranean. Algeria is the largest supplier of LPG for this vessel size, and it is important to Dortyol, Yarimca, Izmit, Lavera, Cartagena, Tarragona, Huelva, Donges, Le Havre, Terneuzen and Stanlow in Europe. The main European export ports are Stenungsund and Braefoot Bay. There is also some intra-Europe trade.

1298. MGCs operate from the Black Sea, the Caribbean and North West Europe to the Mediterranean, India, the US Gulf and North West Europe. The main European import ports are Aliaga, Yarimca, Dortyol, Lavera, Tarragona, Gijon, Antwerp, Flushing, Milford Haven, Pembroke, Rafnes, Stenungsund, Terneuzen, Stanlow and Fawley. The majority of the trade from the European ports at Kaarstoe and Braefoot Bay is intra-European, and is shipped to the Amsterdam-Rotterdam-Antwerp range (ARA) and the Mediterranean.

1299. Handy-sizes (15-22,000 m^3 Semi-Refrigerated) trade both inter-continentally (West Africa to Europe, West Africa to the US Gulf, *etc.*) and regionally. The main exporting area is Algeria. There is also some export from Mongstad, Kaarstoe, Sullom Voe and Immingham. These volumes end up in the Mediterranean, the US Gulf, Asia, South and Central America. The most important import ports in Europe are Naples, Gijon, Tarragona, Coryton, Lavera, Antwerp, Moerdijk, Le Havre, Stenungsund, Rafnes and Flushing.

1300. Vessels smaller than 10,000 m³ (which include both Fully-Pressurized and Semi-Refrigerated vessels) trade regionally in North West Europe from Brofjorden, Fredericia, Coryton, Fawley, Tees, Immingham, Slagen, Flushing, Kaarstoe, Sines, Fawley, Stanlow, Petit-Couronne, Pembroke, Wilhelmshaven, Riga, La Coruna and Sture to ARA, Leixoes, Gdansk, Gdynia, Brofjorden, Gothenburg, Brunsbuttel, Lisbon, Milford Haven, Dublin, Cork, Immingham, Pembroke and Ambes. There is also a coaster market for these types of vessels in Asia.

1301. In terms of the relevant geographical market, vessels above 10,000 m³ trade on a global basis and it could therefore be said that the market is global. Vessels smaller than 10,000 m³, however operate on a regional market, both intra-Europe and intra-Asia.

5.5.1.5 Conclusions on Liquid bulk

(a) Product markets

1302. The relevant product market consists at its broadest of the provision of transport services by sea of liquid bulk products. This market comprises the transport of chemicals, clean petroleum products (CPP), crude oil, dirty petroleum products (DPP), LNG and LPG. This is referred to below as the liquid bulk market.

1303. It is likely that the liquid bulk market should be further divided into markets for the separate product categories, *i.e.* the market for the transportation of chemicals, CPP, crude oil, DPP, LNG and LPG respectively, although there are overlaps between some of these markets, such as, for instance, between DPP and crude, CPP and chemical parcel tankers, and CPP and DPP. The analysis also shows even further segmentation within some of the different product markets according to products transported, vessel size or vessel type.

1304. The price correlations that have been carried out comparing the freight rates for the transportation of the various products with each other give clear indications that the transportation of the various product categories are in discrete markets.

1305. This indication is further supported by the different characteristics for the vessels which carry the various products. As has been described above, all vessels carrying liquid bulk differ in design to meet the specific requirements for each product. There are nevertheless three exceptions to this assumption. First, crude oil tankers and DPP tankers are interchangeable in terms of products carried and, although the price correlations do not confirm this, it can be presumed that there is a single market for the transportation of crude oil and DPP, subject to a caveat for certain vessels.

1306. Secondly, DPP can also be transported on clean product tankers, although this is less frequent, whereas the opposite is possible only after a rather extensive cleaning process. There is therefore a one-way substitutability between dirty products tankers and clean products tankers. The price correlations do not seem to suggest that there are any competitive constraints between these two and as it rarely occurs we have taken the view that the market for the transportation of dirty products and clean products overlap, although not to a great extent.

1307. Thirdly, IMO 3 type chemicals can be transported both on clean product tankers and chemical parcel tankers. To what extent these two markets overlap is unknown, as no data were available to measure this.

1308. It is possible to divide the markets further into sub-markets with regard to products transported, vessel sizes or vessel types.

1309. The chemicals market is highly complex due to the large number of dangerous substances and the fact that the transportation of chemicals is heavily regulated. Chemicals are classified as IMO 1, IMO 2 or IMO 3. IMO 1 and IMO 2 types can be transported only on chemical (parcel) tankers which are IMO 1 and 2 classified, indicating that the transportation of IMO 1 and IMO 2 chemicals is a single market. Chemical parcel tankers have up to 50 different cargo holds which have IMO 1, 2 and 3 classifications, so that different chemicals are regularly shipped side by side on the same vessel, in and out of the same ports. It could possibly be argued that this market could be split into smaller markets depending on the different characteristics of each chemical and the specific compartment it requires for its transportation, but such an assessment would call for a separate study and report.

1310. As for the market for transportation of CPP there is a distinction between vessel sizes which may suggest that there may be sub-markets within the CPP market. However, all vessel sizes are capable of transporting the same products. The only difference is that larger vessels can transport more of the commodity at one time. The price correlations do not add any evidence as the results are mixed but in terms of competitive constraints, there is competition between all vessel types. For instance, an LR1 could typically transport an LR2 lot size cargo, an LR1 transport a typical MR lot and two Handysize lots could easily be combined and transported on an LR2 vessel.

1311. The price correlations also implied a separate market for Aframax sized vessels compared with Suezmaxes and VLCCs, although vessel characteristics alone for Aframax vessels do not sustain such a conclusion. In terms of competitive constraints, large, specialised Aframax shuttle tankers might be singled out based on their characteristics as constituting a discrete market, although there is one-way substitutability as these vessels can compete with other Aframaxes/other vessels. In addition, there might be a temporally limited, separate market for ice-classed vessels.

1312. In the market for transportation of DPP, in addition to what has already been said about overlapping markets above, there may be two sub-markets where those vessels equipped with a heating system constitute a separate market from those vessels lacking this system (VLCCs). Having said that, vessels without a heating system can still carry certain dirty products in warmer climates. The price correlations suggest differences within the DPP transport market without giving explanations as to what the reasons may be.

1313. The market for transport of LNG overlaps with pipelines if the LNG is transported less than 3,500 km and if pipelines are at all available. The transportation market by sea does not seem to have any sub-markets, however. Neither the price correlations nor the characteristics suggest any differentiation to be necessary.

1314. The LPG transport market can be split into sub-markets based on vessel size and characteristics. The price correlations indicate that VLGCs constitute a separate market compared with other vessel sizes, and in current market conditions it does not appear to be normal for a VLGC to compete for an LGC cargo.

1315. In terms of vessel characteristics, ethylene vessels constitute a discrete market within the LPG market as this is the only vessel type which can carry ethylene. There is also one-way substitutability, as ethylene vessels can carry ammonia, LPG and petchems. Ammonia is mainly carried on LGCs and MGCs, and only rarely on VLGCs. Petchems are transported primarily on ethylene vessels, pressurised vessels and semi-refrigerated vessels with a capacity of less than 22,000 m^3.

(b) Geographical markets

1316. The geographical market for chemicals is difficult to assess as the market is complex with highly specialised vessels. In addition the price correlations do not give any indications. The assumption is nonetheless that the market is global as vessels carrying chemicals trade world-wide and there are no indications of regional markets as customers are prepared to switch between chemical service providers regardless of their geographical location.

1317. CPP are traded worldwide and the initial assumption is that the geographical market is global, although the vast majority of CPP are exported from Europe to the rest of the world whereas any imports are carried on backhaul routes as described earlier. The consultants have not found evidence of any particular corridors and the vessels can easily be deployed to different geographical areas, although the major trades are split as follows: LR1s are roughly 60% AG-Far East and 40% trans-Atlantic (the Mediterranean to USA and the Mediterranean to North West Europe); LR2s trade 80% AG-Far East and 20% AG-North America, and trans-Atlantic; whereas MRs and Handysizes trade worldwide in a non-regular pattern. Based on the geographical dimension, the consultants have identified the LR1, LR2 and MR market as global, whereas the Handysize segment is regional. Hence, there are two discrete geographical markets in this last size segment.

1318. The geographical market for crude oil tanker services is global as customers are prepared to switch between crude oil tanker services without being particularly concerned about their geographical location. In its most narrow definition the geographical market for the service of crude oil transport could be broken down into a market comprising those ports which are able to receive all crude oil vessels including VLCCs and a market including the remaining ports. The trading patterns of shuttle tankers are very different from the rest of the crude oil market and therefore they have different geographical markets. This is consistent with the general observation that the largest vessels have a much more transparent global trading pattern than the smaller units.

1319. The geographical market for DPP services is, taken on a broad view, global, in particular considering that there is a surplus of supply and the various vessels have to compete for the cargo available. The vessels are therefore deployed where there is demand, which could be anywhere. The consultants have not found any evidence indicating that there is a more narrow geographical market.

1320. The geographical market for LPG services seems to be divided into several sub-markets depending on size. Smaller pressurised vessels below 10,000 m³ and pressurised vessels only trade regionally, and the main region for the pressurised vessels is in Asia. In Europe both pressurised and semi-refrigerated vessels below 10,000 m³ trade LPG in North West Europe and the Mediterranean. The two intra-European sub markets can be characterised as discrete. However, when this vessel category transports petchems, this is on a global basis.

1321. For MGCs, about 25% of the vessels are employed in the LPG trade, and these vessels trade LPG exclusively intra Europe, primarily in the North Sea and trans-Mediterranean. The remaining 75% of the MGC fleet trade ammonia on a global basis. Both LGCs (including ammonia and LPG) and VLGCs (primarily LPG) trade globally.

1322. The same assumption could be made for the market for ethylene services as it shows the same characteristics. The market is very *ad hoc* which is reflected in the geographical routes which are not possible to determine. The vessels are deployed wherever there is demand or a prospect for arbitrage, suggesting that the geographical market should therefore be considered global. The evidence does not seem to suggest any narrower geographical markets.

1323. In terms of geography the market for LNG services is homogeneous and responds to the same price cycles, although there is a slight difference between the markets East and West of Suez. It seems generally to be subject to the same competitive constraints all around the world and the vessels are flexible in terms of mobility, allowing the services to be provided all around the world, although most vessels outside the spot market normally trade between two ports only. The consultants take the view that the relevant geographical market for LNG services in its widest definition is global. There are nonetheless indications that there may be narrower relevant markets, namely East and West of Suez.

5.5.2 *Dry bulk*

1324. Below we show how the various prices (freight rates in terms of US Dollars/tonne loaded) correlate for each product (commodity) in the dry bulk segment across various vessel size ranges and in the light of the geographical areas of demand.

1325. We have compared 31 dry bulk rates, of which 16 are coal freight rates, eleven are iron ore[297] freight rates and four are grain freight rates. The reason why rates are only reported for these three major bulk commodities is that rates for the remaining commodities[298] were either not reported or unavailable. All correlations are found in the tables in Annex 10.

5.5.2.1 Price Correlation Analysis

(a) Different levels of correlations

Dry bulk (in percent)						
	0.70-0.75	0.75-0.80	0.80-0.85	0.85-0.90	0.90-0.95	0.95-1.00
Coal, Grain and Iron ore	0.4	6.2	11.8	31.6	35.1	14.8

Dry bulk (in absolute numbers) n is the number of correlation coefficients in the respective correlation matrices						
	0.70-0.75	0.75-0.80	0.80-0.85	0.85-0.90	0.90-0.95	0.95-1.00
Coal, Grain and Iron ore n = 465	2	29	55	147	163	69

1326. 93.3% of the freight rate coefficients for coal, grain and iron ore have a correlation coefficient equal to or above 0.80. The remaining freight rates (6.7%) are correlated between 0.70 and 0.80. The high correlations suggest that the dry bulk market is a single product market.

(i) Internal freight rate correlations

1327. Correlations within the same segments, *i.e.* coal against coal, grain against grain and iron ore against iron ore generally show high levels of correlation.

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297 Iron ore is referred to as "ore" in the correlation matrices in Appendix 10 due to lack of space.

298 Sugar, oils seeds and soy beans, animal feed, briquettes, lignite, peat, coke, copper, alumina, bauxite, zinc, lead, nickel, other ores, fertilisers (including crude fertilisers), phosphate, cement, non-metallic products, aggregates, sulphur, salt, non-ferrous metals and steel.

1328. Grain rates correlate internally above 0.853.

1329. Coal rates correlate internally above 0.843.

1330. Iron ore rates correlate internally above 0.803, with one exception below 0.80, which is between Capesize ore Voyage Rates Port Cartier/Rotterdam 150,000t and Capesize ore Voyage Rates W. Australia/Rotterdam 145,000t (0.780).

(ii) Price correlations between coal, grain and iron ore

1331. Freight rate correlations between coal and iron ore are generally above 0.8, with the exception of seven out of 16 observations for the Capesize ore Voyage Rates Port Cartier/Rotterdam 150,000t against all the other listed coal routes. The lowest correlation coefficient is 0.755. With the exception of this single route, all remaining coal and iron ore routes correlate above 0.814. The total number of correlation coefficients between coal and iron ore is 176.

1332. Freight rate correlations between coal and grain are generally above 0.80, with the exception of 10 out of 64 correlation coefficients where the lowest observation is at 0.764. There are four coal routes (Capesize Coal Voyage Rates R. Bay/Rotterdam 130,000t, Panamax Coal Voyage Rates Roberts Bank/Japan 55,000t, Panamax Coal Voyage Rates NSW/Cont 60,000t and Panamax Coal voyage rate Roberts Bank/Rotterdam) which correlate below 0.80 with Panamax Grain Voyage Rates US Gulf/Rotterdam (Lights) 55,000t, Panamax Grain Voyage Rates US Gulf/Rotterdam (HSS) 55,000t and Panamax Grain Voyage Rates US Gulf/Japan (HSS) 52,000t. As there are so few routes which correlate below 0.80, although above 0.764, we cannot conclude that the coal and grain market are separate markets.

1333. As for correlations between grain and iron ore 31 of 44 are correlated above 0.80. The remaining 13 correlations are all above 0.743. Based on correlations only, transport of grain and iron ore seems to be in the same product market. These correlations must nevertheless be interpreted with caution, as all iron ore rates are reported for Capesize vessels, and Capesizes only carry iron ore and coal, but no grain cargoes[299].

1334. The evidence of the price correlation study is, however, that transport of coal, grain and iron ore belong in the same relevant product market.

5.5.2.2 Product/Service characteristics

1335. As regards transport of dry bulk cargoes, no specific equipment is normally required and all dry bulk cargoes can therefore, in principle, be transported on any dry bulk vessel. Nevertheless, not all dry bulk commodities are carried on all types of dry bulk vessels in practice.

1336. As for equipment, most vessels have five to ten holds and no particular cargo handling equipment. Some vessels are equipped with cranes, and a few are also able to unload the cargo all by themselves without assistance from the port (belt unloaders).

1337. As for size, a customer will always aim to use the largest vessel size available in order to minimise transport costs. Large cargo sizes can always be split into smaller parcel sizes, if the customer prefers to split cargoes into smaller shipments and use smaller vessels. The opposite never occur, *i.e.* small cargo sizes are never accumulated into larger cargo sizes.

[299] With the exception of a few dedicated old Capesize vessels, Capesizes only transport iron ore and coal.

1338. This means that Capesizes primarily carry coal and iron ore, as these commodities have typical cargo sizes of 150,000 tonnes, whereas Panamaxes carry a much wider scope of commodities (coal, iron ore, grain, fertilisers and sugar *etc.*), with a typical cargo size of 70,000 tonnes. The latter applies to Handymax and Handysize vessels.[300]

1339. In terms of product characteristics, based on the specialised characteristics of the OHBC carrier, forest products may constitute a separate bulk market. However, OHBC carriers do carry products which can also be carried by other vessel types such as reefers, PCCs and Ro-Ros. This will be elaborated further below.

5.5.2.3 Supply-side substitutability

1340. As has been mentioned above, all dry bulk vessels are, in principle, capable of carrying all types of dry bulk commodities, and are therefore substitutable, with the only possible exception of OHBCs and forest products. All dry bulk vessels could be substituted by containers as most dry bulk commodities can be unitised and therefore containerised. The container market can currently be seen to be taking market share from dry bulk vessels as regards metal scrap and paper products. The various vessel types are discussed in terms of supply-side substitutability below.

(a) Capesize vessels

1341. As described above, Capesizes are mainly used in the transport of iron ore and coal. There are a few older units which are dedicated to grain trades. If a Capesize vessel switches trading from one commodity to another, cleaning is always required, which usually takes less than one week. Cleaning is normally done while the vessel is ballasting and thus the vessel does not lose any transport opportunities, unless it is loading and discharging different commodities in the same port.

(b) Panamax vessels

1342. Panamaxes can carry all dry bulk commodities, but the most important commodities (in random order) are sulphur and salt, animal feed, briquettes, peat, lignite, coke, cement, coal, alumina, bauxite, nickel, fertilisers, grain, oil seeds and soybeans, phosphate, steel and iron ore. Just as for Capesizes above, Panamaxes are able to switch between commodities, provided that the vessel is cleaned. Cleaning typically takes four days and can similarly be done *en route* on the ballast leg.

(c) Handymax/Handysize vessels

1343. Handymaxes can also carry all dry bulk commodities, but the most important commodities are (in random order) aggregates, cement and other non-metallic products, coal, copper, zinc, lead, nickel and other ores, cork and wood, non-ferrous metals including aluminium, oil seeds and soybeans, paperboard and products, phosphates and crude fertilisers, pulp, steel, sugar and waste paper. When the vessel is switching between "dirty" commodities, such as coal, to "clean" commodities such as grain and sugar, cleaning is required. The level of cleaning depends on the commodity.

1344. From the discussion above, one notices that iron ore is transported on Capesize and Panamax vessels only. Capesizes only transport major bulk commodities, whereas the smaller vessel sizes carry both major and minor bulk commodities.

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300 When a vessel carries a wide range of commodities, the routes inevitably become more complex, which makes the tracking of the vessels (which routes and which commodities they carry) more difficult.

1345. In sum, however, the dry bulk market does reveal an ease of substitutability between different vessels used for a variety of cargoes, implying at first sight a single market for the transportation of all dry bulk commodities. However, we observed that there were some commodities that are in practice only carried on certain specific vessels, in particular Capesizes and Panamaxes on the one hand and Handysizes and Handymaxes on the other hand. We conclude therefore that there might be two discrete markets comprising respectively Capesizes plus Panamaxes and Handysizes plus Handymaxes. At the narrowest, each of the vessel sizes may constitute a discrete market. We also considered that although the price correlation studies showed strong parity between freight rates for iron ore and grain, they were in fact sufficiently distinct in terms of the vessels used to be likely to fall in different product markets.

5.5.2.4 Geographical market(s)

1346. All dry bulk commodities are traded on vessels which operate worldwide. All commodities are traded from all continents to all continents. There are certain draught and cargo handling restrictions related to Capesize vessels and these vessels are therefore primarily discharged in the Amsterdam-Rotterdam-Antwerp (ARA) range, but also in Hamburg, Tees, Port Talbot, Immingham, Falmouth, Le Havre and Dunkirk. Smaller vessel sizes are not affected by these restrictions to the same extent but the ARA range is nevertheless the most important region for smaller vessel sizes as well, as this region is the primary hub for dry bulk imports to Europe.

1347. The main European import ports for Panamax vessels are Hamburg, Liverpool, Gijon, Immingham, Bilbao, Barcelona, Lisbon, Aughinich, Valencia, Cortbury, Le Havre, Rouen, Riga, Hull and St Petersburg.

1348. As for exports, the vast majority of both Capesizes and Panamaxes leave Europe without cargo as there is very little export of dry bulk commodities for these vessel sizes from Europe. One of the very few exceptions is the export of iron ore from Narvik.

1349. Handysize vessels trade globally but also intra-Europe as they are smaller than the other dry bulk vessels and are therefore capable of going to a greater number of ports.

1350. In the consultants' view the dry bulk market seems to be a global market in geographical terms.

5.5.2.5 Conclusions on Dry bulk

(a) Product markets

1351. The relevant product market consists of the provision of transport services by sea of dry bulk products. This market should be viewed as comprising the transport of, *inter alia*, aggregates, sulphur, salt, animal feed, briquettes, lignite, peat, coke, cement, other non-metallic products, coal, copper, alumina, bauxite, zinc, lead, nickel, other ores, fertilisers, grain, non-ferrous metals, oil seeds and soybeans, phosphates, crude fertilisers, steel, iron ore and sugar. This is referred to below as the dry bulk market.

1352. The price correlations for the available freight rates provide substantial evidence that the major bulk products consisting of coal, grain and iron ore constitute a single market, even indicating that, based on correlations alone, there is no difference between the transport of grain and iron ore. The analysis of the relevant vessel characteristics does not substantiate this theory, however. In terms of products carried Capesize vessels primarily carry coal and iron ore, whereas Panamaxes carry the same commodities, but also grain, bauxite, alumina and phosphate. Handysize and Handymax vessels carry all the same commodities, except generally iron ore, but including all the minor bulk commodities. As can be seen, there is a certain degree of overlap between the various products which they carry, but there are also some commodities which are unique to each vessel type. This indicates separate product markets for the different vessel types.

1353. Having said that, the equipment used for transportation of the products shipped does not differ between the different vessels and customers are able to choose freely between all vessel sizes as long as they can provide lot sizes, loading and discharging ports which are suitable for a given vessel size. There is substantial competitive constraint due to a considerable supply-side substitutability. The fact that customers use the most suitable vessel does not sustain a further segmentation of the market, as the customer would prefer to use the largest possible ship available in order to reduce transport costs.

1354. There is also some substitution between the dry bulk vessels and the container market, in particular for metal scrap and certain paper products. It is unclear whether there is full substitutability or one-way substitutability only. For some minor bulk products, OHBCs are also able to compete for cargoes.

(b) Geographical markets

1355. The dry bulk market is characterised by a high degree of vessel mobility and the market is subject to competitive constraints all over the world. The customers are likely to choose freely between service providers regardless of geographical location as long as the service meets their requirements, and they are willing to split stems from a larger vessel size to a smaller if this reduces the total transportation costs.

1356. The geographical trading pattern is most obvious for Capesizes, as these only trade iron ore and coal. As the vessel size decreases, the complexity in the sailing pattern increases. Capesizes and Panamaxes are in the same geographical market for iron ore and coal, but not in the same geographical market for the additional commodities which Capesizes do not carry. However, both vessel types trade worldwide, and a feature with these vessels is that, when they discharge their goods at a port, they generally bring no cargo back from the same port. As the vessel size decreases, vessels tend to operate more on a regional basis, although they can of course trade deep-sea as well. Handymaxes also trade on a global basis, as well as on a regional basis. Thus, very generally one could say that Capesizes and Panamaxes primarily trade globally and primarily with the major dry bulk commodities, whereas the smaller vessel types trade both deep and short-sea, with a combination of both major and minor bulk commodities.

1357. Capesizes and Panamaxes could be said to belong to the same market, but as Panamaxes carry a wider range of commodities and call at a larger number of ports, and can carry much smaller stems than Capesizes, the consultants believe that these vessels belong in separate markets. There is also a distinction between Handymax and small Handysize vessels (which primarily trade regionally), as Handymax vessels compete with Panamax vessels; especially now, as modern Handymaxes are around 58,000 dwt, whereas a considerable proportion of Handysize vessels are not even half the size of a modern Handymax.

1358. In conclusion, the four vessel categories belong in separate markets, despite a large degree of overlap between the vessel sizes.

5.5.3 *Neo-bulk*

5.5.3.1 Price Correlation Analysis

1359. A price correlation analysis has not been undertaken as there were very few freight rates available[301].

5.5.3.2 Product/Service characteristics

1360. Neo-bulk commodities are different from other bulk commodities as they are usually finished or semi-finished goods and are transported individually depending on their packaging. The nature of the cargo requires vessels which are designed to carry that particular cargo, for example tomatoes in reefer vessels and agricultural machinery in Pure Car Carriers. Each vessel type is designed to meet customers' specific transport needs and therefore form its own separate market.

(a) OHBC vessels

1361. The most technically advanced purpose-built vessel is the OHBC, specially designed to carry wood pulp, rolled paper and other forestry products. In addition OHBCs carry a wide range of other unitised cargoes, project cargoes, containers and minor bulk cargoes. Some modern OHBCs even have tween decks in some of the holds, enabling a mix of various fragile types of cargoes in the same hold.

(b) PCC Vessels

1362. PCC vessels are designed to carry factory new and second-hand cars, agricultural equipment and project cargo. They have between seven and twelve decks, of which normally a few are hoistable to accommodate project cargo. All cargo is rolled on and off the vessel via the vessel's ramp. Everything from cars to machinery, trains and goods on mafi-trailers is loaded and discharged via this ramp. There are mainly two types of ramps, the quarter ramp (located at the back of the vessel) and the side ramp. The ship has inner ramps between different decks and cargo can be driven straight up to the top deck or straight down to the bottom deck through these inner ramps. A modern vessel can typically carry about 6,000 car equivalent units (CEUs), although larger 8,000+ CEU vessels are starting to be introduced.[302]

(c) Reefer vessels

1363. Reefer vessels transport perishable cargoes and vessels can provide different levels of services such as precise temperature and humidity control, CO_2 level control and air circulation/renewal. Other features are side doors which can be lowered the quay to serve as loading/discharging ramps for forklifts, or hatches and cranes which are used for handling both pallets and loose cargo. Terminals must be equipped with temperature-controlled storage facilities and some operators provide vertically integrated services.

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301 Freight rates for Ro-Ro and PCC vessels are not reported. Freight rates for reefer vessels are available, but were not for sale from Orion shipbrokers in Oslo, Norway. Those few available are only yearly estimates for one Ro-Ro and one small PCC vessel and were not considered to be of any use for the purposes of this study.

302 See feature articles in Lloyd's List Special Report on car carriers, 25 January 2007.

(d) Ro-Ro vessels

1364. Ro-Ro vessels are capable of carrying the same cargo as PCC vessels, but in general they have fewer decks (up to five) and rarely more than one hoistable deck. The vessels are equipped with quarter or side ramps, and the cargo must be rolled on and rolled off. Some units also have container capacity, unlike the PCCs, and a large share of these is equipped with cranes. A vessel's capacity is measured in lane meters. These vessels carry a wide variety of cargo, including lorries, project cargo, new and used cars, *etc*. Some vessels are also combination vessels, which in addition to Ro-Ro cargo can carry passengers, namely Ro-Pax vessels, *i.e.* ferries.

5.5.3.3 Supply side substitutability

1365. Neo-bulk vessels are to a certain extent substitutable for other neo-bulk vessels but are increasingly substitutable for, or at least by, container vessels.

(a) OHBC vessels

1366. OHBC vessels carry all types of forest products, such as cork and wood, paperboard and products and pulp. In addition OHBCs carry a wide range of other unitised cargoes, project cargoes, containers and minor bulk cargoes. Those cargoes that can be palletised, containerised or rolled on to a vessel can also be transported on containerships, PCCs, reefers or Ro-Ros. As mentioned above, paper products are often transported in containers rather than on OHBCs and containers are therefore readily available substitutes. This trend is expected to increase as the technical possibility of containerising the cargo continues.

(b) PCC vessels

1367. PCC vessels transport agricultural machinery, motor vehicles and project cargo (including, *inter alia*, steel, space shuttles and yachts). Cars can alternatively be transported on Ro-Ros, reefers and container vessels. For the remaining cargo no substitutable vessels are available as these products are generally too large to fit on other vessels or in containers. A typical PCC vessel has between eight and twelve decks (of which one to five may be hoistable), which makes these vessels ideal for the transport of both new cars and agricultural machinery or project cargo.

(c) Reefer vessels

1368. Reefer vessels transport perishable goods such as fruit, vegetables, meat and dairy. During the past ten years the reefer container market has taken large shares of the reefer market and it is estimated that the reefer container market accounts for 50% of the total reefer market. Reefer vessels can therefore be substituted by temperature-controlled containers.

(d) Ro-Ro vessels

1369. Ro-Ro vessels are equipped with fewer non-hoistable decks than PCC vessels and can therefore carry a larger variety of cargoes such as lorries, vans, used cars and other cargoes which can be rolled on and rolled off a ship. Some Ro-Ros have container capacity which makes them even more versatile. Ro-Ro vessels operate both short-sea and deep-sea. In terms of substitutability, smaller PCC vessels (less than 3,000 cars) are an option for most customers.

5.5.3.4 Geographical market(s)

(a) OHBC services

1370. OHBC vessels trade from Europe to North America, from North America to South America and the Far East, from South America to the Far East and Europe.

(b) Ro-Ro services

1371. Ro-Ro services are operated on a similar basis to a liner service in so far as they are generally both regularly scheduled and advertised. Operators provide scheduled services from Europe to Africa and South America, intra-Europe, Intra-Africa, from West Africa to Europe, from North America to West Africa, from South America to West Africa, and intra-Asia.

1372. All services, including ports and departure and arrival dates are advertised on all operators' web-sites.

1373. Ro-Ro vessels are all equipped with ramps, which enable them to load and discharge their cargo, without any cargo handling equipment, and they are therefore able to go to any port worldwide.

1374. For those vessels with container slots, cranes are required to discharge the containers, which could result in certain ports being excluded. However, this possible restriction does not affect the Ro-Ro trade on a geographical basis, as any combination vessel (*i.e.* with container slots) has the opportunity to go to all ports as they are equipped with on-board cranes for loading and discharging.

1375. As the Ro-Ro trade is mostly scheduled and advertised, the Ro-Ro market may not qualify as part of the tramp shipping market. Should it, however, be considered as part of the tramp shipping market, the geographical market is likely to be global. Having said that, there may be a possible regional market (Africa) which may require container capacity in order to operate efficiently.

(c) PCC services

1376. PCC services form part of a global supply chain network for the major producers of new cars and agricultural equipment, as well as project cargo. Trade routes are operated between a large number of ports in all continents. As the PCC trade, similarly to the Ro-Ro trade, is primarily scheduled and advertised, it may not qualify as part of the tramp shipping market.

1377. In terms of restrictions, some of the largest vessels (8,000+ cars) require large, modern terminals, which limit the number of ports at which these vessels can call. Nonetheless, the number of vessels in this size category is insignificant and the vessels will always have access to ports in the relevant region. The assessment of the relevant geographical market is therefore not affected.

1378. The PCC market is most likely global.

(d) Reefer services

1379. The main specialised reefer trades (non-containerised) are bananas from the Caribbean and Central/South America to Europe, bananas from Central/South America to USA, deciduous fruit from Chile and South America to Europe, USA and the Far East, deciduous fruit/dairy/meat from Australia and New Zealand to Europe, USA and the Far East, citrus fruit from Israel to Europe and citrus fruit from South Africa to Europe, USA and the Far East.

1380. The European Commission stated in its *NYK/LauritzenCool* decision[303] that it had not taken a view on the determination of the geographical market, but was prepared to accept that it might at most be global, and that at its narrowest it could be divided into a series of discrete geographical corridors from each exporting region to Northern Europe and the Mediterranean, respectively.

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303 Case No COMP/M.3798 *Nyk/Lauritzen Cool/Laucool Jv.*

5.5.3.5 Conclusions on Neo-bulk

(a) Product markets

1381. The relevant product market consists of the provision of transport services by sea of a range of neo-bulk cargoes. This market includes the transport of agricultural machinery, cork and wood, fruit and vegetables, meat, dairy, fish, forest products, metal products, motor vehicles, non-ferrous metals, paperboard and products, petcoke, other residual petroleum products, pulp and steel. This is referred to as the neo-bulk market.

1382. The neo-bulk market could be further segmented according to the products carried and vessel types used, although there is some overlap between certain services such as Ro-Ros, PCCs and OHBCs for project cargoes.

1383. One of these sub-markets is the provision of transport services by sea of forest products which are usually carried on Open hatch bulk carriers (OHBC) which typically cover the sea transport, the terminal handling operations and storage. Most of these products, like paper on rolls, are also transported on other neo-bulk vessels such as Ro-Ros in addition to containers. A very recent observation is that logs, which have traditionally been transported exclusively on OHBC vessels, are now being cut before they are shipped in order to fit into containers. OHBC vessels also carry containers and project on deck, unitised cargoes in their holds, and project cargoes. Customers can therefore, in principle, use all of these transport services interchangeably.

1384. The OHBC services market can therefore, in a more narrow definition, be further segmented according to products carried, although the respective narrower markets overlap with other markets. Logs and lumber are carried on either OHBC-type vessels or on containers, whereas unitised paper products are carried on OHBC-type vessels, Ro-Ro vessels and on containers.

1385. Considering the various overlaps with other markets, it is difficult to categorise the OHBC service market, but in its widest definition it is part of both the minor dry bulk market as well as the neo-bulk market. At its most narrow definition, differentiation can be made between the various products carried, in particular logs and lumber and unitised paper respectively.

1386. The relevant product market for Pure car carriers (PCCs) covers the sea transport of agricultural machinery, motor vehicles and project cargo and the terminal handling operations at each end. The large PCC operators offer door-to-door supply chain services. What is an important feature of the PCC market is that most of the sailings are scheduled and pre-advertised, which inicates that the market should probably be viewed as part of the liner shipping market as it displays key features of the liner market. That said, PCC vessels compete primarily with Ro-Ro vessels. The degree to which they compete with container vessels is, however, limited, as witnessed by the low volume of factory new cars currently being shipped in containers. Container operators may nevertheless provide a degree of competitive constraint, in particular for cars and other cargoes which can be rolled onto Ro-Ro vessels or alternatively placed in a container.

1387. In its widest definition, the PCC market overlaps with the liner market and the Ro-Ro market for the transportation of cars, due to readily available substitute vessel types. In a more narrow definition, the PCC market is a single market, in particular for deep-sea transport of large volumes of factory new cars and project cargo. Any further sub-divisions of this market would not be useful in view of the existing substitution possibilities from both the demand side and the supply side.

1388. The relevant product market for the provision of sea transport services of perishable goods is the reefer market. As around half of this market consists of container transport the market should comprise both transports by refrigerated containers as well as by reefer vessels.

1389. Customers of this service can in principle use both modes of transport interchangeably, although customers who have chosen reefer containers are not likely to switch back to reefer vessels and the substitutability is thus one-way only, as once a trade has become fully containerised in practice the specialised reefer operators tend not to regain market share because of their inherent cost disadvantages.

1390. Specialised reefer vessels, in addition to carrying perishable goods, carry cars, although the volumes are less significant than they used to be and it is doubtful whether reefer operators represent a competitive constraint to PCC operators. If they carry cars, they are most likely second-hand.

1391. The European Commission chose not to define the markets exactly in its *NYK/LauritzenCool* decision, but suggested that specialised reefer vessels and refrigerated containers are in the same market. The consultants do not take a different view. The evidence does not imply that there are any sub-divisions of the product market.

1392. The relevant product market for the transport services offered by Ro-Ro vessels consists of the provision of Ro-Ro transport services by sea of cargoes which can be rolled on and rolled off the vessels, as well as containers, for those specialised vessels which have container capacity. This market should be seen as comprising transport both by "pure" Ro-Ro vessels and by Ro-Ro vessels with container capacity. This market is referred to as the Ro-Ro market.

1393. At its widest definition the Ro-Ro market overlaps with the container market as Ro-Ro operators present a competitive constraint on PCC operators, and container lines for those vessels equipped with container capacity. Another competing substitute is smaller PCC vessels which can compete with Ro-Ro operators and customers switch freely between these two. There is no evidence suggesting any need for further sub-divisions according to vessel size or products carried. In terms of products carried, different products are transported side by side on the same vessels and in and out of the same ports.

(b) Geographical markets

1394. In its widest definition the relevant geographical market for the neo-bulk market is global. There may nevertheless be some differences between the different sub-markets.

1395. OBHC vessels operate both as tramp and liner services. The sailing pattern is based on current long-term contracts and engagements, which is typically changed if the demand pattern changes. The services which are provided are on a global basis. The routes are operated both as intra-regional deep sea trades, such as from East Coast South America to Europe, Europe to East Coast North America, *etc*. and as regional short-sea trades, such as intra-Europe, but each individual route must be seen as a part of a global network.

1396. The PCC market, in its widest definition is global as the trade is world-wide, although it is part of a global supply chain network and is scheduled which may imply that in a narrower definition the market is sub-divided into corridors.

1397. The reefer market could be considered global as it is exposed to the same competitive constraints all over the world and it is fairly homogeneous. With a more narrow market definition, the part of the market which comprises the container market may be considered divided into geographical corridors. The European Commission has also suggested that there may be a split between Northern and Southern Europe (Mediterranean) on the basis that there might not be much substitution between the two regions.

1398. As for the Ro-Ro market, the majority of the trades (which are predominantly operated as liner services) are intra-European (short-sea) and between Europe and North Africa and these could be considered as belonging to several separate geographical markets (one market for each trade corridor or conceivably each port to port string). Other geographical markets are intra-Asia and between the Caribbean and the US. However, in the absence of specific data we were unable to reach any firm conclusion.

1399. The tramp part of the Ro-Ro market is *ad hoc* related trade which forms part of the spot market.

5.6 FINAL CONCLUSIONS

1400. The final conclusions are presented in a tabular format below.

THE RELEVANT TRAMP SHIPPING MARKETS				
	Relevant product market		**Relevant geographical market**	
	Wide definition	Narrow definition	Wide definition	Narrow definition
LIQUID BULK	Chemicals	N.a.	N.a.	N.a.
	Clean petroleum products	LR1, LR2, MR vs. Handysize, ice class	Global for LR1, LR2 and MR. Regional for MR	No further segmentation
	Crude oil	VLCC, Suezmax, Aframax, Panamax, shuttle tankers, ice class	Global for VLCC Both global and regional for the remaining vessel sizes	VLCC vs. the remaining vessel sizes
	Dirty petroleum products	VLCC, Suezmax, Aframax, Panamax,	Global for VLCC Both global and regional for the remaining vessel sizes	VLCC vs. the remaining vessel sizes
	LNG	N.a.	Global	East of Suez vs. West of Suez

	N.a.	LPG, Ethylene: VLGC, LGC, MGC, SR between 10,000-22,000 m³, Pressurised and Semi-ref less than 10,000 m³	Global: VLGC, LGC, SR between 10,000-22,000 m³ for petchems Regional: MGC, SR between 10,000-22,000 m³ for LPG, Pressurised and Semi-ref less than 10,000 m³	Pressurised and Semi-ref less than 10,000 m³ in Asia vs. Pressurised and Semi-ref less than 10,000 m³ in Europe SR between 10,000-22,000 m³: North West Europe vs. Med. for LPG
DRY BULK	Dry bulk cargo	Capesize, Panamax, Handysize, Handymax	Global for all vessel types except Handysize	Global for Capesizes and Panamaxes, regional for Handymax and Handysize
NEO-BULK	OHBC	N.a.	Global	Regional: Asia, Intra-Europe, Intra-Americas
	PCC	N.a.	Global	Liner service network. Regional for small vessels
	REEFER	Reefers vs. temperature controlled containers	Global	Liner service network
	Ro-Ro	N.a.	Global	Deep sea vs. short sea. Regional: Africa

5.7 POOLS' MARKET SHARES IN THE RELEVANT MARKET(S)

1401. Below we have calculated market shares for pools operating in the various markets. These have been inserted in tables for convenience. As the market definitions are somewhat unclear some alternative tables have been required to present the pools' market shares as clearly as possible.

1402. A preliminary issue that needs addressing is how to treat the situation where a pool member also belongs to other pools at the same time. We deal first with this issue of multiple memberships of pools as it impinges on the market share calculations below.

5.7.1 *Multiple membership of pools*

1403. We have identified a few cases where a member of a pool also belongs to one or more other pools. Two specific examples are given below.

1404. In terms of their legal assessment it has seemed to us appropriate to aggregate the market share of all the pools to which a particular member belongs for the purpose of the competition analysis. The basis for this is the treatment of consortia and alliances under the EC Merger Regulation in cases such as *P&O/Nedlloyd*[304] and *Mærsk/PONL*.[305] The European Commission suggests that it is appropriate to include the market share of the relevant consortia in considering the market share of the parties to the transaction under review. That would imply that when assessing the market share of any pool consisting of one or members who are also members of another pool or similar arrangements with horizontal implications, the market shares held by that or those parties through the other pools or arrangements would also need to be taken into account.

1405. Where this arises there is in any event an increased risk of spillover or coordinated effects. In some cases, however, the pools may not be operating in the same relevant market, in which case the risk of spillover or coordinated effects will be absent, or less evident, and relevant share may not have to be added. That would depend. It might nevertheless be necessary to include other pools where they were not strictly speaking in the same market (in product terms or geographically) but in a related market where the presence of a common member might lead to coordination or possible to upstream or downstream effects.

1406. An example of where the market definition becomes crucial is the Heidmar pools where Heidmar operates four revenue sharing pools; the Panamax tankers are operated in Star Tankers (55,000-75,000 dwt), the product tankers in Dorado Tankers (34,000-55,000 dwt), the Aframax tankers in Sigma Tankers (90,000-115,000 dwt) and the newest pool, Marida Tankers, operates small tankers (5,000-18,000 dwt). Two of these pools are in the crude oil market (Sigma and Star) although this market could be divided into four different sub-markets relating to vessel size in a narrow market definition as discussed earlier in this Chapter and the two pools would therefore operate in different markets (the Aframax market and the Panamax market respectively).

1407. As for the other two pools, Dorado and Marida, these are active on the LR1, LR2, MR market and the Handysize market respectively. Should, however, a broad market definition be applicable, *i.e.* the crude oil market and the CPP market, there may be issues of coordination.

1408. Another example is provided by three pools to which TORM is a party. In both a broad and a narrow market definition, would be considered to be in the same market.

1409. In calculating the market share tables below we have generally taken a conservative view and included aggregate shares for pools with common members.

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304 Case No. IV/M.831 *P&O/Nedlloyd*, at para. 44.

305 Case No. COMP/M.3829 – *Maersk/PONL*, at para. 31.

5.7.2 *Pool market shares/summary tables*

5.7.2.1 The liquid bulk market

CHEMICALS[306]		
Pool name	**No of vessels in pool**	**Share in no of ships %**
Team Tankers	35	1.3
Odfjell Seachem	91	3.4
USC Chemical Pool	23	0.9
Non-pool	2,537	94.5
Total fleet	2,686	

1410. It will be seen that there are three pools in the chemicals market with estimated market shares of 1.3%, 3.4% and 0.9% respectively. There is no overlap between the different pools in terms of members and consequently no need to recalculate the market shares according to groups.

1411. At its widest definition CPP could be considered a single market.

CPP		
Pool name	**No of vessels in pool**	**Share in no of ships %**
Dorado Tankers	16	0.8
Handytankers KS	73	3.9
Jacob-Scorpio	12	0.6
Mærsk Small Pool	8	0.4
Marida Pool	12	0.6
Norient Product Pool	28	1.5
TORM LR1	36	1.9
TORM LR2	22	1.2
TORM MR	23	1.2
UPT Handy Pool	24	1.3
Non-pool	1,598	86.3
Total fleet	1,852	

1412. The potential problem with the three TORM pools has been touched on above. In terms of market shares however an aggregated market share would still fall below the *de minimis* limit regardless of the definition of the relevant market.

306 Total fleet includes all vessels with IMO 1, IMO 2 and IMO 3 classification.

On a more narrow definition CPP could be segmented into LR1, LR2 and MR versus Handysize and ice-class[307].

LR1, LR2, MR		
Pool name	**No of vessels in pool**	**Share in no of ships %**
Dorado Tankers	16	1.1
Handytankers KS	73	4.8
Jacob-Scorpio	12	0.8
Norient Product Pool	28	1.8
TORM LR1	36	2.4
TORM LR2	22	1.5
TORM MR	23	1.5
Non-pool	1,308	86.2
Total fleet	1,518	

HANDYSIZE		
Pool name	**No of vessels in pool**	**Share in no of ships %**
Mærsk Small Pool	8	2.4
Marida Pool	12	3.6
UPT Handy Pool	24	7.2
Non-pool	290	86.8
Total fleet	334	

1413. On its widest definition crude oil could be considered as a single market. The pools' market shares are distributed as follows.

CRUDE OIL[308]		
Pool name	**No of vessels in pool**	**Share in no of ships %**
Panamax International	16	1.1
Star Tankers Pool	47	3.1
Tankers International	45	3.0
Alliance chartering	43	2.9
Aframax International	38	2.5
Sigma Tankers	18	1.2
Non-pool	1,302	86.3
Total fleet	1,509	

1414. When considering any possible aggregated market shares there are the following overlaps:

307 There are no specific ice-class pools.
308 Source: Fearnleys database.

- Cardiff Marine – member of two tanker pools (Sigma and Star Tankers);
- Chemicalien Seetransport – member of two tanker pools (Sigma and Star Tankers);
- Heidmar – member of two tanker pools (Sigma and Star Tankers);
- OSG – member of four tanker pools (Aframax, Alliance, Panamax and Tankers Int)
- Sanko Line – member of two tanker pools (Star Tankers & Tankers Int.).[309]

1415. On the narrower market definition, divided by vessel size, all pools mentioned above operate in the different sub-segments of the market with the implication that there may be no reason to aggregate any of their market shares. Should a wider definition be adopted, a new calculation gives the following market shares. We estimate the following approximate market shares:

- Sigma and Star Tankers: 4.3%
- Star Tankers and Tankers International: 6.1%
- Aframax International, Alliance Chartering, Panamax International and Tankers International: 9.5 %.

1416. With a more narrow market definition the market could be divided between VLCC, Suezmax, Aframax and Panamax sized vessels. The pools operating in the various markets and their market shares are distributed as follows:

VLCC		
Pool name	**No of vessels in pool**	**Share in no of ships %**
Tankers International	45	9.4
Non-pool	434	90.6
Total fleet	479	

SUEZMAX		
Pool name	**No of vessels in pool**	**Share in no of ships %**
Alliance chartering	43	12.5
Non-pool	300	87.5
Total fleet	343	

309 Members of pools change frequently, and the data may not be accurate.

AFRAMAX		
Pool name	**No of vessels in pool**	**Share in no of ships %**
Aframax International	38	6.9
Sigma Tankers	18	3.3
Non-pool	495	89.8
Total fleet	551	

PANAMAX		
Pool name	**No of vessels in pool**	**Share in no of ships %**
Panamax International	16	11.8
Star Tankers Pool	47	34.6
Non-pool	73	53.4
Total fleet	136	

DPP

1417. There are no pools trading exclusively DPP.

LNG

1418. There are no pools in the LNG market.

LPG

1419. The LPG market is divided into several sub-markets based on vessel size and vessel characteristics and the pools operate accordingly. There is a discrete market for the ethylene trade which has its own pools.

FULLY PRESSURISED AND SEMI-REFRIGERATED <10,000 M³		
Pool name	**No of vessels in pool**	**Share in no of ships %**
Anthony Veder	8	N.a.
ENGC	3	N.a.
GasChem/Gas Mare	7	N.a.
Unigas International	19	N.a.
Unigas Kosan	21	N.a.
Non-pool	N.a.	N.a.
Total fleet	N.a.	N.a.

1420. Establishing market shares for this market is intricate as the fleet is split between North West Europe, the Mediterranean and Asia East of India. It is mainly pressurised units which trade in Asia, but in Europe both pressurised and semi-refrigerated units are used. In this table the number of vessels controlled by the pools and the total capacity are presented, but no market shares are calculated. There are no sources available that could reliably be used to establish the correct market shares, as there is no public information available on the combined fleet of pressurised and semi-refrigerated vessels smaller than 10,000 m³. The best available estimate would be to use the share of the LPG fleet of vessels less than 5,000 m³, which was 606 vessels (or 1,316,130 m³) in September 2006. The only problem is that about 50% of the pool vessels are larger than 5,000 m³.

1421. In terms of overlap, BW Gas is a member of both Exmar MGC and Skandigas, Bernhard Schulte is a member of GasChem/GasMare, Skandigas and Unigas International and Eitzen Chemical Shipholding is member of both Anthony Veder and ENGC310. A recalculation is not possible as we do not have access to all the necessary data for some of these pools.

SEMI-REFRIGERATED VESSELS 10,000 – 22.000 M³		
Pool name	**No of vessels in pool**[311]	**Share in no of ships %**
Gas Chem/Gas Mare[312]	1	1.5
Scandigas	24	75
Non-pool	7	23.5
Total fleet	32	

MGC		
Pool name	**No of vessels in pool**	**Share in no of ships %**
Exmar MGC	33	50.0
Non-pool	33	50.0
Total fleet[313]	66	100.00

1422. A typical vessel in the MGC market is in the size range 35-38,000 m³.

LGC		
Pool name	**No of vessels in pool**	**Share in no of ships %**
Bergesen LGC	20	76.9
Non-pool	6	23.1
Total fleet[314]		100.00

1423. The only pool in the LGC market, the Bergesen LGC pool, has a large share of the market, when measured both in number of ships and in cubic metres.

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310 Members of pools change frequently, and the data may not be accurate.

311 Source: Fearngas, Oslo.

312 The vessel is 22,500 m³, but is included here, as it is not to be regarded as part of the MGC market.

313 Measured as share of total m³ in the 20-40,000 m³ segment, which was 1,911,000 m³ (or 66 vessels) on October 10, according to www.clarksons.net.

314 Measured in m³ as share of total m³ in the 40-60,000 m³ segment, which on the 12.10.06 was 1,466,000 m³ (or 26 vessels), according to clarksons.net. 2 vessels of 60,237 and 60,216 m³ are excluded from this pool, as they are above the 40-60,000 segment definition.

ETHYLENE		
Pool name	**No of vessels in pool**	**Share in no of ships %**
ENGC	29	26.6
GasChem/Gas Mare	25	22.9
Unigas International	8	7.4
Anthony Veder	6	5.5
Non-pool	41	37.6
Total fleet[315]		100.00

1424. As the ethylene market is an *ad hoc* market, and many large ethylene vessels, with a cubic capacity of about 20,000 m³ are involved in trading LPG, it may be misleading to represent market shares in terms of ethylene vessels only.

5.7.2.2 The dry bulk market

THE DRY BULK MARKET					
Vessel Size	**No of vessels total fleet**	**Pool Name**	**Vessels in pool**	**Market share in no of ships %**	**Total all pools by segment %**
Handysize 10-50,000 dwt	3,685	IMC Transasia & Transocean Pacific Basin Bulkhandling CSL International[316] JJ Ugland LB/IVS Pool	18 59 9 12 6 41	0.5 1.6 0.2 0.3 0.2 1.1	3.9
Handymax 50-60,000 dwt	512	Bulkhandling JJ Ugland IMC Transocean	12 4 6	2.3 0.7 1.2	4.3
Panamax 60-80,000 dwt	1,260	CTP Panamax Baumarine CSL International IMC Transworld[317]	10 60 9 9	0.8 4.8 0.7 0.7	7.0
Capesize 80,000 dwt +	790	CTC Capesize	26	3.3	3.2
Non-pool fleet	5,966			95.5	
Pool fleet	281			4.5	
Total fleet	6,247			100.00	

315 The total Ethylene fleet was 882,258 m³ (or 109 vessels), on the 12.09.06, according to clarksons.net.
316 CSL International controls a fleet of 21 vessels, ranging in size from 26,608 to 77,549 dwt.
317 IMC Grab-fitted Panamax Dry Bulk Carrier Pool.

1425. There is some overlap between the various pools: BHP Billiton is a member of both Baumarine and CTP Panamax; Drylog Bulkcarriers is a member of both CTC Capesize and CTC Panamax; Global Maritime Ventures is a member of both IMC Transasia and IMC Transworld; IMC is a member of Baumarine, IMC Transocean and IMC Transworld; Klaveness is a member of Baumarine; Bulkhandling and CSL International; MOL is a member of Baumarine and IHC; Mittal Shipping is a member of both CTC Capesize and CTC Panamax; and, finally, Stamford Navigation is a member of both CTC Capesize and CTC Panamax. Any re-calculations of combined market shares would not make any major difference as the pools in the dry bulk sector have very small market shares in any event.

5.7.2.3 The neo-bulk market

1426. There are only two neo-bulk markets in which pools operate: these are the reefer market and the OHBC market. The various pools' market shares are the following:

REEFERS		
Vessels size in cubic feet	**No of vessels in pool**	**Market share in no of ships[318] %**
Seatrade pool	143	11.5
Non-pool	1098	88.5
Total fleet	1,241	100.00

1427. The Seatrade reefer pool controls 11.5% of the specialised reefer fleet, measured in total number of ships. That estimate does not of course take into account competition from the reefer container market which, as argues, it is probably necessary to include in any calculation.

1428. There are two OHBC pools active, the Star Shipping pool and Saga Forest Carriers International. When measured in number of ships, their market shares are 8.0% and 4.5%, respectively.

OHBC		
Pool Name	**No of vessels in pool**	**Market share in no of ships %**
Star shipping	42	8.0
Saga Forest Carriers International	24	4.5
Non-pool	461	87.5
Total fleet	527	100.00

318 Here calculated as the number of ships owned by the pool divided by the total number of ships in each vessel category.

6. COMPETITION LAW ANALYSIS

6.1 SCOPE

1429. In order to have a better understanding of the basic structure of the tramp shipping industry, the European Commission requested both a factual and a legal analysis of the different forms of horizontal cooperation identified in each of the tramp shipping markets.

1430. Chapter 4 above contains our factual findings regarding the different forms of horizontal cooperation in the industry. As was seen, the principal form of horizontal cooperation in the tramp shipping sector is the (shipping) pool. This Chapter is concerned with the application of the competition rules in the EC Treaty to such horizontal cooperation and an assessment of the existing applicable legal instruments (block exemption regulations, notices and case law).

1431. The European Commission specifically requested us to examine the extent to which the existing rules on competition – and any block exemption regulations and guidelines already available – apply to the principal categories of horizontal cooperation agreement in the tramp shipping sector and comment on their suitability.

1432. The European Commission has defined horizontal cooperation in its Horizontal Guidelines in the following terms:

> "A cooperation is of a 'horizontal nature' if an agreement or concerted practice is entered into between companies operating at the same level(s) of the market. In most instances, horizontal cooperation amounts to cooperation between competitors. It covers for example areas such as research and development (R & D), production, purchasing or commercialisation."[319]

1433. Both actual and potential competition need in principle to be taken into account in assessing agreements under Article 81(1). This is because every agreement must be judged by reference to the competition which would occur in its absence.[320] In the *Odin* decision, involving a joint venture to develop and manufacture a new product, the European Commission took account of the fact that:

> "[n]either party could in the short term enter the market alone as such entry would require knowledge of the other party's technology which could not be developed without significant and time-consuming investment."

1434. The new products required a combination of both parties' technical and commercial know-how and required the experience and resources of both of them. The European Commission also accepted that there were technical risks involved in carrying out research for a brand new product as yet unproven and involving new technology, risks that the European Commission accepted "would realistically preclude each party from attempting to carry out research and development on its own."

1435. In addition, the European Commission stated:

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319 Guidelines on the applicability of Article 81 of the EC Treaty to horizontal cooperation agreements, OJC 3/2 of 6.1.2001 (Horizontal Guidelines).

320 See, for instance, Case 56/65 *Société Technique Minière* [1966] ECR 235, at 249; Commission decision in Case IV/32 009 *Elopak /Metal Box – Odin*, OJL 209/15 of 8.8.1990, at para. 25.

> "…considerable commercial risks are involved not only in gaining final consumer acceptance for the new carton but also in persuading food processors/packers to reinvest in the expensive new packaging and sealing equipment that will inevitably be necessary for the new product."

1436. In some cases, however, it will not be accepted that in the absence of the agreement the parties would have behaved in the same way anyway and that the agreement therefore should not be deemed to affect potential competition.[321]

1437. An undertaking is only to be considered a potential competitor if entry into the relevant market is not just a theoretical possibility.[322]

1438. As will be seen below, pools may be seen to operate at two levels of the market, both in providing transport services and in chartering in vessels for the purpose of providing such services in the downstream market. The question may be posed whether owners (such as KGs or new entrants with only one vessel secured to a bank) who pool their vessel(s) can realistically be considered to be actual or potential competitors of the pool in the provision (downstream) of the relevant transport services.

1439. In cases where owners have taken a commercial decision not to trade vessels directly but to place them in a pool, there is an argument that they are no longer competitors in the same market as the pool; however, this argument will need fairly robust evidence that no credible alternative would have been open to the owner. The possibility of such argument being put forward in appropriate cases nevertheless needs to be borne in mind.

1440. We were also requested to consider briefly whether, and if so how, any existing block exemption regulations, in particular European Commission Regulation 823/2000 on liner consortia ("the Liner Consortium Regulation")[323], should in our view be extended or adapted to cover the non-liner trades as well and/or whether entirely new legislation might be appropriate.

1441. The views expressed in this section represent the views of the legal consultants as to how the European Commission could or should approach the issues and it must be emphasised that the European Commission remains solely responsible for setting policy in this area, subject to the scrutiny of the Court of Justice.

6.2 METHODOLOGY

1442. The competition law analysis is principally focused on shipping pools which are the predominant form of horizontal cooperation in the tramp shipping sector. Although each shipping pool is different, our analysis revealed a number of features in common, both in terms of overall structure and in terms of specific contractual clauses.

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[321] See, for instance, *BPCL/ICI,* [1984] OJL 212/1 and *ENI/Montedison*, [1987] OJL 5/13; in the latter case the Commission held that although there was a possibility that the parties might have behaved in a particular way, *in casu* withdrawn from the market, the pattern would have been different but for the agreement and potential competition was therefore affected.

[322] See *Odin* decision, above; and *Pasteur Mérieux-Merck*, [1994] OJL 309/1, where there was a careful analysis of the prospects for competition.

[323] Commission Regulation 823/2000 of 19 April 2000 on the application of Article 81(3) of the Treaty to certain categories of agreements, decisions and concerted practices between liner shipping companies (consortia), OJL 100/24 of 20.4.2000, as amended, principally by Commission Regulation 463/2004 of 12 March 2004, OJL 77/23 of 13.3.2004.

1443. There are some arrangements between owners and operators which would not normally be categorised as pools but which we nevertheless considered might raise some competition issues. These are touched on to a limited extent.

1444. The consultants were only able to analyse in detail a random sample of 17 pool agreements[324] against a probable total of just under 40 shipping pools in existence today across all parts of the tramp sector. Furthermore, as the pools analysed were obtained in confidence, we could not in this published Report reveal the names of the pools or parties or which specific market they operate in without breaching our obligations of confidentiality.

1445. The approach taken by the consultants has accordingly, where possible, been to take each pool in the sample examine its legal structure and the functions of the different decision-making bodies in it, explain in general terms the implications of that structure and the way decisions are taken for competition law purposes, and then examine specific clauses and their competition law implications: principally the provisions governing the setting of prices, the determination of commercial policy and choice of customers, any non-compete provisions, any provisions governing lay-up and termination and notice provisions.

1446. Accordingly the competition assessment is in general terms. Where the validity of an agreement depends on a particular market share level not being exceeded, we have not been able to identify the specific market to which the pool being analysed belongs or relate it to the analysis of market shares in Chapter 5 above, but have simply elected to put forward a number of possible legal assessments based on different market scenarios.

1447. All but one of the agreements in the sample are of the so-called "traditional" variety of pool agreement, although they can be split into two principal categories depending on whether they are managed by a member of the pool itself or by a separate management entity (usually incorporated as a company in which all the pool members hold shares). Because the legal analysis may differ according to whether the pool is managed by a member or a separate pool management company we have grouped them accordingly in our analysis below. For ease of reference we have chosen to call these two categories "member-controlled" pools and "administration-controlled" pools respectively, consistently with the terminology used by Professor Haralambides in his Report[325].

1448. Since, within each of these two categories, there are a number of shared features, we have not analysed each pool in the sample separately, as that would have resulted in unnecessary repetition. We have taken each of the common features and indicated where there are in our opinion relevant legal differences. A summary of those common features will be found in the "General Remarks" section immediately below this one.

1449. In the main body of this Report we considered various types of agreement involving cooperation between undertakings in the tramp industry that could in our view raise competition issues, such as cross-space charters and other forms of sub-contracting between owners, cargo sharing agreements between owners or operators, so-called co-service agreements and, lastly, requirements contracts. We have included our brief competition law assessment of these, with the caveat, however, that we did not have actual examples of any of the corresponding contractual arrangements so that the assessment is necessarily superficial.

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[324] The analysed sample also included one pool agreement for a pool that has since been dissolved; one pool agreement that was available to us only in draft; and one shareholders' agreement between the members of a pool without the corresponding pool agreement.

[325] Haralambides, H.E, "The Economics of bulk shipping pools", extract from Maritime Policy & Management, 23(3): 21-237 (1996). See further Chapter 4, at Section 4.1.

1450. We have looked for evidence of whether there might be other horizontal forms of cooperation that make use of an "alternative" pool model, that is neither member-controlled nor administration-controlled, which might require different analysis from any of the above under competition law.

1451. In carrying out our legal analysis of the various agreements in the sample, we began by applying Article 81(1) (taking into account the horizontal cooperation guidelines[326], the *de minimis* Notice[327] and the effect on trade Notice), then considered the availability of exemption under Article 81(3) (taking into account the sections in the horizontal cooperation guidelines[328] dealing with Article 81(3) and the European Commission's general Article 81(3) guidelines), and finally we considered the possible application of the Specialisation Block Exemption[329]. Where relevant, we commented on the possible application of the Liner Consortium Regulation as well.

1452. Before setting out our detailed analysis, we begin in the next section with a summary of the overall legal framework, commenting on some of the difficulties raised in applying the existing law to pools in the tramp sector, and briefly reviewing the features common to most pool agreements already identified in Chapter 4 and the corresponding analytical table of pool clauses in Annex 7. Annex 7 has however been omitted from the published version of the Report due to reasons of confidentiality.

6.3 GENERAL REMARKS

6.3.1 *General pool features*

1453. All the pooling arrangements between tramp vessel owners and/or operators that we have seen and analysed in Chapter 4 involve a **pooling of all the gross or net earnings** made by the vessels in the pool and a subsequent distribution of those earnings to the members according to a set formula (the "distribution key" which will be either a weighted scale that typically rewards the better and more efficient vessels, or a pure tonnage or liftings based formula).

1454. All pools make provision for the formula for distributing pool earnings to the members to be adjusted at regular, usually annual, intervals and to this end often establish a "pool committee" or similar body to make the relevant adjustments. The formula may be simply based on the number of tonnes of cargo actually lifted but can often be quite complex and will typically contain a number of "trade factors" which are applied to each vessel to calculate its share.[330] Some trade factors are "external", such as bunker rates, and some are "internal", such as vessel speed or bunker consumption. Vessels accordingly receive a certain number of "points" which are then applied *pro rata* to the total earnings.

1455. Usually the earnings are net earnings after deduction of a number of common pool expenses, including a percentage or fixed remuneration for the party that carries out the commercial management and/or commercial operational functions for the pool.

1456. The above applies regardless of whether the pool is member-controlled or administration-controlled.

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326 Guidelines on the applicability of Article 81 of the EC Treaty to horizontal cooperation agreements, OJC 3/2 of 6.1.2001.

327 Commission Notice on agreements of minor importance which do not appreciably restrict competition under Article 81(1) of the Treaty establishing the European Community (*de minimis*), OJC 368/7 of 22.12.2001.

328 Guidelines on the applicability of Article 81 to horizontal agreements. See footnote 326.

329 Commission Regulation 2658/2000 of 29 November 2000 on the application of Article 81(3) of the Treaty to categories of specialisation agreements, OJL 304/3 of 5.12.2000.

330 For a more detailed discussion of the factors that are taken into account, see Section 4.1.2.5 of this Report above.

1457. Twelve of the pools analysed contain a form of **non-competition covenant**. The exact wording varies. They usually make it clear that the restriction on competing activities applies only to vessels of the same type as those committed to the pool ("qualifying" or "restricted" vessels) and/or in the same trade as the pool and some specify that the activities must be "in competition with" the pool. Three define the non-compete restriction in broader terms as "operating in a manner which would constitute a competition with the activities of the pool" or "engaging in independent action outside of the pool".

1458. An alternative formulation, with similar restrictive effects, is to provide that all vessels from time to time owned by, or time or bareboat chartered to, the members must be entered in or committed to the pool. The vessels to which this obligation applies may be restricted to a specified class. Even where there is a restriction, the agreement may provide for exceptions. One pool we analysed contains a provision expressly permitting a member to carry on or invest in other enterprises provided they "are not in conflict with the business of the pool": we construe that as being tantamount to a non-compete obligation. In a very few cases there was there no non-compete obligation.

1459. **The termination provisions** show some variations. Generally pools have no fixed term, but contain provisions whereby they can be dissolved on giving between 6 and 12 months' notice, or whereby individual vessels can be withdrawn subject to notice (periods ranging from 90 days to 6 months) and provided they are not already committed by the pool. Pool 10 is an example of an option to withdraw that is qualified in the sense that pool may require the member to substitute another vessel for the one in the pool. Some pools have minimum initial periods for the pool (*e.g.* 20 months in the case of Pool 10) or for new members (12 months in the case of Pool 5). Pool 14 has the shortest notice periods, of 2 months for withdrawal of a vessel and 6 months for withdrawal from membership of the pool.

1460. **Express provisions governing lay-up** were found in 9 of the pools analysed by us. Decisions on lay-up are required in such cases to be taken jointly, though the precise method differs. In one case the agreement requires the consent of the members to be obtained directly, but generally a joint decision is needed by one of the joint decision-making bodies (variously the Executive Committee, advisory board or board of directors) or the pool manager.

1461. In terms of their **organisational structure**, it is possible to distinguish broadly speaking between **administration-controlled** pools and **member-controlled** pools. In terms of the contractual arrangements however, the differences are not all that market apart from the obvious differences due to the absence of a separate corporate entity and therefore the absence of any Shareholders' Agreement for a member-controlled pool.

1462. The participating shipowners or operators appoint a **pool manager** (usually a separately and jointly owned company[331]) and give the pool manager (or the legal entity that fulfils that function) the power to enter into contracts (CoAs, voyage charters or time charters) in respect of the vessels in the pool. There is normally a separate Pool Management Agreement appointing the Pool Manager and setting out his powers and duties. Those duties include the duty to obtain new business for the vessels in the pool and to account to the members for pool earnings from those vessels in the

[331] The company will be owned by the members in proportions that may reflect their relative size or the capital contributions they have made to the company. An exception to this is the Heidmar Pools which were recently sold to Morgan Stanley. Prior to Morgan Stanley's acquisition the Heidmar Pools were quoted on the stock exchange and were thus not owned by the participants exclusively or possibly not at all. There may be other pools with similar owning arrangements. However, in a company owned by its members, the company's powers to conduct its own business without reference to the shareholders will be heavily circumscribed and falls short of what is required to make it a full-function joint venture: see further the discussion below.

agreed proportions. In other words, the specific feature that distinguishes administration-controlled pools is that there is a *separate pool manager* who is responsible for both *commercial management* and *commercial operation* of the vessels in the pool; responsibility for *technical management* remains with the participants individually.

1463. Vessels could be made available to the pool through either of two methods. **Vessels** could be put into the pool by the **individual owners**, in which case the relation between the owner or operator and the Pool Manager be governed by a separate agreement. The other option is where **vessels** are ***time-chartered*** to the Pool Manager (usually, as we have already indicated, incorporated as a company). The Pool Manager in turn usually has the right to sub-charter the vessels or enter into CoAs in respect of the vessels on common, pre-agreed, terms. Those terms will be specified in the Pool Management Agreement.

1464. There are therefore separate time charters from each participant to the pool manager in respect of all the vessels of that member that are being placed in the pool (and the charterparties contain provisions for withdrawal of vessels from the pool, substitution and/or addition of new tonnage).

1465. Typically the time charters are for an indeterminate duration with relatively short notice periods (varying from 6 to 12 months). The same notice periods normally apply to members who wish to exit the pool.

6.3.2 *Distinction between administration and member-controlled pools*

1466. In a member-controlled pool the member that controls the pool is usually given all the same functions and legal obligations and powers that the independent pool manager has in the administration-controlled pool. Similarly, the vessels are either chartered by each of the other members to the controlling member or the controlling member is constituted an agent for the members.

1467. So far as can be ascertained from the agreements specifically analysed in Chapter 4, it would appear to make no difference whether a pool is administration-controlled or member-controlled in terms of their specific contractual provisions either. They all equally tend to display a high degree of integration in terms of the commercial management and operational functions (with one exception), they all equally engage in joint selling and marketing of the pool as a single entity on the market (again with one exception), they all (with the same single exception) provide for net-revenue sharing, and they all variously contain provisions governing non-competition, lay-up and withdrawal on notice that do not appear to differ according to which type they are.

1468. In terms of the competition analysis, however, there may be some significance in the distinction and we draw attention to any relevant differences that have occurred to us in our analysis below. Broadly speaking, administration-controlled pool arrangements are in effect partial function joint ventures between ship owners or operators, those functions comprising, as stated commercial management and operations coupled with sales and marketing. Member-controlled pools do in fact also lead to a similar functional integration, but the functions are carried out by one of the members on each member's behalf.

1469. Most pool agreements described in detail in Annex 7 can be seen to have as their stated object the maximisation of revenue.[332] In the course of our legal analysis below, we will examine the extent to which this also translates into customer benefits, including creating organisational efficiencies which allow a better matching of supply and demand and specific economies of scale and scope.

[332] Annex 7 has however been omitted from the published version of the Report for reasons of confidentiality.

1470. Pools are generally claimed by their members to have as their object to provide better and more flexible services to their customers whilst enjoying better use of their vessels at a lower cost by outsourcing the commercial operations and commercial management to (in the case of administration-controlled pools) a member. Pools are claimed by their members as a more efficient way of maximising revenues than if they each controlled those functions independently.

1471. It is unclear whether there is any significant difference in terms of the business rationale depending on which type of pool structure is chosen by the members. An administration-controlled pool will, according to Haralambides[333], usually have a different "business philosophy" compared with member-controlled pools. The strategy is one of building up a fleet made up of different shipowners which, under efficient management, will acquire the required "critical mass" that would enable it to bid for contracts (but not only), enjoy economies of scale, become visible to charterers by its size and standards and, finally, through its diversification and risk-spreading, enable it to give it members an adequate return on their investment." Many of these claims could also be made in relation to member-controlled pools, though the perspective of the (dominant) member controlling the pool may be slightly different from that of the other members.

1472. The added value for the customer of a pool would at first sight appear to be that he or she (or more specifically) the chartering department or relevant broker) only has to deal with one person, the pool manager, to get access to the service instead of contacting a number of vessel owners or operators in order to obtain information on vessel positions, quotes and the best way to organise the journey.

1473. As for small shipowners or operators the main advantage of having the commercial operations and management outsourced to a pool manager compared to running the business on his own is that no chartering department is required which means lower costs and lower risk and a greater flexibility in terms of finding employment for his vessels and meeting customer demand. The economies of scale and scope can be expected to be greater for smaller owners and operators.

6.3.3 *Other horizontal arrangements*

1474. The Article 81 analysis concludes with a brief review of certain other arrangements of a horizontal nature that occur in the tramp sector and which may require analysis under competition law. Briefly they include:

(a) Purely bilateral one-way bilateral bareboat charters, time charters, and CoAs between vessel owners not entered into as part of a pool agreement (generally as a means of procuring additional capacity whether on a planned or an *ad hoc* basis to meet specific contractual obligations) or between a vessel owner and a pure operator that has adopted the commercial strategy of not having any vessels under its direct ownership and technical management (a form of 3PL model);

(b) Other unilateral or bilateral vessel or space sharing arrangements of an *ad hoc* nature, including arrangements for additional tonnage at peak seasons;

(c) The joint purchasing or procurement of ship management services (technical or commercial) from a common third party service provider: this may be as a result of a coordinated agreement to purchase services jointly or may arise as a result of each owner independently appointing the same company to provide the relevant services.

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[333] Haralambides, see footnote 196.

(d) Pure cargo or vessel sharing pools, with no joint marketing of services, limited to joint scheduling, the only example of which the consultants are aware being Pool 6[334].

(e) Co-service agreements, a form of agreement that appears only to exist in the chemical tanker markets but hat may exist in other markets too, under which the size of the customers' requirements is too large to be met reliably by one supplier and are serviced by two or more suppliers on similar terms at the customer's request.

(f) Requirements contracts, between a supplier of tramp vessel services and a customer, operating at different levels of the supply chain (essentially a vertical arrangement but included as they may in certain circumstances have horizontal effects depending on the circumstances);

(g) Multiple time charters, where a single owner or operator in its own right in the market, enters into a series of long-term time charters with other vessel owners but all the commercial management and operation of the vessels is the responsibility of the charterer (which again involves essentially vertical arrangements but that may in certain circumstances have horizontal effects depending in the circumstances).

1475. In a minority of cases the member with central responsibility for administering the pool will have a much more limited role, *viz.* simply administering revenues earned by vessels in the pool (collecting moneys from charterers, managing a central "pool" fund, accounting for net revenues and calculating each member's share (including its own) and distributing the shares at set intervals of time). Sometimes the function is called the "administration" of the pool but in reality it amounts to "partial commercial management". Commercial operation is then left to the members themselves to deal with direct but they have contractual and fiduciary obligations to each other to account for all revenues earned by vessels in the pool.

6.4 ARTICLE 81(1)

6.4.1 *Restriction of competition*

6.4.1.1 The Horizontal Guidelines[335]

1476. The European Commission's general approach to analysing horizontal cooperation agreements under Article 81 of the Treaty is set out at some length in its Horizontal Guidelines. The European Commission's Guidelines cover agreements entered into between two or more competitors operating at the same level in the market. They apply to both goods and services.[336] Their stated purpose is to "provide an analytical framework for the most common types of horizontal cooperation".[337]

1477. The Horizontal Guidelines suggest that while horizontal cooperation may produce anti-competitive effects on prices, output, innovation or the development of greater product variety or quality, in

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[334] See table of Pool clauses in Annex 7. Annex has been left out for reasons of confidentiality.

[335] Guidelines on horizontal cooperation agreements. See footnote 326.

[336] Paragraph 13 of the Horizontal Guidelines states that the criteria set out in the Guidelines apply to cooperation concerning both goods and services, collectively referred to as 'products'.

[337] Horizontal Guidelines, See footnote 326. Para. 7. Para. 13 states that the Guidelines do not apply to the extent that sector-specific rules apply, as is the case notably for transport. That exclusion is arguably redundant to the extent that most of the sector-specific rules for transport services, including those for maritime transport services, have now been repealed and they are now covered by the same substantive and procedural rules. The Horizontal Guidelines may therefore provide a useful starting point even for maritime transport services, but this would not preclude the adoption of sector-specific guidance in due course.

many cases cooperation can lead to "substantial economic benefits"[338] and can therefore be viewed as pro-competitive.

1478. Specific examples of the sort of economic benefits that can result from cooperation are given in paragraph 3 of the Horizontal Guidelines[339] and include risk-sharing, cost-savings, pooling of know-how and faster launching of innovation.

1479. The quantitative efficiencies from pools are related to economies of scale. Pools enable owners/operators to realise economies of scale, through a number of cost savings, particularly by having a single administration for the commercial management and operation of a larger number of vessels. The larger the fleet, the greater the economies of scale. However, the consultants did not have access to the confidential financial data that would be necessary to prove the extent of the quantitative efficiencies in each case.

1480. The qualitative efficiencies from pools are mainly related to a better service to customers (greater flexibility, stability and reliability). It was noted that pools can be of particular benefit in the case of CoAs, which are easier for an operator to enter into if the operator has readily at its disposal a bigger fleet of owned or pooled vessels.

1481. The Commission recognizes in its Guidelines on the application of Article 81(3) that "the types of efficiencies listed in Article 81(3) are broad categories which are intended to cover all objective economic efficiencies. There is considerable overlap between the various categories mentioned in Article 81(3) and the same agreement may give rise to several kinds of efficiencies. It is therefore not appropriate to draw clear and firm distinctions between the various categories. For the purpose of these guidelines, a distinction is made between cost efficiencies and efficiencies of a qualitative nature whereby value is created in the form of new or improved products, greater product variety etc."[340]

1482. In general terms it has been seen that the principal commercial driver for shipowners to form pools of vessels is to increase the size of the fleet at their disposal and so offer a better service to customers (greater flexibility, stability and reliability) without actually taking the whole risk on their own shoulders. It was noted that pools can be of particular benefit in the case of CoAs, which are easier for an operator to enter into if the operator has readily at its disposal a bigger fleet of owned or pooled vessels. It is also self-evident that the larger the fleet, the greater the economies of scale. Pooling enables owners/operators to make a number of cost savings by having a single administration for the commercial management and operation of a larger number of vessels.

1483. It has also been seen that each pool limits entry to vessels of a similar type and size, thus making the revenue allocation more equitable and easier to manage. It also ensures that as far as the customer dealing with the pool is concerned a given level of service is guaranteed regardless of which vessel is used to provide the service and which of the members owns it.

1484. Customers benefit from these arrangements in a number of ways, particularly where they have large volumes to ship or a large number of cargoes, whether they are looking to contract on the basis of CoAs, spot voyage charters or time charters, and whether their requirements are one-off,

338 Horizontal Guidelines, Paras. 2 & 3: "Horizontal co-operation may lead to competition problems. This is for example the case if the parties to a cooperation agree to fix prices or output, to share markets, or if the cooperation enables the parties to maintain, gain or increase market power and thereby causes negative market effects with respect to prices, output, innovation or the variety and quality of products. On the other hand, horizontal co-operation can lead to substantial economic benefits…Cooperation can be a means to share risk, save costs, pool know-how and launch innovation faster." See footnote 326.

339 Horizontal guidelines. See footnote 326.

340 Guidelines on the application of Article 81(3), at para. 59.

short-term, or long-term fixtures. The key factor is the size of the fleet at the pool manager's disposal. The larger the fleet, the greater the flexibility, and so the more likely it is the pool manager can accommodate a customer's requirements than if the owners operated independently.

1485. The *ad hoc* nature of the tramp sector means that the volume, frequency and geographical spread of demand is generally unpredictable, which means that suppliers who are more flexible are in a better position to satisfy that demand whenever and wherever it arises. The customer's main concern will be to secure a contract that allows his cargoes to be moved at specific times and places, and that requires capacity to be available to meet that demand. For that reason customers often prefer to deal with pools rather than a number of different independent owners/operators without the security and flexibility of a large fleet to back them up. Pool managers with access to a larger fleet are thus more able to respond to requests to tender than the members could if they were trading on their own.

1486. *Prima facie*, therefore, pools, by integrating vessels from different owners, should be more able to achieve efficiencies of scale and scope than the members could achieve on their own.

1487. The Horizontal Guidelines do, nevertheless, make it clear there can be no automatic presumption that horizontal cooperation produces economic benefits and that horizontal cooperation agreements consequently always escape the prohibition in Article 81(1).[341] The anti-competitive effects need balancing against the economic benefits and agreements must be analysed in their full economic context.[342]

(a) Agreements which fall outside Article 81(1)

1488. In the Horizontal Guidelines[343] the European Commission identifies categories of agreements which by their very nature fall outside Article 81(1).[344] In general these three categories of agreement do "not imply a coordination of the parties' competitive behaviour in the market". They are:

(a) cooperation between non-competitors;

(b) cooperation between competing companies that cannot independently carry out the project or activity covered by the cooperation;

(c) cooperation concerning an activity which does not influence the relevant parameters of competition.

1489. Such agreements may fall under Article 81(1), but only if they involve firms with significant market power and are likely to cause foreclosure problems *vis-à-vis* third parties.[345]

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341 "The Commission, while recognising the economic benefits that can be generated by cooperation, has to ensure that effective competition is maintained. Article 81 provides the legal framework for a balanced assessment taking into account both anti-competitive effects as well as economic benefits" (Para. 4 of Horizontal Guidelines). See footnote 326.

342 "[The analytical framework provided by the Guidelines] is primarily based on criteria that help to analyse the economic context of a cooperation agreement. Economic criteria such as the market power of the parties and other factors relating to the market structure, form a key element of the assessment of the market impact likely to be caused by a cooperation and therefore for the assessment under Article 81 (Para. 7 of Horizontal Guidelines). See also Paras. 19 and 20. See footnote 326.

343 See footnote 326.

344 Horizontal Guidelines, paragraph 24. See footnote 326.

345 *Ibid*.

1490. The first category is in our view unlikely to be of great benefit to shipping pools in the tramp industry, with one possible exception. Pools always consist of a fleet of vessels of a similar type and size and consequently can be deemed to operate in the same product market. The owners are therefore usually direct competitors already operating in the market. Where a new pool is established, the members are likely to be operating in adjoining markets, even if not actual competitors, and so can be presumed to be potential competitors in the relevant market. There have been some examples of pools being formed by members operating in complementary parts of the shipping industry, particularly where the KG structure is being used.[346]

1491. The second category is potentially more useful in the context of the tramp shipping industry. It has already been observed that one major motivation for shipowners who decide to enter into a pooling agreement with other owners and trade their vessels in a pool is the need for an increased fleet size as a means of better serving existing customers and attracting new custom without at the same time having to incur the risk of committing to those vessels on a long-term basis. Another motivation is the opportunity of attracting customers with requirements for large CoAs where the customer will generally be wary of taking the risk of contracting with an independent owner with a limited fleet. They may therefore prefer the comfort of dealing with a pool that has a larger fleet at its disposal.

1492. The pool structure is also useful as a means of facilitating new entry. Rather than having to come up with a large capital outlay to expand his fleet, the smaller owner can effectively expand his fleet by entering a pool. It was observed in the section on Financing Institutions that banks and other lending institutions are usually prepared to offer better terms if the borrower can offer the security of employment provided by a pool.

1493. In the majority of cases, the motivation for owners entering a pool is to achieve greater efficiency and lower the trading risk, but cases where an owner would simply not have traded at all without access to a pool are likely to be rare. Mostly membership of a pool cannot be said to be a necessity, the cost of the additional resources needed to trade independently rarely being a deterrent factor. In most cases even new entrants have some pre-existing experience of the shipping industry and can in principle employ people with the relevant experience if they do not already have it themselves. The technical management of the vessel or vessels can be sub-contracted out to a specialist ship management company, as can commercial management. In particular, the presence of brokers makes it possible to trade vessels at least on the spot market without resorting to a pool.

1494. To the extent that risk avoidance is seen as the primary motivation it may be the case that risk averse owners cannot, as the guidelines put it, "independently carry out the project or activity covered by the cooperation". However, the level of risk is a commercial choice and if the wording "…cannot independently…" is to be interpreted objectively it may not apply to the situation where the owner is reluctant to commit resources to independent trading simply out of commercial choice. The category might have to be reserved for the very limited number of cases involving small shipowners who need to obtain finance on the commercial market and are required by their banks or whoever is financing their vessel(s) to enter into pools in order to obtain the necessary financial means to purchase more vessels. We have not specifically identified any examples of this, but assume there might be cases like that.

[346] The two Jacob-Scorpio tanker pools referred to at paragraph 1038 above were created in 2004 by Jacob Tankschiffahrt (a joint venture between Ernst Jacob, Hansa Hamburg and Warburg Bank) and Scorpio Ship Management s.a., the latter being a ship management company that manages ships in the ownership of German KGs whose investors have no prior experience of the shipping industry. Both parties entered vessels into the pools, some being newbuildings (each in the nominal ownership of a single KG) that had never traded before. Such KGs are arguably not actual or potential competitors when they first enter the market, although the correct analysis may be that Scorpio Ship Management s.a. is a relevant competitor as it controls the relevant vessels.

1495. The third category of agreement unlikely to fall within the ambit of Article 81(1) at all consists of a class of agreements that *does not influence the relevant parameters of competition*. This is generally assumed to cover such agreements as those providing for the joint collection and preparation of statistics and calculation models (provided freedom of pricing and commercial behaviour are maintained); cooperation with regard to accounting, credit guarantees or debt collection (provided there is no influence on prices or terms set by the parties); joint use of production facilities, storage or transport equipment (provided the arrangements are merely organisational or technical); or joint R&D (not extending to exploitation).[347]

1496. We have nevertheless identified the following types of agreements found in the tramp shipping industry that can normally be presumed to fall outside the scope of Article 81(1):

(a) Purely technical information-exchanging agreements covering technical matters such as ISM and ISPS Code compliance, class issues, environmental law and technology, crew or vessel safety *etc.*

(b) Exchanges of information comprising solely historical statistical information of the sort held not to fall within Article 81(1) in the case law[348].

1497. We have not been able to ascertain to what extent, if any, such arrangements actually have been put in place between tramp operators.

1498. Generally, as explained in Chapter 1, brokers ensure that there is a considerable deal of transparency regarding available capacity, last fixed rates, actual and forecast demand, all of which would in principle appear to have a pro-competitive effect in that it allows better matching of supply to demand. The information is equally available to all, and there is generally no asymmetry of information as between owners/operators and customers.

1499. Brokers also publish regular bulletins, newsletters and client alerts, some free of charge and some on a subscription basis, that give their forecasts of future rates based on the market information they have been able to glean from their sources and their predictions. No evidence was found of such information flows including commercially sensitive information as to specific undertakings' business plans, trading policy or future pricing intentions or similar matters that would cause any concern with respect to the competition rules.

1500. For completeness, we observe that Article 2 of Regulation 4056/86 confirmed that certain technical agreements between liner operators fell outside the prohibition of Article 81(1) as they generally did not restrict competition.[349] That Regulation no longer is in force and in any event never had

347 See Butterworths Competition Law, Division III, at Para. [132].

348 See *UK Tractor Exchange*, OJL 68/19 of 1992 and also the recent *Asnef-Equifax* case in which the exchange between financial institutions of information on customer solvency was not held to restrict competition and therefore did not fall within Article 81(1) provided that the relevant market(s) were not highly concentrated, that the system did not identify the parties to which the information related and that the conditions of access and use by financial institutions were not discriminatory, in law or in fact. If the conditions are not fulfilled, the Court held that Article 81(3) might be applicable as the register in question would lead to, under favourable conditions, a greater overall availability of credit, including for applicants for whom interest rates might be excessive if lenders did not have appropriate knowledge of their personal situation: Case C-238/05 *Asnef-Equifax, Servicios de Información sobre Solvencia y Crédito, SL v. Asociación de Usarios de Servicios Bancarios*, unreported.

349 The language of Article 2 actually provides that the "prohibition in Article [81(1)] of the Treaty shall not apply to" the relevant agreements, decisions and concerted practices, implying something more than a presumption of negative clearance: nevertheless commentators have suggested that despite the words this should be read as no more than "declaratory in respect of certain types of technical agreements which may be excluded from the prohibition on restrictive practices on the ground that they do not, as a general rule, restrict competition." (Clough and Randolph,

any application outside the liner sector. It is nevertheless for consideration if and to what extent the underlying principles could not be applied equally to all maritime transport services and be included, recast as appropriate, in the proposed new maritime transport services guidelines.

1501. The types of technical agreement listed included:

(a) the introduction of uniform application of standards or types in respect of vessels and other means of transport, equipment, supplies or fixed installations;

(b) the coordination of transport timetables for connecting routes;

(c) the establishment or application of uniform rules concerning the structure and the conditions governing the application of transport tariffs.

1502. Article 2 also covered:

(a) the exchange or pooling for the purpose of operating transport services, of vessels, space on vessels or slots and other means of transport, staff, equipment or fixed installations;

(b) the organisation and execution of successive or supplementary maritime transport operations and the establishment or application of inclusive rates and conditions for such operations;

(c) the consolidation of individual consignments.

1503. Article 2 thus apparently established that, within the liner industry, Article 81(1) could be presumed not to apply to a number of categories of agreements whose sole object and effect is to achieve technical improvements or cooperation. These included agreements that do so by means of the exchange or pooling (for the purpose of operating transport services) of vessels, space on vessels or slots and other means of transport, staff, equipment or fixed installations. We assume the reference to "exchange" of vessels *etc.* was to cross-charters, where owners of relevant vessel tonnage or space or slots on vessels cross-charter each other.

1504. Because of the limitation to agreements whose *sole* object or effect is to achieve technical improvements or cooperation, the presumption that Article 81(1) does not apply would have been of limited value to vessel pools or cross-space charters even in the liner industry as it would not apply where there was any joint commercial operation or revenue pooling[350]. The provisions of Article 2 became largely redundant on the adoption of the Liner Consortium Exemption, but some of its provisions may nevertheless still be of interest.

(b) Agreements that almost always fall under Article 81(1)

1505. Cooperation agreements that have the object of restricting competition by means of price fixing, output limitations or sharing of markets or customers are generally presumed to fall under Article 81(1).

"Shipping and EC Competition Law" (1991) Butterworths, at p.203, footnote 2. The authors add: "This approach is consistent with statements made by the Commission describing its original proposal, which was not amended in this general respect: see tenth Competition Report (1980), at Para 8….".

[350] This was precisely why the decision was taken to introduce a new and separate block exemption regulation for liner consortia, including consortia in the form of cargo pools, revenue pools and net revenue pools.

1506. An example of a type of agreement that falls under Article 81(1) is that of *commercialisation agreements*. These are defined as agreements involving "cooperation between competitors in the selling, distribution or promotion of their products".[351]

1507. Albers[352] refers to the European Commission's definition of joint selling as "the determination of all commercial aspects of the sale of a product, *e.g.* promotion, distribution, sales and service, by all parties to the commercialisation agreement. Most importantly, joint selling by definition includes the fixing of the price for the commercialised product".

1508. In order to count as commercialisation agreements, pools would have to be solely concerned with the "selling distribution and promotion" of the relevant services. They would only escape prohibition if they can satisfy the efficiency and other requirements of Article 81(3). The Horizontal Guidelines indicate that these requirements have to be strictly applied and the onus of proof falls on the pool members to justify their arrangements.

1509. In footnote 18 of the Horizontal Guidelines the European Commission nevertheless acknowledges that *production joint ventures* are an exception to the presumption that all agreements involving joint selling *per se* fall under Article 81(1). The European Commission observes that it "is inherent to the functioning of such a joint venture that decisions on output are taken jointly by the parties. If the joint venture also markets the jointly manufactured goods, then decisions on prices need to be taken jointly by the parties to such an agreement. In this case, the inclusion of provisions on prices or output does not automatically cause the agreement to fall under Article 81(1). The provisions on prices and output will have to be assessed together with the other effects of the joint venture on the market to determine the applicability of Article 81(1)."

1510. This is further developed at paragraph 90 of the Horizontal Guidelines which confirms that "where a production joint venture that also carries out the distribution of the manufactured products sets the sales prices for these products, provided that the price fixing by the joint venture is the effect of integrating the various functions."

1511. The implication must therefore be that exceptionally there is no presumption that Article 81(1) should always apply to joint production agreements. In some cases it will and in other cases it will not, even where those production agreements also extend to agreement on output or prices as the latter must be assessed in light of the overall effects of the joint venture on the market in order to determine the applicability of Article 81(1).[353]

1512. The Guidelines apply to both goods and services and so presumably the reference to joint production will include arrangements between service providers for the *joint provision of services*.[354] The Guidelines do not make it clear how precisely the concept of joint production should be construed when it comes to the provision of services. It must presumably require some integration of the means of provision of the services separately from their joint commercialisation or marketing.

1513. In principle, however, we see no reason why the above guidance should not be capable, broadly speaking, of applying *mutatis mutandis* to shipping pools in so far as they enable services to be

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351 Horizontal Guidelines, at Para. 139. See footnote 326.

352 EU Energy Law ed. by Christopher Jones, Volume II, EU Competition Law and Energy Markets, Claeys & Casteels, 2005, Chapter 2 by Michael Albers, at p. 125.

353 See paragraph 90 of Horizontal Guidelines, last sub-paragraph. Bellamy & Child comment as follows: "…the Commission now recognises that there may well not be an anti-competitive effect from a production JV established by competitors that results in only a low commonality of total costs." See footnote 326.

354 Para. 13 of the Horizontal Guidelines states that they apply to cooperation concerning both goods and services, collectively referred to as "products".

both produced and commercialised on a joint basis. When owners enter their vessels into the pool those vessels then become the means of production of an integrated set of services provided to each customer. The vessels themselves are merely an input into the integrated transport services, enabling those services to be provided, and so like the raw materials needed for the manufacture of physical goods. Each of the owners provides some of those inputs. The joint functions themselves (which typically include the commercial management and operation of the pooled vessels) are however integrated into the hands of the pool manager, in the same way as production and sale of goods might be integrated in a single factory. The pool manager will tend to operate from an identifiable office[355] and at the same time all the activities relating to the running of the pool will of necessity be brought under his central administration and control.

1514. A glance at the pool clauses table annexed to Chapter 5[356] may be helpful in illustrating the distinction that could be made. In Pool 1 (which uses the administration-controlled model and has a non-profit making company to carry out pool management) the Chartering and Operations Manager has responsibility for employment of vessels, making the necessary arrangements, dealing with all voyage related items and handling revenue collection and distribution. The reference to fleet employment appears to mean in effect fixing the vessels, including allocating particular vessels to particular new work, tendering as necessary for new work, deciding on the terms of the fixture (type of contract, duration, rates and all the other items that are negotiated). In addition the pool manager has to deal with bunkers, port charges, towage fees, compulsory pilotage, agencies, commission payments, consular charges, and loading, stowing and discharging of cargoes.[357] This is precisely what an owner would have to do in terms of commercial operations if the owner operated outside the pool and vertically integrated the technical with the commercial and operational management.

1515. Marketing is mentioned as a specific function in ten of the pool agreements and although not all pools include it in their objectives, marketing is still mentioned as one of the tasks performed by the pool manager. Pool 6 however appear to have a different structure as there is no pool manager, nor any joint selling.

1516. In the majority of pool agreements reviewed, therefore, the role of the pool manager contrasts with the role of the members. All the pool agreements have one or two bodies with a more strategic role to play in the management of the pool. In the case of Pool 1, the relevant body, called the "fleet participants board" has responsibility for dealing with the contractual aspects of charterparties, everything to do with vessel management including chartering in or purchase of new tonnage and lay-ups, market strategy, annual trading budgets, capital, accounts, hedging policy, amendments to the distribution key and standards.

1517. Pool 1 also features a Board with the responsibility for key strategic decisions that are normally the subject of veto rights in joint venture agreements such as "hiring and firing", business development, budgets, expansion, amendments to agreements and appointment of auditors. As shareholders of the pool company the members have an interest in such matters for their protection as shareholders.

1518. Separately from the above functions, the members themselves, as owners of the pooled vessels, retain responsibility for the usual owner's matters (which we have previously referred to

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[355] This may not be in an entirely separate building, especially where one of the members themselves operates as the so-called commercial manager.

[356] Annex 7. Annex 7 has been omitted for reasons of confidentiality.

[357] *Cf.* Pools 4, 7 and 9 which feature longer lists of functions and activities to be performed by the pool manager. Shorter but essentially similar functions are performed by the pool manager or equivalent in Pools 10, 11, 12, and 14.

generically as "technical management") such as vessel maintenance, conformity with class and arrangement of ship inspections, ISM and ISPS compliance and other safety issues.

1519. It is admittedly harder to distinguish the production level from the sales and marketing level in the case of services than in the case of goods. We have considered how such a distinction could be drawn in the case of pooled tramp vessel services. The service actually being bought by the customer differs according to the nature of the contract.[358] If it is a spot (voyage) contract or a CoA it is the transport of the cargo from one place to another on one or several occasions. The pool manager has full responsibility for physically providing that service or procuring and monitoring its provision. In the case of a time charter the customer (charterer) takes operational control of the vessel for a determined period of time: here the role of the pool manager is to ensure that the vessel is delivered to the agreed delivery point and take it back or redeliver it at the end of the charter period. This requires organisational skills of an operational nature.

1520. In both cases, however, the pool manager's role is as a provider of the actual service and not as a seller or reseller of a service provided to him by somebody else. The fixing of contracts with customers is thus not a discrete function that the pool manager performs on behalf of owners separately from the operational aspects, but is an integral element of the operational side of the service.

1521. There is therefore a strong argument that the operation of the vessels can be performed more efficiently if the pool manager is given integrated responsibility for fixing and operational aspects. He will be better placed to position and reposition ships most cost effectively and so be able to meet customer demands.

1522. The joint functions themselves (which typically include the commercial management and operation of the pooled vessels) are accordingly integrated into the hands of the pool manager, in the same way as production and sale of goods might be integrated in a single factory.

1523. The commercialisation function (which includes joint selling, distribution and promotion) seems to us to be analogous to the functions of commercial vessel management and operation, the client-facing functions that a pool manager traditionally performs.

1524. It would in our opinion be wrong to view the owners as providers of the service and the pool manager as merely having a sale, distribution and marketing function. To the extent that services are being pooled, they are services which form a critical part of the operation of the vessels and the sale of those services is full integrated into such operations.

1525. The issue is of crucial importance for determining how pools should be assessed under the EC competition rules. In so far as they allow the integration of the provision of shipping services, including all the operational aspects connected with their delivery to customers, they involve joint production and distribution together.

1526. In most cases the appointment of a pool manager with integrated responsibilities to manage and operate the pooled vessels would not function if the pool manager did not also have control of vessel capacity and deployment and the ability to fix those vessels at his discretion: selection of vessels and fixing of the freight rates or charter hire are both evidently intrinsic parts of pool manager's functions.

1527. As already observed, there was one pool arrangement in the sample of pools that we analysed in detail in Chapter 4 that seems to be the exception to the rule. That is Pool 6 in the Table of Pool

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358 See Sections 1.6 of this Report.

Clauses in Annex 7.[359] The consultants would not, however, consider from their general knowledge that this is at all common as an arrangement. It clearly would not qualify as a form of joint production, as interpreted above. It bears some similarity to the co-service agreement analysed below in terms of providing additional volume to service customer demand but while retaining a greater degree of commercial independence and competition as between the parties to the agreement. The question does nevertheless arise whether the existence of this one example is evidence that the degree of integration found in the vast majority of pools is in fact indispensable for the operation of a pool for the purposes of Article 81(3). We consider this in the context of our analysis of the Article 81(3) criteria below.

1528. We suspect that for the majority of fully integrated pooling agreements, however, the correct analysis is in our view to treat them as forms of joint production and distribution.

1529. The consequence of this interpretation of the European Commission's Horizontal Guidelines and the Specialisation Block Exemption is that the prohibition in Article 81(1) will not automatically apply even though the structure in effect leads to the joint fixing of rates, or joint decisions on fleet deployment or capacity utilisation, or the sharing out between members of the pool of markets or customers (individually or by group) which in normal circumstances would be considered hardcore restrictions of competition.

1530. For production joint ventures that also carry out the distribution of the manufactured products, the Horizontal Guidelines confirm that the setting of sales prices for the products in question also falls outside the prohibition, provided the price fixing is the effect of integrating the various functions.[360] The distribution function seems to us to be analogous to the function of commercial vessel operation, the client-facing function that a pool manager traditionally performs. As the Horizontal Guidelines state, with such agreements "the agreement on output or prices will not be assessed separately, but in light of the overall effects of the joint venture on the market in order to determine the applicability of Article 81(1)."

1531. Horizontal cooperation agreements under which the parties integrate both production and distribution of goods or services are in any event eligible to be covered by the Specialisation Block Exemption to the extent that they fall within the Article 81(1) prohibition. So far as they fall outside the terms of the block exemption, they are in principle eligible for individual exemption.

1532. We consider in more detail below the application of Article 81(1), the exemption criteria in Article 81(3) and the Specialisation Block Exemption to different pool structures and clauses.

1533. The European Commission also observes that production agreements with integrated distribution will often in fact qualify as concentrative joint ventures under the EC Merger Regulation.[361] This aspect is touched on briefly at the end of this Chapter.

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[359] Pool 6 would appear to be an example of a pool in which the only integrated functions are those of day to day scheduling and assignment, but not pool vessel operation, voyage accounting, crew provision, staff, office establishment and administrative functions and in particular marketing, setting rates and other commercial terms and the entering into of contracts with customers which are all responsibilities retained by the pool members. Annex 7 has been omitted for reasons of confidentiality.

[360] Horizontal Guidelines, Para 90. See footnote 326.

[361] See the Horizontal Guidelines, footnote 41. See footnote 326.

(c) Agreements that may fall under Article 81(1)

1534. Agreements that do not belong to the categories already mentioned need further analysis in order to decide whether they fall under Article 81(1). The analysis has to contain market-related criteria such as the parties' market power and other structural factors.

6.4.2 *No appreciable effects on competition*[362]

1535. As stated, the European Commission confirms in the Guidelines[363] that horizontal agreements that do not have appreciable effects on competition are in principle not caught by the prohibition in Article 81(1) either.

1536. Any analysis of pool agreements in their economic context needs to take account of all relevant factors that could affect competition, including whether there is any loss of actual or potential competition compared with the position in the absence of the agreement,[364] whether there is any risk of spillover if the pool members retain interests outside the pool in the same or related markets, market concentration and other factors.[365]

1537. Spillover risks and coordination are likely wherever a pool shares members with other pools. Similar issues of coordination may arise where the same management company provides services to several undertakings (whether they ostensibly operate independently or are members of one or more pools).[366]

1538. The European Commission has developed case law covering what is termed "network effects".

1539. A "network effect"[367] is the result of a number of joint ventures being created, and where the same companies are members of more than one joint venture. The European Commission has in the past considered that this may have a foreclosing effect on competition[368]: "the restrictions and distortions of competition resulting from the agreements arise from the parallel existence of functionally similar joint ventures in which [a member] participates actively." This foreclosing effect can manifest itself through the fact that one undertaking, by being a member of several joint ventures, will have an incentive to coordinate its conduct and will therefore be able to influence and coordinate the conduct of all the joint ventures. Moreover, this may influence decisions of the members of the joint venture to enter certain markets in competition with each other, thereby restricting each other's access to other markets, including each other's.

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362 *De Minimis* notice. See footnote 327.

363 Horizontal Guidelines, paras. 14 and 15, cited at footnote 326.

364 *Cf.* general comments at paras. 1433 *et seqq.*

365 See, for instance, paras. 27-30 of the Horizontal Guidelines, cited at footnote 326.

366 The risk of coordination between a joint venture and its parents who retain interests in overlapping markets is considered in numerous merger decisions, but a full analysis of the relevant jurisprudence is beyond the scope of this Report. In its decision in its decision of 13 July 1990 in Case IV/32.009 *Elopak/Metal Box - Odin* OJL 209/15 of 8.8.1990, is a case in point. In that decision, the European Commission held that on the facts there could be no implicit anti-competitive impact on the activities of the parents outside the joint venture because not only were they not even potential competitors when Odin was established but neither of them could have developed the new product without the other. The risk of such anti-competitive co-ordination between Metal Box and Odin was further mitigated, in the Commission's view, by the fact that the joint venture could easily be broken up and each party would then have access to each other's technology and the jointly developed technology with relatively few restrictions.

367 *Cf.* Bellamy & Child: "*European Community Law of Competition*", 5th Ed. P.M. Roth QC, 2001, para. 5-041.

368 Commission Decision of 14 July 1986 in Case IV/30.320 - *Optical Fibres*, OJL 236/30 of 22.8.1986.

1540. Consequently the fact of ship owners or operators belonging to more than one pool in the same market (or in related markets, including upstream or downstream markets) may clearly have restrictive effects on competition as it may increase the risk of those ship owners or operators coordinating the conduct of ostensibly separate undertakings. This may lead them to coordinate their commercial behaviour, including restricting each pool's access to new markets. In terms of the practical application of Article 81(1) in such situations, it will be necessary for the market shares of all pools in the same market in which there is a common member or there are common members to be added together for the purpose of assessing the real market power of any one of those pools and the true level of concentration in the market.

1541. The Horizontal Guidelines themselves do not specify any particular level of market share below which one can assume that parties to a horizontal agreement can be deemed not have sufficient market power for causing restrictive effects (all other things equal).[369]

1542. The *de minimis* Notice[370] aims to quantify when an agreement does not have an appreciable effect on competition in terms of market shares.

1543. The notice indicates that horizontal agreements between actual or potential competitors are presumed not to have appreciable effects on competition and are therefore presumed to fall outside the prohibition in Article 81(1), if the parties' aggregate market share does not exceed 10% on any of the relevant markets affected by the agreement.

1544. As for vertical agreements (*i.e.* agreements between undertakings which are not actual or potential competitors), these can be presumed to fall outside the prohibition in Article 81(1) if the parties' aggregate market share does not exceed 15%.

1545. When it is difficult to classify the agreement as either horizontal or vertical, the lower threshold of 10% applies.

1546. In sectors where the cumulative effect of several agreements may create foreclosure problems, the market share threshold is reduced to 5% for agreements whether the agreement is between competitors or non-competitors. Paragraph 8 provides, however, that a "cumulative foreclosure effect is unlikely to exist if less than 30% of the relevant market is covered by a [network of] parallel agreements having similar effects." A similar aggregation is of course also likely to be required where a particular undertaking belongs to several different pools in the same or related markets or where several undertakings use the services of the same management company.[371]

1547. While creating a safe harbour for agreements not considered restrictive of competition regardless of their particular type or the provisions they may contain, the notice nevertheless excludes from its scope agreements containing one or more so-called hard-core restrictions.[372] Examples of hard-core restrictions in agreements entered into by or potential competitors are price-fixing, limitation of output or sales, allocation of markets or customers. There are other examples mentioned for agreements between non-competitors, which are not relevant here.

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369 Horizontal Guidelines, at para. 28. See footnote 326.

370 *De Minimis* notice. See footnote 327.

371 See paras. 1403 *et seqq.* above.

372 *Ibid*, Para 11.

1548. The Notice also provides that Article 81(1) will be presumed not to apply to agreements between small or medium-sized undertakings (SMEs).[373]

1549. The European Commission may therefore proceed against hard-core restrictions even if the undertakings involved have market shares below 10%. Even SMEs may be targeted, one such example being *Greek Ferries*[374] where the European Commission imposed fines on shipowners who were parties to price-fixing agreements. There are thus no safe harbours for cartels.

1550. The exclusion from the *de minimis* Notice[375] of agreements which have as their object or effect any of such hardcore restrictions creates a difficulty for the analysis of pools even if their impact on the market may be insignificant in so far the combined market share of their participants is less than 10%.

1551. The consultants merely observe that the horizontal cooperation guidelines and the Specialisation Block Exemption make it clear that where the relevant price fixing, output limitation or market or customer sharing takes place in the context of a production joint venture and provided it is limited to such joint venture, the prohibition in Article 81(1) can be presumed not to apply automatically, but the arrangements are eligible for self-assessment and/or block exemption. On the assumption that certain types of pool can indeed be classified as joint production, and so would *prima facie* be viewed favourably under the horizontal cooperation guidelines and the Specialisation Block Exemption, it would certainly be consistent for them not to be treated under the *de minimis* Notice[376] as *per se* falling within Article 81(1) where the parties' market power was limited. However, this is merely the consultants' observation, and as the law stands today the *de minimis* Notice is almost certainly not applicable to shipping pools.

1552. If, on the other hand, pools fall to be considered as forms of joint commercialisation, they would not benefit from any *de minimis* exception.

1553. It remains the case that where the conditions of the Notice are not met, and in particular where the market shares of the parties are exceeded or the parties cease to be small or medium-sized, the agreement in question will fall within the scope of the prohibition in Article 81(1) and will require self-assessment under Article 81(3) unless it can benefit from a block exemption. There is a small margin of two percentage points during two successive calendar years, provided for in paragraph 9, when the agreement will continue not to be regarded as restrictive. Agreements may of course fall in and out of illegality if their market shares or turnover fluctuate.

6.4.3 *The effect on trade test*[377]

1554. The European Commission has published a notice on the concept of effect on trade between Member States.

1555. More specifically, in the *CMBT* case[378] the Court of Justice confirms that it is sufficient for the purpose of establishing that an agreement between providers of liner transport services meets the

[373] These are defined in the Annex to Commission Recommendation 96/280/EC, OJL 107/4 of 1996, as "undertakings which have fewer than 250 employees and have either an annual turnover not exceeding EUR 40 million or an annual balance-sheet total not exceeding EUR 27 million.
[374] *Greek Ferry Services Cartel*, OJ L109/24 of 27.04.1999.
[375] *De Minimis* notice. See footnote 327.
[376] *De Minimis* notice. See footnote 327.
[377] Guidelines on the effect on trade concept contained in Articles 81 and 82 of the EC Treaty, OJC 101/81 of 27.4.2004.
[378] Case T-24/93 *Compagnie Maritime Belge Transport* [1996] ECR II-1201.

test that the services in question relate to transport to or from Community ports, which the majority of tramp services undoubtedly do.

1556. Even in the case of intra-state cabotage, there could be at least a potential effect on trade between Member States now that cabotage services have been liberalised by Council Regulation 3577/92[379]: Consequently there is now a potential for operators from other Member States to compete for business in a given Member State and for pooling agreements to be entered into between operators in different member States or using vessels registered in or flying the flag of other Member States.

1557. We conclude that the inter-state trade test is likely to be satisfied by all the pool arrangements examined in this Report.

6.5 ARTICLE 81(3)

1558. Self-assessment under Article 81(3) is required for any agreement that falls within the prohibition in Article 81(1) but does not fall within the scope of, and meet all relevant conditions for the application of, a relevant block exemption regulation.

1559. Self-assessment would be required *in all cases* if pools are treated as forms of joint commercialisation. It may also be required if pools are treated as forms of joint production. It is also required for pool agreements that are treated as joint production agreements falling within the scope of the Article 81(1) prohibition which do not benefit from block exemption under European Commission Regulation 2658/2000 because of their market share and specific provisions of such pool agreement that are not "ancillary" within the meaning of Article 1(2) of the Regulation or might otherwise lead to the possibility of coordinated effects.[380]

1560. Article 81(3) lays down four legal conditions which must be satisfied by an agreement, decision or concerted practice to benefit from exemption, namely that it:

"– contributes to improving the production or distribution of goods or to promoting technical or economic progress

– allows consumers a fair share of the resulting benefit

– does not impose on the undertakings concerned restrictions which are not indispensable to the attainment of these objectives

– does not afford such undertakings the possibility of eliminating competition in respect of a substantial part of the products in question."

1561. Self-assessment under Article 81(3) requires the parties to justify their agreements, and in particular to adduce proof of the indispensability of the joint selling restrictions, as well as proof they create sufficient efficiencies to outweigh their presumed anti-competitive effects, and to satisfy themselves that there is no risk of market power exercisable by the pool being such as to create a dominant position.

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379 Council Regulation (EEC) No. 3577/92 of 7 December 1992 applying the principle of freedom to provide services to maritime transport within Member States (maritime cabotage), OJL 364/7 of 12/12/92, as amended. All services were required to be liberalised at the latest by 1 January 1993, with various derogations the last of which expired on 1 January 2004 for services provided by vessels less than 650 gt in Greece.

380 We use the word "ancillary" as shorthand for the definition in Article 1(2) discussed in more detail below.

1562. Specific examples of the sort of economic benefits that can result from cooperation are given in paragraph 3 of the Guidelines and include risk-sharing and cost-savings. These are factors which our research has indicated are present in a number of pools.

1563. In general terms it has been seen that the principal commercial driver for shipowners to form pools of vessels is to increase the size of the fleet at their disposal and so offer a better service to customers without actually taking the whole risk on their own shoulders. We have noted that pools can be of particular benefit in the case of CoAs, which are easier for an operator to enter into if the operator has readily at its disposal a bigger fleet of owned or pooled vessels. It is also self-evident that the larger the fleet, the greater the economies of scale. Pooling enables owners/operators to make a number of commercial and operational cost savings by having a single administration for the commercial management and operation of a larger number of vessels.

1564. It has also been seen that pools generally try to limit entry to vessels of a similar type and size. This can help raise standards all round. There may also be opportunities for exchange of technical know-how between members.

1565. For customers pools provide flexibility, reliability and availability. As most pools have large fleets at their disposal, it is likely that they have an available vessel near where transport demand arises. Further, due to the large number of vessels the pool can easily switch some of its vessels to other geographical areas if the customer so requires, while still being able to provide service in the original geographical area. Moreover, if one or more of the vessels should break down, the pool will be able to quickly send a replacement vessel. In terms of better prices, some pools that have its focus on CoAs will be able to offer highly competitive rates on backhaul routes as the round-voyage has been paid for under the contract and the vessel would otherwise only be doing a ballast leg.

1566. *Prima facie*, therefore, pools do seem to bring about the sort of economic benefits usually associated with horizontal cooperation in all other areas of industry and recognised by the European Commission in its Guidelines.

1567. The Guidelines do, nevertheless, make it clear there can be no automatic presumption that horizontal cooperation produces economic benefits and that horizontal cooperation agreements consequently always escape the prohibition in Article 81(1).[381] The anti-competitive effects need balancing against the economic benefits and agreements must be analysed in their full economic context.[382]

1568. In the following paragraphs we attempt to draw our own conclusions about the possible application of the four exemption criteria to tramp shipping pools, based on the factual findings in this Report. We deal with each criterion in turn, starting with some general comments and then proceeding to examine each market separately.

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381 "The Commission, while recognising the economic benefits that can be generated by cooperation, has to ensure that effective competition is maintained. Article 81 provides the legal framework for a balanced assessment taking into account both anti-competitive effects as well as economic benefits" (Para. 4 of Horizontal Guidelines, See footnote 326.).

382 "[The analytical framework provided by the Guidelines] is primarily based on criteria that help to analyse the economic context of a cooperation agreement. Economic criteria such as the market power of the parties and other factors relating to the market structure, form a key element of the assessment of the market impact likely to be caused by a cooperation and therefore for the assessment under Article 81 (Para. 7 of Horizontal Guidelines. See footnote 326.). See also Paras. 19 and 20.

6.5.1 Economic efficiencies

1569. There are generally four key efficiency factors which in our view will in general apply to all pools. These are:

(i) the increased capacity utilisation and output;
(ii) economies of scale;
(iii) economies of scope and lowering of the trading risk;
(iv) efficiency enhancement and technical improvements.

1570. In addition there are improvements in service which result from the increased efficiency of capacity utilisation and output. A small number of pools can be found where there would appear to be direct technical improvements, particularly in those markets which require specialised tonnage or access to specific shore side facilities. However, the majority of the efficiencies in the tramp sector fall under the general heading of improvements in the production or distribution of goods. Also, it follows from the case law of the Court of Justice that only objective benefits can be taken into account.[383]

1571. These benefits are particularly evident in the case of CoAs, which require a certain minimum number of vessels to be commercially attractive to shippers. Large shippers with a requirement to ship large volumes of commodities and/or goods but at infrequent intervals like the flexibility of the CoA. It gives them a binding legal option without committing them to specific minimum volumes which would effectively be the case where they chartered a whole vessel.

1572. As has been explained, some owners will not wish to run the risk of "putting all their eggs in one basket" by operate exclusively on the spot market. That would undoubtedly expose such an owner to a serious risk of loss when rates dip, particularly where the vessel is financed and the freight rates drop below the minimum necessary to cover the interest charges. In such circumstances an owner with only one or a limited number of vessels will struggle to cope, whereas in a pool there is a greater chance of maintaining a better average revenue stream in which all members of the pool are entitled to share. Having said that, the industry is characterised by owners and operators who are convinced that they can outperform its competitors and beat the index.[384] When discussing this issue with people in the industry it became evident to the consultants that owners or operators who prefer to enter their vessels into a pool are atypical and are either very risk averse or inexperienced and use the tramp shipping market as an investment only.

1573. Clearly it is not impossible for a single vessel owner to make money if he is prepared to take the risks involved and there are examples of that happening in all parts of the industry (with the exception of those markets where the vessels are highly specialised and costly, such as LNG and LPG carriers, ethylene carriers, specialised reefers *etc.*). That is, however, a commercial choice. The commercial choice to enter into a pool would only be expected to be made where the commercial benefits outweighed the loss of freedom and the inherent loss of opportunity to make super-profits (without having to share them with other pool members) at times of peak rates.

1574. Equally, there will be cases where the owner may be required by financial institutions or investors as a condition of obtaining finance for a newbuilding or, less commonly, for second hand tonnage to enter into a pool as a form of security for the financing obligations undertaken.

1575. This is, in the consultants' opinion, an extremely important feature of the shipping industry.

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383 Guidelines on the application of Article 81(3) of the Treaty, OJL C101/97 27.4.2004 at para. 49.
384 A.P. Møller-Mærsk acquired his first vessel in 1904 by exposing himself to a huge debt and great risk. Not all owners are the same however.

1576. There are also practical problems for an owner with under, say, five vessels under his direct control to run a successful commercial operation. While he can use brokers to seek out new business, they are an additional cost and in any event do not (as explained elsewhere in this report) actually have power to fix the vessel(s) and so cannot replace the owners' own chartering/freight department.

1577. The consultants consider that in the majority of cases there is a strong efficiency argument in favour of pooling.

1578. Particular factors are listed below, grouped according to whether they lead to improvements in the ability to provide services or, rather, promote technical or economic progress:

6.5.1.1 Increased capacity utilisation and output

1579. The availability of a larger fleet and the greater flexibility that affect those trading pools compared with those trading smaller fleets independently can generally be expected to increase the efficiency to which the services are provided to customers, there is generally a benefit to consumer welfare at least in cases where the pool members would be to small to offer the sufficient range and quality of services that the customers want. Larger fleet sizes give the pool managers a number of options which would not otherwise be available to the individual owner. There is nevertheless a question whether the efficiency gains are as great where the pool consists of one or more members with sufficient resources (actual or potential) to operate as efficiently by themselves.

1580. As a result pools make for more rational fleet utilisation than feasible with small independent fleets. Fewer ballast voyages may be needed the bigger the fleet as vessels can be repositioned from a wider number of locations globally.

1581. Where there is some variety in the sizes and performance of vessels in a pool fleet it can be easier to match the vessel to the cargo and so ensure that maximum use is made if the potential earnings on each vessel; a vessel can be matched against the customer's parcel size. The Commission recognises that agreements that allow for better planning of production and allowing for better capacity utilisation is the result of efficiencies in the form of cost reductions and that these kinds of efficiencies may stem from the use of "just in time" purchasing, which could apply for pools which provide customers with full flexibility for all their transport requirements and therefore a valuable service.[385]

1582. Hence, a pool offers the possibility of better vessel capacity utilisation compared with what a series of independent owners could achieve individually.

1583. The Commission acknowledges that a very important source of efficiency is synergies resulting form an integration of existing assets. When the parties to an agreement combine their respective assets they may be able to attain a cost/output configuration that would not otherwise be possible. An example is given where a production joint venture is established, combining the production assets of A and B where the parties can attain a high(er) level of output per hour with a low(er) input of raw materials per unit of output. In the case of pools owners or operators can attain more efficient utilisation of their vessels and providing better service without having to acquire more vessels and saving costs.[386]

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385 Guidelines on the application of Article 81(3) at para. 68.
386 Guidelines on the application of Article 81(3), at para. 65.

6.5.1.2 Economies of scale

1584. Generally, one can point to a number of economies of scale that can be expected to lead to quantifiable cost savings[387], greater choice and flexibility and better quality services; putting the commercial management and operation of a larger fleet of vessels under the integrated control of a single pool manager creates potential economies of scale in terms of both vessel operation and utilisation[388]. So far as economies of scale in port operation, we do not at all believe that these are as important in tramp shipping as in liner shipping. However, for liner like services (such as reefers, OHBCs, Ro-Ros etc.) this might be of importance.

1585. The benefit of the larger fleet is more easily demonstrable in the case of CoAs. However, pools, just like independent owners, do not necessarily limit themselves to one contract type.

1586. Typically, they aim to have a mix of business types at any one time, made up of CoAs and time charters on the one hand and some spot trading on the other hand (voyage charters). This makes for a prudent business strategy. Clearly there are some risk-takers in the shipping world as in every other part of business who are prepared to take greater risks than others. However, for the majority who pursue a more prudent business strategy it is generally easier to use a pool with more vessels at its disposal to win CoA business. This allows all the members of the pool to benefit from, and offer their customers, a broader portfolio of trading types than possible individually.[389]

1587. As stated in Chapter 3, the tanker market operates predominantly on the basis of voyage charters. Thus, anyone investing in tankers becomes subject to full market exposure from day one. There are, however, possibilities for short and long term charters, but these are few, and far between. Tanker fleet size is also critical for securing CoAs, as customers will only be prepared to select operators with minimum fleet size in order to be certain to have the flexibility necessary for the successful operation of a CoA.

1588. A number of specific cost savings can be attained through a pool. For instance:

- savings on administrative and revenue and debt collection staff, marketing costs, and IT support;
- joint procurement of supplies;
- single point of contact with a broker;
- sharing of crew training costs;
- more efficient hedging (both FFAs and currency hedging).

1589. Among the cost savings that can be obtained through a pool structure the principal direct cost saving consists of reduced staff cost. The following are three examples that show the number of personnel working in three different shipping companies:

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387 Pursuant to the Guidelines on the application of Article 81(3) "…claimed cost efficiencies the undertakings invoking the benefit of Article 81(3) must as accurately as reasonably possible calculate or estimate the value of the efficiencies and describe in detail how the amount has been computed." As the consultants have not had access to any pool's accounts, it has not been feasible to present any calculated cost efficiencies.

388 See for instance the example given in para 66 in the Guidelines on the application of Article 81(3) where costs become higher if only parts of the asset can be utilised.

389 This does not prevent a pool deciding to concentrate on one contract type rather than another at any one time if it sees this as a sensible commercial strategy: the Exmar Pool, since disbanded, is known to have specialised in spot trading.

1590. Tärntank is a relatively small Swedish ship owner focusing on small-sized tankers operating in Northwest Europe. The company owns eight vessels and the on-shore organisation employs 15 people.

1591. Similarly, Donsötank is another Swedish company operating in the same market segment in the same geographical areas. The company owns six vessels and the on-shore organisation counts 13 employees.

1592. Both the above companies have personnel covering accounting, chartering, technical, crewing, etc. However, either of the organisations would be able to run an operation of the combined fleets (14 vessels), without stretching their human resources beyond what normally will be considered acceptable, should they decide to pool their fleets.

1593. By contrast, Marinvest AB, a ship owner based in Gothenburg, Sweden, provides a particularly good example of the much smaller size of organisation that can be employed to run a ship owning company which does not operate its ships commercially but puts them into a pool. The company owns seven LR1 product tankers and has another three on order due for delivery in 2007. The company employs only three personnel. Five of its vessels are employed in the Torm LR1 Pool and one vessel is employed on a long-term time charter to Canadian Methanex Corp. The company's website390 furthermore indicates that if the three vessels on order cannot be fixed on long-term charters they will be entered into the LR1 Pool as well.

1594. Although it is not an entirely scientific exercise, the number of employees and vessels in each organisation indicates that Marinvest has 0.4 employees per ship, whereas Tärntank and Donsötank have 1.9 and 2.2 employees per vessel owned, respectively.

1595. In this context it should furthermore be noted that the three pools operated by Torm (LR1, LR2, and the MR pools) altogether operate 83 vessels and employ 48 personnel in four locations (Copenhagen, Singapore, Tokyo, and Seoul). The employee/ship ratio is currently 0.6.

1596. In many cases the need to find economies of scale is customer-driven. In some markets an owner with a limited number of vessels could not survive; this is especially so in the tanker markets where charterers enjoy considerable market strength.

1597. Generally a single individual member of staff can efficiently manage up to ten vessels at any one time, dealing with all the chartering arrangements and contract negotiations. An owner deciding to trade individually therefore would need at least ten vessels before his employee employed to manage his fleet became fully employed.

6.5.1.3 Economies of scope

1598. The third benefit of pools that we have been able to identify is that it can lead to some economies of scope which are of benefit to customers.

1599. Customers enjoy the benefit of trading with a larger organisation, which in addition to flexibility offers reliability. This is of particular importance for customers entering into CoAs.

1600. An example is the Star Shipping pool, which has entered into long-term agreements with terminals in all major ports serving as consolidation and distribution hubs. Furthermore, the pool has invested in its own terminal. Similarly, the Odfjell Seachem pool has terminal and storage facilities

[390] www.marinvest.se.

available for the benefit of their customers, which enables them to provide a wider scope of services to their clients.

6.5.1.4 Lowering of the trading risk

1601. The main benefits of operating ships through a pool are that it tends to have a dampening effect on the cyclical peaks and troughs in revenue that are a feature of shipping. A pool lessens the risk of loss-making troughs, both by managing assets such that an oversupply of vessels within the pool does not occur, or simply by spreading the risk; one vessel is more at risk from downward trade cycles than a pool of several vessels where the "pain" can be spread across several owners. The examples have already been given of Torm and Marinvest, both mid-sized shipowners who are able successfully to operate with limited staff through judicious use of use of pools.

1602. The lower risk associated with trading through a pool can accordingly be expected to facilitate new entry, as it reduces the risk faced by new entrants as they enter the market. New entrants with one or only a small number of vessels would be more badly affected by dips in the trade cycle than larger owners/operators with a bigger financial cushion and a greater spread of vessels from which to derive earnings.

1603. The Swedish shipping company, Rederi AB Gotland, is a case in point. The company's origins go back to 1865. Its primary business has always been the operation of passenger services between mainland Sweden and the island of Gotland under contract to the Swedish Government. However, to reduce its dependency on the ferry market, the company developed the strategy of expanding into owning of product tankers, which is in line with the company's aim of having a "low risk profile"[391]. In line with this cautious strategy the company uses Torm as commercial and technical manager employing the vessels in the relevant Torm pools.

1604. Another company, also operating ferries, is Norwegian based Torghatten A/S which has followed a similar strategy. The company bought 2 LR2 tankers, originally contracted by Torm, and upon delivery the vessels have been employed in the LR2 pool. The fact that this company, albeit financially sound, could enter a new market segment was facilitated by the fact that that it could find employment for its vessels within a pool, and so mitigating the risk to such an extent that the departure from its core business could be commercially justified.

1605. An example of how pools can mitigate the risk associated with the shipping business is provided by looking at the results of tankers operating in the LR1 pool.392 For the five-year period 2001-2005 annual average earnings of vessels in this pool varied from 73% to 98% of average spot earnings in the key trade for this type of vessels. Interestingly, in the two weakest years, the pool managed to obtain earnings of 98% and 83.6% of average spot earnings. In the years with quite strong markets, the pool's earnings were only 73%-77% of the spot market. Thus, pool operating provides a "safety net" in difficult periods, but "shaves" off the peaks during strong markets. In our view there are clear economic advantages for a business to be able to predict its future business revenues and avoid too much volatility. This allows better forward planning of the business and of the resources needed to sustain it in the longer term. For this reason we believe that it is the sort of efficiency which should properly be taken into account for the purposes of Article 81(3).

[391] Rederi AB Gotland Annual Report 2004, p. 7.

[392] This analysis is based on data given in Torm's Annual Reports 2001-200 and Fearnleys databases. The earnings, albeit representative for Torm's vessels in the pool, are probably representative for all vessels in the pool. The spot earnings are based on a MEG-Japan roundvoyage on a LR1 product tanker carrying 55,000 tonnes of Naphtha. Standard load/discharge terms and no waiting time included.

1606. It is admittedly hard to prove whether risk mitigation is always a significant, let alone the dominant reason, for a particular owner to favour a pool over individual trading. From the owners' point of view, trading in pools makes owners less dependent on a single type of business and allows them greater commercial flexibility in response to changing demand and the other threats and opportunities within the market. There are admittedly a huge number of possible business models and generalizations are potentially misleading.

1607. The pool does, however, offer an owner seeking finance an immediate contract fixture, in the form of the time charter to the pool, which will prove attractive to the party providing finance. Finance institutions are traditionally risk averse. An alternative would be to negotiate a long-term time charter or service contract for the vessel with a particular customer.

1608. There is little doubt that the lower risk profile of the pool structure and the more level earnings profile will generally be more attractive for ship financing companies providing finance for a newbuilding and needing security over their loan.

1609. By encouraging the entry into the market of new tonnage that might not otherwise be prepared to take the risk, it also has an overall positive effect on output.

6.5.1.5 Efficiency enhancement

1610. In general pools can be said to contribute to quality improvements. These will usually consist of service quality improvements, including more efficient and frequent scheduling. This is the corollary of the improvements in capacity utilisation and output considered in (a) above for the customer. The pool manager will have more choice of vessels from which to draw in bidding for business and can therefore have more flexibility for scheduling, including filling vessels which would otherwise be in ballast. We have explained that an operator always aims to obtain the prevailing day rate for the vessel wherever it is deployed. Thus, where a cargo can be found to fill a return voyage, or where triangulation is possible, the daily rate can be achieved more easily than where the vessel has to return in ballast. That allows a lower freight rate to be offered.

1611. Pools may also allow the pool to serve more out of the way ports which it would not be economic for a smaller owner to serve.

1612. Increasingly shipping transport is seen as part of a global logistics chain and the management of cargo from "cradle to grave" assumes more and more importance. This is particularly so for time critical products such as chemicals for use in a production process, cars and car parts and reeferships. Consequently there is huge pressure to invest in sophisticated IT systems capable of tracking cargoes accurately and manage the supply chain. Usually these afford access to shippers and consignees, as well as all pool participants, enabling continuous monitoring of the voyage, updated itineraries and documentation relating to their cargo. Albeit not exclusive to pools, but large shipping companies in general, investments in advance IT systems are facilitated for smaller undertakings by the economies of scale afforded by a pool. Such systems are implemented by, amongst others, Star Shipping, Odfjell Seachem, and Star Tankers.

1613. Technical improvements

1614. Technical improvements may ensue from enhanced service scope, access to terminals, warehousing or terminal handling equipment compared with what would be available outside the pool with its greater buying power.

1615. For most bulk trades the age and sophistication of a vessel has little impact on the rates that it can command in the market and consequently there is little incentive to invest in new capacity or technology for its own sake. This may be changing as the environmental norms become stricter, e.g. sulphur emissions legislation. One can envisage that pools would be at an advantage in terms of facilitating new investment in technology and technologically more advanced vessels and equipment.

1616. In those trades requiring specialised vessels or equipment the necessary investment in new technology may be more of a critical factor and that advantage could be greater. It may be significant that in the specialised reeferships market, where there is only one pool of the classic type, Seatrade, it is only Seatrade which has acquired any recent newbuilt specialised reeferships in recent years. Where there is a pool the costs of acquiring new technology can be defrayed across a greater number of parties as can the acquisition costs of newer vessels.

1617. This is also relevant for other ship types like OHBCs and chemical tankers, as the assets themselves are highly expensive investments. Thus, in order to mitigate risks linked to the investment and developing a service that can secure revenues, such vessels are employed in a pool (e.g, Saga Forest Carriers and Odfjell Seachem). On the equipment side, we observe companies that have invested in grabs which are placed in the ports where such gear is required. These companies operate Handysize/Handymax bulk carriers – versatile due to their size and cargo handling gear (cranes) – but not all vessels are so equipped. By installing gear at the port, they are able to use almost all vessels of this type/size as they have access to grabs. In other words, a set of grabs may be used by many ships and the port facilities are usable by a greater number of ships, and not only those on which grabs are already installed on board.

1618. The Guidelines make it clear that in justifying joint production only efficiencies that benefit customers directly or indirectly count and not those that only benefit the parties. Moreover cost savings that are caused by output reduction or market allocation cannot be taken into account.[393] In our opinion the specific efficiencies that we have identified that are generally associated with pools do not only benefit the pool members and do not result from output reduction or market allocation.

1619. In relation to the analysis of joint commercialisation, the Guidelines similarly make it clear that one is primarily concerned with identifying efficiencies resulting from the integration of the commercialisation. The size of the efficiencies is said to depend on the importance of the joint marketing activities for the overall cost structure of the product in question.[394] We have shown through the illustration of employee costs (one of the major costs of a shipping operator) that there are considerable economies to be had from pooling of vessels for owners with a relatively small number of vessels owned or chartered in.

1620. An issue that arises is whether this would imply that only pools between small or medium- sized owners create the necessary efficiencies to be justifiable under the first limb of Article 81(3). This is however not necessarily the case. In the first place, traditional pools operate on the market in their own right and the identity of the members (or their vessels) becomes of secondary importance to the customer when deciding whether to enter into a contract or invite the pool to bid for a contract. Secondly, an owner commits his vessel(s) into a pool and places them under the control of a pool manager, the owner effectively looses the commercial and operational control of the vessel(s) provided the owner has no control over the commercial or operational management. The argument applies equally for administration- and member-controlled pools, even though in the latter case the pool manager will consist of a dedicated employee and team within, all be it in a separate part of, the member's office. In any event, in particular in the case of member-controlled pools, larger owners tend to be reluctant to put all their fleet into pools at any one time. This tends to dilute any market power of a dominant member in a pool. Ultimately, what counts in measuring the market power of a pool is the size of the fleet at its disposal, and that regardless of that identity of the owners of the vessels in that fleet. It is the size of the fleet which is the critical factor that

393 Horizontal Guidelines, Para 103. See footnote 326.

394 *Ibid.*, Para. 151.

gives the pool the relevant increase in efficiency of vessel utilisation and output that we have identified as the principal efficiency benefit accruing from pools. However, if small to medium-sized owners were precluded from entering into pools with larger owners, they could be deprived of the very scale efficiencies and access to resources and technical skills that justify the decision in the first place. The likely alternative would in many cases be either that they would operate as very small operators on a much reduced scale or not operate at all: either way, the alternative would be less competitive, or at least not more competitive.

1621. The second qualification in terms of efficiencies that can be taken into account is that they must not result only from the elimination of costs that are inherently part of competition, but must result from the integration of the economic activities. As Albers puts it,[395] explaining what is meant by the elimination of costs that are inherently part of competition, "the negotiation and conclusion of sales contracts, cannot be considered." However, this seems a somewhat extreme view. Paragraph 153 of the Guidelines specifically allows "cost savings through reduced duplication of resources and facilities" to be accepted for joint commercialisation agreements which create efficiencies. This is subject to the proviso that the joint commercialisation represents no more than a sales agency with no it is likely to be a disguised cartel and as such cannot fulfil the conditions of Article 81(3). As we have tried to show in this report, however, we do not consider that tramp shipping pools that integrate commercial management and operational functions can be properly described as sales agencies.

1622. Savings on employment costs and headcount seem to us to be cost savings which should be accepted as leading to genuine economic efficiencies within the meaning of Article 81(3). Albers,[396] relying on paragraph 49 of the Guidelines, adds the further qualification that "any savings that arise from the mere exercise of market power by the providers cannot be taken into account". We have no quibble with this statement. In an industry where the matching of supply to demand would appear to have such an immediate effect on rates, it is not so much the issue of cost saving that is important in terms of showing increased efficiencies, but, more importantly, more efficient employment of capacity ensure a better match between supply and demand. This does not preclude the pool striving to minimise its costs by deploying the vessels in the most cost efficient way; but for the reasons given, owners are generally in a better position to achieve this with larger fleets.

1623. The Guidelines also appear[397] to limit the availability of the efficiency defence to cases where the products are widely distributed consumer goods than where they are industrial products only bought by a limited number of users. In fact, as was made clear in the general description of the shipping market, freight costs are always a very small proportion of overall unit costs for products and only represent a small fraction of the overall supply chain costs. Further more freight transport is a highly homogeneous product with easy supply side substitutability and on the whole low barriers to entry. In this respect freight costs are more analogous to commoditised consumer products than to industrial products.[398]

1624. Clearly each pool has to be assessed on its own merits and the different factors weighed up.

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395 Albers, *op.cit.* at p. 126.

396 Albers, *op.cit.* at p. 126.

397 Horizontal Guidelines, Para 151. See footnote 326.

398 Contrast some of the products being carried by tramp shippers, especially heavy engineering equipment and other such neo-bulk items.

6.5.2 *Fair share of benefits to consumers*

1625. We take "consumer" to cover the immediate beneficiary of the maritime transport service namely the undertaking that enters into the relevant CoA, time charter or voyage charter (generally speaking, the charterer and/or cargo owner), as well as the ultimate consumer further down the supply chain.

1626. The various economies of scale and scope that we have identified above that can be expected to contribute to net consumer welfare in a number of ways. In particular:

(a) pools offer greater flexibility in the service that can be offered to customers and so contribute to greater customer choice;

(b) given that pools are better able to contract CoAs, a customer wanting to hedge future service requirements through entering into CoAs has a greater choice of providers than if there were not any pools and small owners operated independently;

(c) it has been suggested to us that cargo owners negotiating with smaller independent owners have less leverage when chartering on the spot market: all they can do is switch from one spot operator to another, whereas if the operator is able to offer a choice of time charters, CoAs and spot deals, the cargo owner itself enjoys more commercial flexibility;

(d) pools are in a stronger position to negotiate faster and lower priced access to port facilities and in obtaining port equipment, from which the customer directly or indirectly benefits;

(e) the security of knowing that the vessel is part of a larger pool with better training for crew, higher standards and more efficient technical competence than could be assured by a small independent owner may make a difference to a customer choosing its operator and hesitant to risk switching from one of the very large suppliers in the market;

1627. Economic benefits can generally be assumed to translate into benefits for customers in the form of lower transactional costs, increased service availability and greater capacity and therefore enhanced flexibility.

1628. For transport customers the financial benefit of dealing with a pool instead of with several separate owners translates into lower transactional costs. The benefits are particularly clear if the customer requires a complicated journey, have vast volumes that needs transported or do not have the time to make all the necessary enquires to organise the journey and possibly re-arrange it if something goes wrong.

1629. Another financial benefit is the increased service availability which means that the customer rarely has to wait for a vessel as there are generally available vessels in the vicinity which translates into quicker deliveries of his goods (no waiting for ships) and better service to his customers in turn.

1630. Moreover, the pool can provide greater capacity which is indispensable to those customers with large volumes who cannot risk not being able to get their cargo transported as non-delivery may, at best, result in non-payment, at worst, result in damages.

1631. The increased utility for buyers of pools services is therefore potentially clear. These can in our view be assumed to be passed on to customers, and ultimately consumers, provided that a pool does not enjoy any excessive market power in its relevant market. The assumption can therefore be made provided that the fourth criterion under Article 81(3) is met.

1632. The role of pools can be even more important in markets with strong buyer power, and it may be the only way in which demand is adequately satisfied. For instance, the pools one finds in the LPG market were created in response to the concentration in the buyers' market, and thus the supply side of the market had to adjust in order to accommodate the increased demand. Pools may therefore be a direct response to customer demand for a particular scale and level of service not feasible independently.

6.5.3 *Indispensability*

1633. The application of the indispensability test will differ depending whether a pool is analysed as a joint production agreement or a joint commercialisation agreement. We have set out the various arguments above. In the former case it is clear that to the extent necessary for the joint venture to carry out its joint activities and for a joint venture that also distributes jointly to sell to third party customers, restrictions on output and price are automatically permitted so long as the underlying joint venture is permitted. In other words they are presumed to be ancillary to the agreement. The Specialisation Block Exemption specifically exempts such restrictions, subject to the overall market share cap of 20% of the relevant market.

1634. In the latter case, by contrast, such hardcore restrictions are presumed to infringe the basic prohibition in Article 81(1) and are valid only if they satisfy Article 81(3), in particular the indispensability test.

1635. The criteria that need to be taken into account are set out at Paras. 154 *et seqq.* of the Horizontal Guidelines. These indicate that the "question of indispensability is especially important for those agreements involving price fixing or the allocation of markets". In Para 74 of the Guidelines on the application of Article 81(3) it is noted that the decisive factor whether the restrictive agreement and individual restrictions is not the assessment of counter-factual but whether more efficiencies are produced with the agreement or restriction than in the absence of the agreement or restriction.

1636. In relation to joint selling agreements in the oil and gas industry, Albers has suggested that "price fixing will rarely be indispensable for the joint marketing of electricity or gas, being homogenous products where branding plays only a secondary role." Self-evidently this is not the case for pools that are fully integrated, with a single pool manager who is the main point of contact with customers and brokers and in particular those where the vessels are painted in the colours of the pool and all related services are branded as pooled services.

1637. Given that in the typical pool structure we have seen, the pool manager (or the relevant corporate entity that fulfils that function) fulfils all the main commercial and operational functions, it would not make any sense to remove the function of fixing vessels and to have independent pricing by the members. Pricing and scheduling of vessels and selection of the appropriate charter or contract or charter or contract period are intrinsic to the commercial function. This enables the pool to make the relevant cost savings in terms of staff, bookkeeping and administration. Indeed it appears to us that there must be a risk that if one removed those functions from the pool manager one would jeopardise the attainment of the efficiencies of the pool.

1638. A pool that does not have integrated commercial functions and an ability flexibly to deploy the pooled vessels to maximise the revenue earning potential of the fleet would not work as efficiently. For example, where two vessels could be equally able to deployed service a particular contract to meet demand for a particular voyage charter, time charter or nominated to perform a voyage within a CoA. It is important that the system should allow the vessel that is best placed to perform the relevant commitment he made available so as to compete more effectively with service provider outside the pool. A system with internal price competition would not in our view create any additional efficiencies. The efficiency of the pool is enhanced if it could focus on outside competitors rather than the pool manager having a passive role. According to the Court of First

Instance in *GlaxoSmithKline* the European Commission it is always necessary in applying Article 81(3) to balance objective advantages for competition of a particular provision within the meaning of Article 81(3) against the disadvantage identified in the application of Article 81(1).[399] Where there is efficient competition from outside the pool, there seems to be no reason to deprive a fully integrated pool that operates as one entity on the market of the benefit of Article 81(3).

1639. The fact that the consultants have identified one particular pool that does not involve such integration but is limited to joint scheduling does not imply that the integration of the commercial function can never be treated as indispensable.

1640. In most cases, the consultants believe that a pool without an integrated commercial function would offer few of the advantages that would otherwise accrue over and above the alternative of independent trading through a small in-house team and/or brokers. It also gives little incentive for joint investment in technical improvements such as new quayside cranes and gear and new IT systems, as mentioned above. All that would be left is some saving of personnel costs associated with the management (including joint scheduling) of the vessels and some sharing of technical and managerial know-how.

1641. At the same time it would be highly confusing for the market. Pools are all known to operate as one entity and compete with independent operators and other pools – and customers expect to deal with a single entity. So long as pools do not enjoy market power within the relevant market in which they operate there is little risk of any harm to competition resulting from the practice of putting all the relevant commercial functions into the hands of a pool manager.

1642. Albers indicates that the relevant criterion is whether "the joint determination of prices [is] indispensable for the integration of certain marketing functions into the joint selling of energy".[400] He states that this requires it to be demonstrated that "a certain marketing activity envisaged by the providers would become absolutely impossible if they could not jointly agree on prices. For example, should the providers plan to jointly sell energy under a common brand name; they cannot do so without fixing the price for the energy offered."[401] Similar reasoning must apply to pooled shipping services that are marketed as an integrated service separate from the members' own operations and branded accordingly.

1643. The one pool that we have encountered that does not centrally determine rates appears to be the exception that proves the rule and we are not aware of what specific commercial factors lay behind the parties' choice of this structure. From their experience of the shipping industry the consultants can say that it was not typical.

1644. In addition to the price and output provisions there may be other clauses in pool arrangements that require analysis under Article 81(3) and testing for indispensability.

1645. The detailed analysis at the general remarks section above[402] has identified a number of provisions common to most pooling arrangements that to a greater or lesser extent restrict the commercial independence of the parties and therefore need testing against the third of the Article 81(3) criteria. We analyse each of the most typical restrictions in turn.

1646. The most common restriction is the non-compete restriction where pool members agree not to compete against the pool if the members have vessels outside the pool which could operate in the

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[399] T-168/01 *GlaxoSmithKline,* Judgment of 22 September 2006, [2006] 5 CMLR 29, at point [307].

[400] *Op. cit.*, at p. 126

[401] Albers, *ibid.*

[402] Paragraphs 1445 to 1457.

same trade. Similar restrictions imposed on parties in a joint venture have been accepted as ancillary restrictions to the agreement.[403] It is traditionally assumed that the parent companies to a joint venture will not have any commercial incentive to compete with the joint venture that they have established. The European Commission acknowledged as much in *WANO Schwarzpulver*[404] where it stated:

> "Parties who hold significant stakes in a joint venture will not within the field of such a joint venture compete with each other's activities or with the activities of the joint venture, even if they are contractually free to do so."

1647. This would tend to imply that in the context of a joint venture a formal non-competition covenant might not have any real impact on competition in practical terms as even in the absence of it the parent companies would not have the incentive to compete with each other or the joint venture and there would be no restriction of the competition that might otherwise have occurred. On such an analysis the non-competition covenant correctly falls to be analysed as an ancillary restriction, and its effects, anti-competitive or otherwise, fall to be determined by reference to the market position of the parent companies on the relevant market and the overall economic effects of the venture.

1648. A non-compete covenant need not have any *de facto* effects on competition in the typical shipping pool. This may particularly be the case where members of the pool do not have their own chartering departments and have chosen to operate all their vessels through a pool, because they are too small or for whatever other internal or external reason: looking at the counterfactual position in such cases, the answer must be that the restriction would have no practical impact anyway.

1649. An express restriction is indispensable only if it is necessary to achieve the efficiencies, and specifically must make it possible to perform the activity in question more efficiently than would likely have been the case in the absence of the restriction.[405] The parties must demonstrate that in the absence of the restriction the efficiencies brought about by the agreement would be eliminated or significantly reduced or would be significantly less likely to materialise.[406]

1650. There seems to us to be an argument that, provided the underlying collaborative arrangements are exempt on the grounds that they create efficiencies, restrictions designed to ensure that the parties do not circumvent the exempt arrangement should be treated as indispensable and equally exempted. Once a particular vessel is placed into a pool it would not make sense if an owner could willingly use it for other purposes: that would destroy the very efficiency advantage of the pool in terms of putting greater vessel capacity at the pool manager's disposal, and hence the greater service flexibility that it allows a pool to offer customers. The pool manager could no longer rely on being able to deploy the pooled vessels in the way best suited to maximising their efficient utilisation, since vessels could be used independently by owners.

1651. That argument may not, however, be sufficient to justify a total restriction on competing activities as being indispensable, even if these are limited to directly competing areas. For instance, if a non-compete obligation extends to activities unconnected with those in which the pool trades or to vessels that trade in different markets, it ought *prima facie* not to be considered indispensable. Generally we found that the non-compete covenants analysed in the table of pool clauses in Annex 7 did not appear to contain any restrictions on activities that were unconnected to the specific

403 XXIVth Report on Competition Policy (1994), at point 166.
404 Decision of 20 October 1978 in Case IV/78.921 *WANO Schwarzpulver*, OJL 322/26 of 16.11.76, at para. 29.
405 Guidelines on the application of Article 81(3), para. 74, cited at footnote 329.
406 *Ibid*, para. 79

business or activities of the pool. If they were to extend to activities in other markets, this would have a "spillover" effect that would be hard to justify as indispensable.

1652. It may be that only a clause designed to restrict the use of individual vessels placed in the pool by owners for competing purposes would be indispensable, but it would not follow that it would be indispensable to restrict owners from acquiring other new vessels and operating them independently of the pool.

1653. A further possible justification for the insertion of a non-compete clause is the concern that parties to a pooling agreement might have that if competing activities were tolerated the parties would have no means of ensuring that they keep within the limits of any market share cap (20% in the case of the Specialisation Block Exemption) or continue to benefit from individual exemption under Article 81(3) in compliance with the fourth condition that there must be no foreclosure of competition. As was seen in the opening remarks in this Chapter[407], where parties operate both in one pool and in another both pools' market shares must be aggregated. Similarly if a party operates some vessels in a pool and some out of it, those vessels' market shares also fall to be aggregated.

1654. Nevertheless, the strongest argument in favour of the indispensability of a non-compete restriction in a pool agreement, it seems to us, would be that it is essential to maintain the cohesion of the fleet available to the pool once vessels are committed or else there is a risk that the efficiencies which the pool ought to bring about will be jeopardised or at least less likely to materialise. The anti-competitive effects of this could be mitigated by appropriate exit clauses allowing owners to withdraw from the pool on notice. As we have seen, the notice periods in typical pool agreements reviewed are generally for twelve months or less and therefore should be adequate to mitigate any non-competition restrictions.

1655. There is nevertheless a counter-argument that where pool agreements allow owners to place vessels of the same or a similar size and type outside the relevant pool, this could itself have a coordinating effect in accordance with the theory of "network" effects discussed above.[408] Paradoxically this could have the result that a non-compete clause may in fact prevent such risk of coordination and ensure that when members deal with a pool, or deal with an owner or operator that appears to be independent, they are in reality independent of each other and have not coordinated their behaviour.

1656. We take the view that the risk of coordinated conduct wherever a pool member has ships both in and out of the pool may be greater in the case of the quasi-liner markets. In the vast majority of tramp shipping markets, however, where spot market rates dictate the price of every fixture, there is likely to be no significant adverse effect on rates, provided there is enough remaining capacity in the market. In any event, in the traditional pool structure, pool managers have full authority to fix the pool vessels without reference back to the members within the scope of their authority, and there is no reason why the members' chartering departments (where there any) should know in advance about the rates that the pool manager intends to offer. This reduces any risk of coordinating effects. In any event these can be eliminated or mitigated by means of suitable firewalls designed to prevent unlawful exchanges of commercially sensitive information.

1657. There is also a question about the length of the non-competition clause and whether it is justified for only an initial start-up period to allow the pool to establish itself on the market, but not for longer. We are aware that in merger cases non-compete clauses are usually only considered to be

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407 See paras. 338 *et seqq.*.

408 *Ibid.*

ancillary to the concentration for three years;[409] similarly in its *Télévision par Satellite (TPS)* decision[410] the European Commission held that restrictions on competition could be exempted for a maximum period of only three years from launch of the relevant project. One of the parties to this arrangement (Canal +) had a 70% market share. The non-compete clause was exempted for the initial start-up period because the project was high-risk and involved heavy investment by the parties, but the clause was held to be ancillary only for the launch phase.

1658. These considerations do not apply in the case of pools in at all the same way, as pools are not full-function joint ventures. As for the *TPS* case, our evidence indicates few pools appear to have market share anywhere near as high as Canal + had. This decision may not therefore provide such a good analogy either in terms of the industry sector or the market power exercisable by the parties.

1659. The European Commission has in other joint venture cases accepted that there need be no time limit on the non-compete clause for as long as the joint venture is in existence. It stated that while "ancillary restrictions are normally only accepted for a limited period of time, in the context of joint ventures they are usually allowed for the whole duration of the joint venture".[411] Post-termination restrictions on competition would not in our view be likely to qualify as indispensable in most cases.

1660. It is, in conclusion, still an open issue whether non-compete provisions satisfy the requirements of Article 1(2) of the Specialisation Block Exemption in all, or some, cases and whether some less restrictive provisions might nevertheless be justified even if a full non-compete clause is not.

1661. Some agreements analysed contained exceptions from the non-compete clause for longer CoAs offered to a member of a pool, provided the member obtained consent from the other pool participants. Such a restriction could therefore be considered as a lighter form of a non-compete clause. We do not have any specific information about these circumstances in which such clauses were deemed necessary, or those in which the option might be exercised. However, we suspect that the situation would generally only arise in response to specific requests from customers to deal with a named member. At any rate, this situation is likely to arise with a specific customer in a specific case, and would not in our view affect the principal argument in favour of pools, namely that the pool is better placed than an individual owner to enter into CoAs. There might be some reasons why a non-compete obligation in a pool agreement might equally be considered ancillary and hence indispensable. However, if a non-compete obligation extends to activities unconnected with those in which the pool trades, it ought *prima facie* not to be considered indispensable. For instance vessels that are in a different market, the non-compete covenants analysed in the table of pool clauses in Annex 7 did not appear to us to contain any restrictions to activities that were unconnected to the specific business or activities of the pool. If they were to extend to activities in other markets, this would have a "spillover" effect that would be hard to justify.

1662. There is an argument that provided support for the principle that provided the underlying collaborative arrangements are exempt restrictions designed to ensure that the parties do not circumvent the arrangement should be treated as ancillary. Once a vessel is placed into a pool it would not make sense if an owner could willingly use it for other purposes: that would destroy the very advantage of the pool in terms of putting greater vessel capacity at the pool manager's disposal, and hence the greater service flexibility that it allows a pool to offer customers. The pool

409 Commission Notice on restrictions directly related and necessary to concentrations, OJC 56/24 of 5.3.2005, paras. 36 *et seqq.*

410 Decision of 3 March 1999 in *Télévision par Satellite (TPS)* [1999] OJL 90/6.

411 XXIVth Report on Competition Policy (1994).

manager could no longer rely on being able to deploy the pooled vessels in the way best suited to maximising their efficient utilisation, since vessels could be used independently by owners.

1663. We are aware that in merger cases non-compete clauses are usually only considered to be ancillary to the concentration for three years;[412] similarly in its *Télévision par Satellite (TPS)* decision[413] restrictions on competition were held to be exempt for a maximum period of three years from launch of the relevant project. One of the parties to this arrangement (Canal +) had a 70% market share. The non-compete clause was exempted for the initial start-up period because the project was high-risk and involved heavy investment by the parties, but the clause was held to be ancillary only for the launch phase.

1664. These considerations do not apply in the case of pools in at all the same way, but against that few pools appear to have market share anywhere near as high as Canal + had. This decision may not therefore provide such a good analogy either in terms of the industry sector or the market power exercisable by the parties.

1665. A further possible justification for the insertion of a non-compete clause is the concern that parties to a pooling agreement might have that if competing activities were tolerated the parties would have no means of ensuring that they keep within the limits of any market share cap (20% in the case of the Specialisation Block Exemption) or continue to benefit from individual exemption under art. 81(3) in compliance with the fourth condition that there must be no foreclosure of competition. As was seen in the opening remarks in this Chapter, where parties operate both in one pool and in another both pools' market shares must be aggregated. Similarly if a party operates some vessels in a pool and some out of it, those vessels' market shares also fall to be aggregated. That may not be sufficient to impose a total restriction on competing activities, even if these are limited to directly competing areas.

1666. The strongest argument, it seems to us, would be that it is essential to maintain the cohesion of the fleet available to the pool once vessels are committed. The anti-competitive effects of this could be mitigated by appropriate exit clauses allowing owners to withdraw from the pool on notice. As we have seen, the notice periods in typical pool agreements reviewed are generally for twelve months or less and therefore should be adequate to mitigate any non-competition restrictions.

1667. It is, however, still an open issue whether non-compete provisions satisfy the requirements of Article 1(2) of the Specialisation Block Exemption in all, or some, cases.

1668. Some agreements analysed contained exceptions from the non-compete clause for longer CoAs offered to a member of a pool, provided the member obtained consent from the other pool participants. Such a restriction could therefore be considered as a lighter form of a non-compete clause. We do not have any specific information about these circumstances in which such clauses were deemed necessary, or those in which the option might be exercised. However, we suspect that the situation would generally only arise in response to specific requests from customers to deal with a named member. At any rate, this situation is likely to arise with a specific customer in a specific case, and would not in our view affect the principal argument in favour of pools, namely that the pool is better placed than an individual owner to enter into CoAs.

1669. The exit clauses found in the agreements related to notice periods which generally ranged from six to twelve months both for withdrawal of vessels from the pool and withdrawal from the pool as a whole. The lengths of the notice periods relate to the length of the commitment of the vessels. The

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[412] Commission Notice on restrictions directly related and necessary to concentrations, OJC 56/24 of 5.3.2005, paras. 36 *et seqq.*

[413] Decision of 3 March 1999 in *Télévision par Satellite (TPS)* [1999] OJL 90/6.

pool manager or the member with a similar function usually has authority to fix vessels for up to 12 months, any longer contract requiring approval by either all members or committees consisting of members or members' representatives. In order to fulfil the contracts it is necessary to have notice periods which correspond to the length of the contract entered into for the vessels. Exit clauses and the corresponding notice periods are therefore necessary and directly relevant to the pool and should for that reason be considered as ancillary and hence indispensable.

1670. The European Commission has in the past been prepared to exempt a vessel sharing agreement (VSA) with a 24 month notice period in view of the highly integrated nature of the VSA.[414] One of the parties had made considerable investments in the acquisition of vessels and two others had to contributed to financing those investments; in addition, they, and one other participant, had agreed to withdraw their existing vessels in favour of the newly acquired one. The European Commission accepted that these facts demonstrated the highly integrated nature of the VSA and justified the long notice period. Although this example is taken from the liner industry, it would appear to confirm a general principle that a longer notice period is more likely to be considered reasonable and indispensable the more integrated the nature of the cooperation.

1671. There are only some of the contracts analysed which contain lay-up clauses. Those which do, usually require consent from the other participants of the pool. As a laid-up vessel does not contribute any earnings to the pool, which in turn affects the net revenue and the distribution of the earnings, it is appropriate that the other participants should be entitled to have a say in relation to any decision on lay-ups. Any restrictive lay-up clauses are therefore relevant to the functioning of the pool and should therefore be regarded as ancillary and hence indispensable.

1672. As for any differences in various segments, customers in some markets are more dependent on pools than in others. For instance, the chemicals transport market is subject to great buyer power. There is a small number of powerful chemicals producers who have huge transportation requirements and demand for flexibility and a large number of vessels. Pools are therefore used as a way of making tonnage available for these producers. Although there are other fairly large players, in addition to the pools, in the market, it would not be enough to satisfy demand. It could therefore be argued that pooling is indispensable to enable demand to be adequately satisfied.

1673. In the LPG market it has been seen that all major customers such as BP, Shell, Borealis *etc.* have huge transport requirements intra-Europe, with several of the contracts comprising 500,000 tonnes whereas the vessels that carry the cargo are much smaller (up to 10,000m^3). It would therefore be extremely difficult for independent owners to commit to such contracts. Moreover, if the customers were to deal with the owners/operators directly it would create logistical difficulties. In order to transport the required large volumes on relatively small vessels frequent sailings are essential and if one of the vessels were to be out of service a replacement vessel, which must be both instantly available and suitable, would be required. If the replacement vessel is unavailable another owner or operator would have to be contacted *etc.* Pooling of vessels is therefore indispensable to meet customer demand. As for new entrants, a fleet of at least 8-10 vessels is required to carry out the transportation of large volumes in the main contracts, which makes the barriers to entry rather high. However, by joining a pool, only a single vessel is required.

6.5.4 *No elimination of competition*

1674. According to the Guidelines, "no exemption will be possible, if the parties are afforded the possibility of eliminating competition in respect of a substantial part of the products in question. Where as a consequence of a production agreement an undertaking is dominant or becoming dominant, such an agreement which produces anti-competitive effects in the meaning of Article 81

[414] XXIVIIth Report on Competition Policy (1997), at p. 135.

can in principle not be exempted. This has to be analysed on the relevant market to which the products subject to the co-operation belong and on possible spill-over markets."[415]

1675. In this context it is worth recalling that in assessing the possible foreclosing or other anti-competitive effects that a given agreement has on the relevant market it is necessary to take account of any other agreements in which one or more of the parties participate outside the agreement immediately under consideration. Such effects may be felt both within the relevant market and in related markets, including markets upstream and downstream of the market under consideration.[416]

1676. The evidence does not indicate that pools have been able to use their joint resources and combined market power to push prices up at any time in any segment of the industry. Where there are pools, they operate as a single commercial entity in competition with other operators (both independent and pooled) and the freight rates show all the signs of responding to normal forces of supply and demand without the existence of pools apparently causing any distortions

1677. Clearly there is a risk of pools being able to exert market power to the detriment of competition in any relevant market where they enjoy a high market share and/or other competitive advantages (such as technical superiority) and face weak competition from outside their pool.

1678. It is therefore important to verify whether there is any risk of abuse of market power and/or risk of foreclosure of third parties in accordance with the fourth criterion in Article 81(3).

6.5.5 *The Specialisation Block Exemption*

1679. Unilateral and reciprocal specialisation agreements, and joint production agreements, together with any "ancillary restrictions" contained in them, are in principle exempted by Article 1 of European Commission Regulation 2658/2000 on specialisation agreements (the Specialisation Block Exemption)[417], subject to a basic market share cap of 20%.[418] Recital 8 confirms that the benefit of the Regulation extends to agreements on specialisation in the provision of services as they "generally give rise to similar improvements".[419]

1680. The term "specialisation" is defined[420] as including three types of arrangements and specifically includes arrangements where services are provided jointly, namely:

"…..

(c) Joint production agreements, by virtue of which two or more parties agree to produce certain products jointly."

1681. This exemption is extended to purchasing and marketing arrangements where:

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415 Horizontal Guidelines, para 105. See footnote 326.

416 See generally discussion at paras. 1536 *et seqq*. The calculation of the market shares held by pools set out in Section 5.7.2 take this principle into account. For examples of pools with common members, see paras. 1406 *et seqq.*

417 Commission Regulation (EC) No. 2658/2000 of 29 November 2000 on the application of Article 81(3) of the Treaty to categories of specialisation agreements, OJL 304/3.

418 See Articles 4 and 6, and more detailed summary below.

419 See also Article 2(4) defining "product" as including "a good and/or a service…with the exception of distribution and rental services". See footnote 417.

420 In Article 1(1) of the Specialisation Block Exemption. See footnote 417.

(a) The parties accept an exclusive purchase and/or exclusive supply obligation in the context of a unilateral or reciprocal specialisation agreement or a joint production agreement, or

(b) The parties do not sell the products which are the object of the specialisation agreement independently but provide for joint distribution or agree to appoint a third party distributor on an exclusive or non-exclusive basis in the context of a joint production agreement provided that the third party is not a competing undertaking[421].

1682. European Commission Regulation 2658/2000 does not apply to joint production agreements that directly or indirectly fix prices of products sold to third parties, limit output or sales or allocate markets or customers[422] except in so far as the parties are only either:

– Setting the capacity and production volume of the production joint venture; or

– setting sales targets or fixing prices that a production joint venture charges to its immediate customers where the parties do not sell the products which are the object of the agreement independently but provide for their joint distribution or appoint a third party (provided it is not a competing undertaking) to distribute them on an exclusive or non-exclusive basis.[423]

1683. In the consultants' opinion, there is no reason in principle why European Commission Regulation 2658/2000 cannot be invoked by independent owners of tramp vessels who decide to integrate the management and operation of their vessels through a pool by appointing a pool manager or one of their members to manage, fix and operate those vessels on their behalf. The scope of the Regulation appears broad enough to cover the three different legal routes available for achieving a pooled fleet of vessels, *e.g.* the pool manager may have the right to sub-charter the vessels on common, pre-agreed, terms, or may be constituted a full commercial agent with power to contract on his principals' behalf (whether on a disclosed or undisclosed basis), or he may have jointly been given the power to direct the owners to enter into particular chartering arrangements that he has negotiated. However, as discussed below, there are some legal issues and issues of legal construction which require further analysis.

1684. The first important issue is whether a pool can be considered to be covered in view of Article 2(4) of the Specialisation Block Regulation which defines "product" as including "a good and/or *a service*, including both intermediary goods and/or *services*, *with the exception of distribution and rental services*" (emphasis added). The arguments are quite technical. We see Article 2(4) as intended to prevent the application of the Regulation to cartel-like arrangements. For instance, if it did apply to the joint provision of distribution services, a number of competing product manufacturers might have argued that the Regulation entitled them to distribute each other's manufactured goods through specialisation, or by agreeing to produce "distribution or rental services" jointly, and that this arrangement would be covered by block exemption: it would in fact risk being a disguised price fixing cartel or unlawful joint selling that would clearly offend against Article 81(1).[424] The definition, in adding that the Regulation although drafted in terms of goods applied also to services, needed to make it clear that it did not apply where manufacturers of goods specialised in the service of distributing their goods, and that in our view is all that the definition seeks to achieve.

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421 Article 3 of the Specialisation Block Exemption. See footnote 417.

422 *Ibid* ,Article 5(1), and more detailed summary below. See footnote 417.

423 *Ibid* Article 5(2), and more detailed summary below. See footnote 417.

424 *Cf.* for instance *Milchförderungsfonds*, [1985] OJL 35/35 concerning joint promotion of milk and dairy product exports.

1685. In the context of service providers, the position is slightly more complex since it is not immediately evident what could be meant by the "distribution" of services. That could, however, apply where a service provider subcontracts certain services to a third party, and merely re-supplies those services to the customer: *e.g.* a lawyer providing advice on competition law who subcontracts with an economist to provide specialised economics advice and re-supplies that advice to his client without adding any extra. If a number of economists were to create a joint entity which merely priced their service in common and marketed and re-supplied those services to third parties that would arguably not be covered by the provisions of the Specialisation Block Exemption as the function of the joint service entity would be restricted merely to (re-)distributing the same services.

1686. The extension of the exclusion to rental services is in our view simply designed to prevent manufacturers avoiding the exclusion for distribution services by providing for the goods to be rented rather than sold by the joint venture. We do not therefore consider that the exception for distribution services (or rental services for that matter) has any relevance to pools provided that it can be said that the services provided by the parent companies and the joint venture are distinct, or that the specialisation relates to distinct services that are not the same as those services that the parents retain. Still less does the definition exclude the application of the Regulation to cases where there is joint production or provision of services covered by Article 1(1)(c) coupled with joint marketing arrangements within the meaning of Article 3, as summarised above, just because this would additionally include the joint distribution of services. In appropriate cases we believe that the Specialisation Block Exemption can apply to agreements providing for the incidental distribution of services as part of an agreement for the joint production of services properly covered by Article 1(1) (c).

1687. We have already drawn attention to the basic question whether the functions performed jointly by a pool are merely akin to distribution or actually go to the heart of the provision of the tramp vessel services so that they should correctly be equated with production. We have stated very firmly our view that the pool manager in a typical pool agreement does not distribute any services received from the owners, let alone perform rental services for owners, even though the pool manager may be chartering vessels in and then chartering them out. It makes no difference in our view whether the owner is a fully fledged ship owner with a track record of owning ships, or a KG that utilises third party know-how and resources to manage the ownership for it. In neither case is the pool manager a passive redistributor of services received from the owner.

1688. Even where the pool manager acts as agent for the owners, he does more than merely provide services in the nature of distribution.

1689. The chartering of the vessels to customers is merely the legal mechanism whereby the service is provided in the tramp vessel markets: the real service provided is the provision of transport at a given time and place and for a given period, involving careful scheduling of vessels and coordination of vessel movements which are intrinsically different in nature from the services provided, for instance, by the logistics company that delivers manufactured goods.

1690. The question that in our view has to be asked is anyway not whether the services that the pool manager provides to customers are for the distribution of the customers' goods, but whether the functions that are jointly organised through the pool represent distribution of services that the owners provide to the pool manager. The answer to that question is in our view "no" and we see no reason why Article 2(4) should disapply the Regulation.

1691. Another issue raised is whether the term "specialisation" precludes the application of the Specialisation Block Exemption to the situation where an owner places all his vessels in the pool. Article 1 defines specialisation as covering not only specialisation *stricto sensu*, but also "joint production agreements, by virtue of which two or more parties agree to produce certain products jointly." This was added at the time of the adoption of Regulation 2658/2000 in 2000 and was not in the original block exemption.[425]

1692. The word "certain" in our view requires the scope of the joint venture to be *made certain* by specifying which goods or services are subject to joint production. It does not in our view seek to limit owners from delegating commercial management and operational functions to a pool, particularly where this provides customers with enhanced services compared to what the owner could provide alone.

1693. While block exemption regulations, being exceptions to the prohibition in Article 81(1) need to be read restrictively, there is no reason to exclude the Specialisation Block Exemption from applying to pools simply because the pooling affects all vessels in the owner's fleet, provided the services that are pooled are sufficiently made certain.[426]

1694. Furthermore it is appropriate to consider the extent to which the 20% level at which the market share limit has been set is an appropriate level at which to set it for pools in the tramp industry or whether a higher or lower limit might be justified.

1695. As it happens the majority of pools would on our estimates of market share qualify even under the current threshold of 20%.

1696. It will be recalled that only in a minority of relevant markets do pools enjoy market shares of 20% or over.[427]

1697. Finally, it is also a condition of the block exemption that agreements should not contain any restrictions on competition that are not ancillary, defined as not constituting the primary object of the specialisation agreement but directly related to and necessary for its implementation.[428] The example is given of the assignment of intellectual property rights.

1698. In the context of shipping pools, this would cover a number of the key provisions governing the management and deployment of the vessels in the pool, and arrangements for the fixing of those vessels, including the setting of the relevant freight rates or charter hire by the pool manager.

1699. In our analysis, chartering, cross-chartering and other similar arrangements needed to ensure that the pool can provide the relevant transport services are clearly within the intended scope of this provision.

1700. The question nevertheless arises whether such arrangements might be considered to go further than necessary if they are of a long-term nature. It is in our view difficult to give a single answer to that question as each agreement has to be assessed in its particular economic context.

1701. The position of non-compete clauses is also, in our view, unclear. By this we mean clauses whereby members may not operate independently of the pool or may not do so without Board

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425 Commission Regulation 417/85 of 19 December 1984 on the application of Article 85(3) of the Treaty to categories of specialisation agreements , OJL 53/1 22.2.85, as amended.

426 As the Court of Justice held in Case C-234/89 *Delimitis* [1991] I ECR 935 the reference in Commission Regulation 1984/83 (the Regulation that once covered exclusive purchasing agreements but has since been superseded by the Vertical Block Exemption) to "certain beers specified in the agreement" merely required those beers to be listed and nothing the Court said in its judgment in our view suggests that it could not include all the supplier's range. However, we acknowledge that this may be an inadequate analogy as the relevant block exemption regulations cover (or covered) very different commercial situations and relationships.

427 Specifically these are ammonia and LPG (31% and 21% respectively): see Section 6.2 below.

428 Article 1(2) of the Specialisation Regulation. See footnote 417.

consent or the consent of the other members. We suggested above[429] that it was possible to argue that they could be treated as indispensable because they are needed to ensure that the pool manager has as his disposal a full fleet of vessels at all time, which is an essential prerequisite for achieving the efficiencies of the pool. In any event, they may have few effects on competition as even without them the members of the pool would have little incentive to compete. There may nevertheless be differences between markets in the effects that a non-competition covenant has, and its ancilliarity to the pool arrangements.

1702. We have raised the question whether it might not be appropriate to raise the 20% level at which the market share limit has been set to a higher level in the case of shipping pools in the tramp industry bearing in mind that liner consortia are subject to a 30% or 35% level.

1703. In summary, if the Specialisation Block Exemption could in principle be applied to shipping pools, the majority of them can probably benefit from block exemption as the law already stands. The block exemption would then automatically extend to any provisions whereby the parties agree jointly to set the capacity or production volume of the joint venture or to set sales targets or the "price" charged to third parties for products sold by the joint venture. In the context of shipping pools, this would cover a number of the key provisions governing the management and deployment of the vessels in the pool, and arrangements for the fixing of those vessels, including the setting of the relevant freight rates or charter hire by the pool manager.

6.5.6 *The Liner Consortium Regulation*

1704. The Liner Consortium Regulation (Regulation 823/2000) currently applies only to a defined category of consortium agreements "between two or more vessel-operating carriers which provide international liner shipping services exclusively for the carriage of cargo, chiefly by container, relating to one or more trades….".[430] It cannot apply to pools in the tramp sector as tramp services, unlike liner services, are not generally containerised. It would require a legislative change at Council level as the empowering Regulation itself[431] does not extend to tramp shipping.

1705. In any event, the Liner Consortium Regulation, as it stands, is unsuitable for pools so far as they directly or indirectly lead to joint fixing of prices. Furthermore, Recital 8 of the Liner Consortium Regulation specifically provides that the Regulation "does not cover the joint fixing of freight rates" and Article 5 requires either effective price competition between the members of the consortium even if they are part of a liner conference, or effective competition on the basis of services, or effective competition, actual or potential, from shipping lines which are not members of the consortium. If tramp shipping pools were subject to the Regulation, it would be necessary to show that they satisfy the last of these conditions, namely that they were subject to effective competition from owners or operators having no connexion with the pool.

1706. The block exemption does, however, apply to activities including "the pooling of vessels and/or port installations"[432] and "the participation in one or more of the following pools: cargo, revenue or net revenue"[433], as well as "any other activity ancillary to those referred to above…which is necessary for their implementation."[434]

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429 Paras. 1646 *et seqq.* above.

430 Regulation 823/2000 See footnote **Error! Bookmark not defined.** Article 2(1).

431 Council Regulation 479/92 on the application of Article 85(3) of the Treaty to certain categories of agreements, decisions and concerted practices between liner shipping companies (consortia), OJL 55/3 of 29.2.92, as amended.

432 See footnote 431. Article 3(2)(a)(iii).

433 *Ibid* Article 3(2)(d).

434 *Ibid* Article 3(2)(g).

1707. The block exemption for liner consortia is only available subject to the condition that the consortium "must possess on each market upon which it operates a market share of under 30% calculated by reference to the volume of goods carried (freight tonnes or 20-foot equivalent units) when it operates within a [liner] conference, and under 35% when it operates outside a conference."[435]

1708. These caps on market share were imposed in order to ensure that agreements covered by the block exemption satisfied the fourth test under Article 81(3), namely "did not afford the undertakings the possibility of eliminating competition in respect of a substantial part of the products in question". Recital 15 states that exemption is limited "to consortia which do not have the possibility of eliminating competition in a substantial part of the services in question".

1709. The differential in the market share caps (30% and 35% respectively, according to whether the consortium includes one or more members of a liner conference or not) is justified as being necessary as "the agreements in question are superimposed on an existing restrictive agreement".

1710. Recital 20 indicates that "consortia which exceed the limit should be able to obtain exemption by individual decision, provided that they satisfy the tests of Article 81(3), regard being had to the special features of maritime transport." Parties in such cases need to carry out their own self-assessment.

1711. Before the Regulation could be extended to pools in the tramp sector the question would arise whether such market share levels would be appropriate in the case of maritime transport services that, unlike liner services, are unscheduled and not systematically advertised. Is there something in the fact that liner services are advertised and scheduled in advance, between advertised ports and at pre-determined sailing dates, in standardised containers, that justifies different treatment from tramp vessel services?

1712. Article 3 lays down the activities which automatically benefit from exemption pursuant to Article 81(3) subject to the agreement complying with the relevant conditions laid down elsewhere, including the condition in Article 6 that imposes a share on the parties' aggregate market share of 30% (where one or more members are also members of a liner conference) or 35% (where none of them is).

1713. If one examines Article 3 one can see that several of the joint activities permitted are similar to the activities members of a tramp shipping pool would normally entrust to a pool manager or to the member who operates the pool (depending on the model chosen).

1714. Article 3(2)(iii), for instance, block exempts "the joint operation of *liner shipping* transport services which comprise solely the following activities….(i) the coordination of *sailing timetables* and the determination of ports of call; (ii) the exchange, sale or cross-chartering of space *or slots* on vessels; (iii) the pooling of vessels and/or port installations; (iv) the use of one or more joint operations offices; … (vi) the use of a computerised data exchange system and/or joint documentation system". The words in italics are relevant only in the case of liner services and do not as such apply to tramp shipping.

1715. Article 3(2)(c) also block exempts "the joint operation or use of port terminals and related services (such as lighterage or stevedoring services)".

1716. Article 3(2)(d) also block exempts "the participation in one or more of the following pools: cargo, revenue or net revenue".

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435 *Ibid* Article 6(1), subject to a small margin as set out in Article 6(2) and (3).

1717. Article 3(2)(f) also block exempts "a joint marketing structure and/or the issue of *a joint Bill of Lading*". The reference to a joint Bill of Lading is not suitable in a tramp shipping context, but would have to be amended to refer to charterparties of contracts of affreightment in agreed form.

1718. However, in considering any changes to the Liner Consortium Regulation, the European Commission would need to address the issue of how to deal with pool agreements that are more than mere vessel sharing arrangements, but which feature a commercial pool manager with power to fix vessels with specific customers, to determine (within agreed parameters) commercial strategy (in particular the mix between spot and long-term business) and to fix the relevant charter rates and terms of charterparties with the charterers or other third party customers requiring the services. This would present a problem regardless of the model chosen (administration pool or members' pool) and whether the pool manager is required to sub-charter the vessels or charters them as agent for the members. The problem arises wherever the pool manager's functions include the commercial management of the vessels.

1719. We have discussed at length the argument that such agreements could involve an agreement or concerted practice between the members with the object and effect of directly or indirectly fixing the prices of the maritime transport services provided to third parties, directly or indirectly limiting the members' output as represented by the vessel capacity (which once committed to the pool manager it is no longer directly within their power to control and direct) or indirect allocation of markets and customers once the job of securing freight contracts has been taken out of the members' hands and put in the hands of the pool manager.

1720. As stated in Para 1704, the Liner Consortium Regulation excludes the joint fixing of freight rates and therefore could not, as it stands, in any event apply to pooling agreements to the extent that they have the object or effect of directly or indirectly fixing the prices of the maritime transport services provided to third parties.

1721. Thus a simple extension of the Liner Consortium Regulation to tramp shipping would be insufficient. There would have to be provisions similar to those contained in Article 5 (read with Article 3(b)) of the Specialisation Regulation that would make it clear that price fixing, output and sales limitation and allocation of markets and customers are exempted (subject to an appropriate market share cap) where these result from an agreement for the joint provision of services and their "distribution" by a third party who is not a competitor.

1722. For such a change to be made the European Commission would have to be satisfied that the requirements of Article 81(3) could generally be expected to be met (and the change would also require a new empowering Regulation from the Council, as the current Regulation, Council Regulation 479/92, does not extend to tramp shipping).

1723. Further changes would also be required to Article 3 to make it more suitable to the various pool structures that exist.

1724. It may be that the extension would be more appropriate only in some of the tramp markets, for instance the neo-bulk markets which display many of the characteristics of liner services, such as PCC, forest products, *etc.* where there is regularity of sailing; but possible a case could also in our view be made out in the dry bulk industry where volumes are moved at regular intervals and in large quantities.

6.6 OTHER HORIZONTAL ARRANGEMENTS

1725. At Para. 1474, a number of other horizontal arrangements were mentioned which might raise competition issues. These are briefly reviewed below.

6.6.1 *Charters and other bi-lateral agreements*

1726. The majority of charterparties and other agreements entered into between owners or operators would not normally be expected to raise competition issues as they are vertical in nature. They are often entered into as a means of procuring additional capacity for operators who do not want to invest in additional tonnage, or do not have sufficient tonnage available for various reasons to meet their contractual obligations at any time.

1727. It was seen in Chapter 4 that Armada Shipping is one example of a company that charters in all relevant tonnage from third party owners, having taken the commercial decision not to involve itself in directly in vessel ownership.

1728. Where such agreements are reciprocal, they clearly do raise horizontal cooperation issues and would require analysis under Article 81(1) and/or 81(3) in the same way as pooling agreements. They would not, however, be able to show the same degree of integration as the majority of pool agreements which we have specifically reviewed.

1729. Generally, unless they are exclusive, non-reciprocal agreements would not normally raise any issue under Article 81(1) provided they were not entered into by competitors (potential or actual). If they contain exclusivity provisions, they will be automatically exempt by virtue of the vertical block exemption, subject to satisfying the relevant market share cap of 30% (calculated by reference to the supplier's share unless the agreement contains exclusive supply obligations, in which case the buyer's market share must not exceed 30% of the relevant market on which it purchases the contract services.

1730. In determining the market share for the application of the block exemption, it is necessary to distinguish between the market for relevant available tonnage and the market for the actual transport of service[436] .

1731. Article 2(4) of European Commission Regulation 2790/99 of the Vertical Block Exemption [437] nevertheless states that the Vertical Block Exemption in Article 2(1) does not apply to vertical agreements entered into between competing undertakings[438], unless:

- they are non-reciprocal (i.e. between competitors but only one-way), and
- the supplier is a provider of services at several different levels of trade (i.e. different levels of the production or distribution chain); while the recipient of the services does not provide competing services at the level of trade where it purchases the contract services from the service provider.

6.6.2 *Ad hoc vessel or space sharing arrangements*

1732. It is common in the reefer industry and other markets subject to cyclical peaks for carriers to enter into vessel space sharing arrangements to deal with temporary capacity shortages. These tend to be spot fixtures and rates are determined in accordance with prevailing spot rates. Our analysis

[436] See introductory remarks in Chapter 5.

[437] Commission Regulation 2790/1999 of 22 December 1999 on the application of Article 81(3) of the Treaty to categories of vertical agreements and concerted practices, OJL 336/21 of 29.12.1999.

[438] *Ibid* Article 1(a): "competing undertakings" means actual or potential suppliers in the same product market; the product market includes goods or services which are regarded by the buyer as interchangeable with or substitutable for the contract goods or services, by reason of the products' characteristics, their prices and their intended use.

does not suggest any particular competition issues. Vessel and space sharing arrangements are, however, within the definition of "consortium" in the liner block exemption and could raise competition issues if they are of a sufficiently long-term nature and/or the relevant market is sufficiently concentrated.

6.6.3 *Joint outsourcing*

1733. As was seen in Chapter 1, there are specialist ship management companies that provide commercial as well as technical management services to owners and operators, enabling them to outsource some of their core functions. An issue may arise under competition law where a number of owners or pool managers jointly outsource one or more functions to a single ship management company which can provide commercial as well as ship management services. There may be issues of coordination where this happens. However, this would not raise any competition issue if the relevant vessels are in different markets or, possibly, suitable firewalls erected to prevent confidential information passing across from one owner to another.

6.6.4 *Pure cargo or vessel sharing pools*

1734. Reference has already been made to one example of a pool agreement described by its participants as a pool, but purely limited to joint scheduling. Such details as we have of this arrangement are summarised in the Table of Pool Clauses in Annex 7 under pool 6. It is not know whether this is still a current agreement. To the extent that parties enter into a vessel sharing arrangement in the liner industry, this would be classified as a consortium and potentially covered by the Liner Consortium Regulation and in principle exempted.

6.6.5 *Co-service agreements*

1735. We identified one other category of co-operation between carriers that is quite distinct from vessel pooling. This type of cooperation is usually termed the "co-service agreement". According to the limited information available to the consultants, co-service agreements are common only in the chemical tanker markets but variants may exist in other markets. They are a relatively loose from of arrangement focused mainly on finding joint operational efficiencies to improve the services offered to customers.

1736. Under co-service agreements two or more carriers agree, *inter alia*, to seek out business opportunities jointly, to provide each other with vessel capacity on a 'most favoured nation' basis and to operate certain services jointly, while retaining their commercial independence and marketing their services independently.

1737. They will either bid for new business in competition with each other, with the winner of the bid relying on the co-service agreement for additional capacity or for operational efficiencies, or if the customer allows submit a joint bid.

1738. The operational cooperation means that the owners identify ports and berths where they can achieve efficiencies by working together on loading, discharging, transhipping and allocating cargoes to particular ships. It also offers carriers the possibility of servicing high volume trades which could not be adequately met by any one of them individually because of inadequate capacity.

1739. Historic examples of this type of co-operation of which the consultants are aware are the co-service agreements between Tokyo Marine and Stolt-Nielsen in relation to Mediterranean-Asia trades and between Jo Tankers and Stolt-Nielsen in the transport of bulk liquids from ports in the US Gulf to Asia (not a trade route that directly impacts on the EU). Parties view this sort of cooperation as a response to customer pressure to reduce costs per tonne and improve services. Another specific reason given is that they can reduce operational overlaps between the various chemical carriers on the same route, particularly on routes where port congestion is common, and so reduce delays and other inefficiencies.

1740. Another example of an apparently current co-service agreement is that between Green Reefers and Seatrade which the parties claim improves their utilisation of capacity and enables a higher frequency of service, so offering customers a more efficient and flexible service.

1741. The consultants were not able to obtain reliable information about the number of co-service agreements still in existence or to analyse any actual such agreements. In general it seems possible that co-service agreements could give carriers the opportunity to enjoy some economies of scale and scope through improved ship positioning and sailing frequency, which could result in the shortening of delays and voyage lengths, a reduction in the incidence of demurrage and better berth utilisation.

1742. Co-service agreements differ from pool agreements as the ship owners retain their commercial independence and bid against each other when tendering for the relevant contract from the customer (except in those cases where joint bids are accepted and the joint bid is submitted with the customer's knowledge and approval). As far as the consultants are aware, there is no mechanism for the parties to carry out any joint marketing but they are simply required to work with each other operationally and use each other's services in preference to any third parties wherever possible. Generally, therefore, the cooperation is limited to purely operational areas, in contrast to the sort of cooperation involved in pool agreements which also generally provide for day-to-day joint marketing and selling, as well as joint commercial operations.

1743. We did, however, identify one arrangement (at para. 950[439]) which the parties clearly characterise as a pool and which the market treats as a pool which is limited to vessel sharing and joint scheduling.

1744. There is no need on this model to have chartering or cross-chartering of vessels or space on vessels.

6.6.6 *Requirements contracts*

1745. For the most part requirements contracts are unlikely to raise competition issues as they would normally be classified as vertical agreements and would be eligible for block exemption under the Vertical Block Exemption, subject to the relevant 30% market share cap and a 5-year limit if exclusive.

6.6.7 *Multiple time charters*

1746. An arrangement needs to be considered as it bears some similarity to a classic pool structure, but uses a distinct legal model raising distinct legal issues.

1747. Under this arrangement a single owner or operator, operating in its own right in the market, enters into a series of long-term time charters with other vessel owners – so extending its fleet without incurring the capital cost of acquisition or financing the relevant tonnage or the legal responsibility for maintaining the vessels, crewing and other matters that belong to technical management and therefore remain the responsibility of the owners (and their ship management company). This sort of structure is considered separately at "multiple time charters" above.

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[439] Agreement between NYK Reefers and LauritzenCool relating to joint vessel sharing referred to at Section 3.3.2.3 above.

1748. However all the commercial management and operation of the vessels is the responsibility of the charterer. The charterer has to account to the owners for the usual charter hire provided for in the charterparty.

1749. This model does not even require a ship operator actually to own vessels at all; all vessels can be chartered in. This is similar in concept to the NVOCC (non-vessel operating common carrier) concept found in the liner industry where freight forwarders and other third parties offer liner services without actually owning the tonnage but issue Bills of Lading as if they were owners. Thus, the owner or operator in question retains full responsibility for marketing and commercial operation of the vessels and is the only point of contact with customers in the downstream market.

1750. One example of an operator in this sense is Armada Shipping, which charters in and charters out, using the freight forward markets, and making its profit on the margins between the chartering-in and chartering-out rates.

1751. We have also described above the chartering arrangements known as the Leonina System, which is operated by NYKLauritzenCool. This also relies on time charters of varying length for the provision of vessels, some long-term. However where the charters are with independent owners they are entered into by NYKLauritzenCool with the relevant owner on arm's length terms and without any prior consultation with the other owners with whom NYKLauritzenCool already has charters in place. There is thus none of the "horizontal" element one usually finds with a classic pool structure and for this reason we have sought to distinguish it from the classic structure.

6.6.8 *Other arrangements*

1752. Reference should be made to various types of agreement which would be unlikely to raise competition issues as they can generally be presumed not to influence the relevant parameters of competition, as seen at the beginning of this Chapter.

6.7 ARTICLE 82

1754. There is an issue whether Article 82 might be applicable to pools that enjoy a dominant position in one or more relevant markets. This could arise where an established pool in the course of carrying on business engages in certain conduct that is abusive and not objectively justifiable but might also arise either at the stage when a new pool is established or when new members are added to an existing pool.

1755. The European Court of Justice's familiar definition of dominance refers to:

> "[…] a position of economic strength enjoyed by an undertaking which enables it to prevent effective competition being maintained on the relevant market by affording it the power to behave to an appreciable extent independently of its competitors, customers and ultimately of its customers".[440]

1756. A distinction has to be made between unilateral dominance and collective dominance. As explained below, the case law does suggest that undertakings operating in a pool structure might collectively be considered to have a dominant position in view of the structural links that the pool creates between each of them. Issues may also arise where an individual undertaking, whether in or out of a pool, abuses a dominant position. We examine first the situations in which Article 82 might apply on a collective basis to undertakings that are members of a pool.

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[440] Case 27/76 *United Brands v Commission*, [1978] ECR 207, [1978] 1 CMLR 429 and Case 85/76 *Hoffmann-La Roche v Commission* [1979] ECR 461, [1979] 3 CMLR 211.

6.7.1 *Collective dominance*

1757. Collective dominance was established by the Commission in its *Italian Flat Glass* decision[441], where the Commission held that the concept of collective dominance could apply to separate undertakings, not only undertakings within the same company group.

1758. The Court of Justice elaborated this principle further in *Almel*o[442] and held that:

> "However, in order for such a collective dominant position to exist, the undertakings in the group must be linked in such a way that they adopt the same conduct on the market..."[443]

1759. The position was confirmed in *Compagnie Maritime Belge*[444] where the Court said that "the expression "collective dominant position" of "one or more undertakings" in Article [82] implied that a dominant position may be held by two or more economic entities legally independent of each other, provided that from an economic point of view they represented themselves on a particular market as a collective entity". This would apply to all the pools examined in this Report.

1760. Moreover, the Court has stated in *Compagnie Maritime Belge*[445] that the fact that undertakings have entered into agreements does not in itself mean that they are collectively dominant[446], but they might be if it caused them to appear as a collective entity.[447] Further the Court said that "the existence of an agreement or of other links in law is not indispensable to a finding of a collective dominant position; such a finding may be based on other connecting factors and would depend on an economic assessment and, in particular, on an assessment of the structure of the market in question".[448]

1761. Undertakings trading collectively in a pool could therefore be considered to have a collective dominant position, in the sense that there would be the necessary legal and economic links between them. Alternatively, where the pool is constituted as a separate corporate undertaking acting as the pool manager in its own right that undertaking could be unilaterally be dominant, but this would not prevent the members also being collectively dominant.

1762. The analysis of markets in Chapter 5 revealed only one market in which a pool held a market share that was well above 50% over a period of time and would therefore clearly satisfy the presumption of dominance in *AKZO.*[449] However, dominance may arise even where market shares are lower, depending on whether there are other factors pointing to dominance.

1763. In detail, on a narrow market definition, our evidence suggested that the Bergesen and Skandigas pools had market shares of around 75% in the LGC and the semi-refrigerated vessels markets respectively. The Exmar MGC pool was found to have a market share of around 50%. The Star

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441 *Italian Flat Glass*, O.J. [1989] L 33/44, [1990] 4 CMLR 535.

442 Case C-393/92, *Almelo v NV Energiebedrijf Ijsselmij* [1994] ECR I-1477.

443 *Almelo, cit*, para 42.

444 Case T-24/93, *Compagnie Maritime Belge Transports NV v Commission* [1996] ECR II-1201, [1997] 4 CMLR 273.

445 Joined cases C-395/96 P and C-396/96 P, Compagnie Maritime Belge Transports SA (C-395/86 P), Compagnie Maritime Belge SA (C-395/96 P) and Dafra Lines A/S (C-396/96 P v Commission, [2000] ECR 1-1365, [2000] 4 CMLR 1076.

446 *Ibid*., para. 43.

447 *Ibid*., para. 44.

448 *Ibid*., para. 45.

449 Case C-62/86 AKZO v. Commission [1991] ECR I-3359 at Para. 60.

Tankers pool operating in the Panamax crude market was estimated to have a market share in the range of 30-40%.[450]

1764. Market share by itself is nevertheless not necessarily an accurate indicator of market power. Article 82 would, only, prohibit abusive conduct even if it could be shown that even when there are very high market shares, there may not be any dominance, because there would appear to be sufficient constraints on the ability to raise rates above competitive market levels, as evidenced by the volatility in freight rates even in those markets.

6.7.2 *Possible abuses*

1765. Even if dominance can be demonstrated, the Article 82 prohibition would apply only in the event of abuse and parties would generally be able to make use of an efficiency defence, or pray in aid any other objective factors justifying the conduct.

1766. Examples of conduct which might be abusive if practised by a pool (or its members) with a dominant position which would not be (or would not necessarily be) unlawful in the absence of that dominant position include (in no particular order) tying of services, discriminatory rates or trading terms or discrimination in the offering of services, refusing to supply (including refusing to quote a rate in response to a tendering request), predatory pricing practices within the meaning of the case law on Article 82, and entering into of exclusionary agreements with third party service providers such as brokers or ports or terminals that restrict access to the market to their competitors.[451]

1767. The Commission has suggested in its discussion paper on the application of Article 81 to exclusionary abuses[452] that an efficiency defence might be available if the dominant party can demonstrate that the following conditions are fulfilled:

(a) Efficiencies are realised or likely to be realised as a result of the conduct concerned;

(b) The conduct concerned is indispensable to realise these efficiencies;

(c) The efficiencies benefit consumers;

(d) Competition in respect of a substantial part of the products concerned is not eliminated.

1768. Most of the efficiency factors looked at in the context of Article 81(3) would in general terms be equally relevant in this context, but the onus of proof on the dominant pool would be a high one to discharge, and higher the greater the market share.

6.7.3 *Establishment of pools etc.*

1769. Article 82 might equally apply where an undertaking already possessing a dominant position individually on any relevant market were to strengthen that dominant position through the

[450] These comments do presuppose that we have accurately assessed the relevant markets, as to which we draw attention to the general qualifications expressed in Chapter 5.

[451] *Cf.* also the *TACA* case, Joined Cases T-191 e.a./98 *Atlantic Container Line & Ors. v Commission* [2003] II ECR 3275, as to abuses by liner conferences.

[452] Brussels, 2005

establishment of a pool with other undertakings that were actual or potential competitors.[453] That could also apply in the case of a pool accepting new members.

6.8 FULL-FUNCTION JOINT VENTURES UNDER THE EC MERGER REGULATION

1770. This Report has examined a variety of forms of horizontal cooperation varying from rather loose arrangements where the owners charter each other's ships but fully retain their independence to independently incorporated pool management companies to which owners delegate a host of commercial and operational functions. At the extreme end of the scale horizontal cooperation may take the form of a fully-fledged joint venture into which the parties transfer parts of their businesses and operate on a joint basis. Such joint ventures may amount to full-function joint ventures within the meaning of the EC Merger Regulation (ECMR).[454]

1771. Thus far we have analysed pool agreements from the point of view of Article 81 on the assumption that they are not full-function joint ventures even where they provide for the integrated provision of services.

1772. Full-function joint ventures are governed by the EC Merger Regulation.[455] Article 3(4) provides that:

> "The creation of a joint venture performing on a lasting basis all the functions of an autonomous economic entity shall constitute [a concentration with a Community dimension]".

1773. The elements necessary to create a full-function joint venture in one of the tramp sector markets were defined by the European Commission in its decision on the proposed joint venture between NYK and LauritzenCool/LauCool[456], which is now fully established.

1774. "Joint control" was held to arise in a situation where both shareholders would be acquiring equal shares in the jointly owned undertaking and would enjoy equal voting rights as a result of the transactions in contemplation.[457]

1775. he European Commission went on in its decision to discuss whether the joint venture was a full-function joint venture in the following terms:

> "The joint venture concerns a company which is already in operation, and which performs all the functions usually carried out by undertakings in this type of services. LauCool has its own management and possesses the necessary human and financial resources in order to conduct its business on a lasting basis. LauCool's key asset is its worldwide network of marketing and operational contacts for the transport of perishable goods, the skilled technical expertise of its staff with their specialised industry knowledge and relevant IT skills. The joint venture operates its business autonomously, it has direct contacts with its customers without intervention of the parent companies. The obligation to provide vessel capacity to the joint venture by the parent companies is limited to a transitional […]

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453 See, *e.g.* Case 6/72 *Europemballage and Continental Can v. Commission* [1973] ECR 215 (*"Continental Can"*).

454 Council Regulation (EC) 139/2004 on the control of concentrations between undertakings (the EC Merger Regulation), [2004] O.J. L24/1.

455 EC Merger Regulation. See footnote 454.

456 Case No COMP/M.3798 – NYK/LauritzenCool/Laucool JV.

457 Case COMP/M.3798, *cit*, at para 9.

period. Thereafter, securing reefer capacity will be entirely the responsibility of LauCool's management and subject to arms' length commercial negotiations with vessel owners."[458]

1776. It is to be noted that the key asset that LauritzenCool contributed to the joint venture was its worldwide network of marketing and operational contacts for the transport of perishable goods and the joint venture company merely operates vessels (by chartering them in) and does not own any. This might at first sight appear to involve functions which, applying the Horizontal Guidelines, seem more like commercialisation than production. Nevertheless the joint venture was held to be full-function. The key factors taken into account appear to have been that "the joint venture operates its business autonomously, it has direct contacts with its customers without intervention of the parent companies." The European Commission was therefore able to conclude that the joint venture would perform all the activities of an autonomous entity on a lasting basis, and that the relevant acquisition of joint control constituted a concentration within the meaning of the ECMR.[459]

1777. As the European Commission points out in footnote 41 of the Horizontal Guidelines, a production joint venture which also carries out joint distribution is, however, in most cases a full function joint venture.

1778. However, we took the view that all of the pool agreements that we examined in detail and those on which we commented based on general market research fell short of what is needed to create full-function joint ventures. In particular we considered that both in terms of their legal structures and provisions and in terms of their perception by their members and customers they are not seen as sufficiently independent to satisfy the "autonomy" requirement or sufficiently permanent to satisfy the requirement that they should be "long-lasting".

1779. The provisions on withdrawal by members from the pool and withdrawal of individual vessels are generally subject to quite short notice periods, as has been seen.

1780. Furthermore, the management structure is quite different from the fully independent structure adopted by the shareholders of NYKLauritzenCool. In typical pool agreements the owners still retain a fair degree of strategic control over certain matters. Thus, even where there is a separately incorporated joint venture company and the members enter into a Shareholders' Agreement with each other, we did not feel that a pooling agreement would be subject to the EC Merger Regulation.

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458 Case COMP/M.3798, *cit*, at para 10.

459 Case COMP/M.3798, *cit*, at para 11.

7. LITERATURE REVIEW

7.1 LEGAL LITERATURE REVIEW

7.1.1 *Scope Of The Review*

1781. This literature review is aimed at providing the European Commission with a complete overview of the legal literature directly relevant to the tramp shipping exemption from EU Competition Rules as granted by Regulations 4056/86 (now repealed) and 1/2003 in accordance with the tender Specifications[460].

1782. The major books, doctrinal articles, conference papers and industry newspapers published in England, the US, Italy and France – either in prints or available on line – dealing with the broader issue of competition law in the transport sector have been given careful consideration and are all fully referred to in the bibliography below. However, the detailed review which follows has been limited to those legal sources which are more directly relevant to the specific issues at stake and which reflect more closely the purpose of this Report as described in the tender specification[461].

7.1.2 *Methodology*

1783. Relevant sources have been collected through direct library search at the Institute of Maritime Law of the University of Southampton and at the Institute for Advanced Legal Studies in London. Legal databases such as Westlaw, Lawtel and LexisNexis Professional and web-based resources have been used extensively. Moreover, direct contact with colleagues and correspondents from the US, Australia, New Zealand, France and Italy have provided us with local support and resources.

1784. The contents of the writings have been divided into sub-topics and illustrated in a concise comparative manner. The topics explored are:

- The origin and functions of tramp pools;
- On the exemption for tramp shipping and the grounds to remove it;
- The effects of removing the exemption;
- Alternatives for tramp vessel service providers.

1785. Full reference for each individual paper used for this literature review (including the page or pages where the piece was originally published) is given as a footnote to the relevant part of the text. Notwithstanding our best endeavour to maintain the original wording used by the consultants, at times some degree of verbal manipulation has proven unavoidable. However, to the best of our knowledge such revisions have not altered the overall sense of the original texts which remains to be considered the only primary source of this review.

1786. Full reference is given again in the comprehensive bibliography below which is compiled in alphabetical order.

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460 Specifications to Invitation to tender COMP/2006/D2/002, at para 3.4.1.
461 *Supra*, fn 1, at para 2.

7.1.3 *Literature On Tramp Shipping And Competition*

7.1.3.1 On the origin and function of tramp pools

1787. According to a recent OECD report[462] formal co-operation between owners in bulk shipping markets is far less common place than in the liner trades, nonetheless, some bulk companies do enter into pooling agreements (whereby they share the profits and losses made by their respective fleets) or undertake joint ventures. Examples of this include the pool between Norwegian, Chinese and Russian interests, and pools formed between the dry bulk shipping interests of the UK and Japanese groups. There have also been various pooling arrangements in recent years between Greek companies and shipowners from Eastern Europe. The purposes of such agreements include:

- increased ability to control the market and improve earnings via joint negotiation with charterers[463];
- enhanced opportunity to achieve a position of prominence within a given market, and/or to penetrate new markets by harnessing the expertise or commercial contacts of other member companies (the bulk shipping equivalent of strategic alliances)[464];
- greater logistical flexibility by giving pool members opportunities to interchange their respective ships; for example, this may enable a member to take advantage of chartering opportunities that would not otherwise exist if he needed to reposition his own tonnage in order to lift a particular cargo[465];
- Improved bargaining strength for pool members in the ordering of new tonnage, as a pooled operation may be able to secure more favourable pricing terms from shipyards. The exchange of information between members of the pool may also be used by them to avoid the potential over-ordering of tonnage within a given size sector[466];
- Revenue distribution, including operation of a "weighting system"[467].

1788. In the legal literature, such pools are perceived in a fairly positive way[468] and are said to have almost zero impact on price and supply/demand structures[469]. In 1998 the WTO[470] wrote:

> "The whole of bulk traffic […] faces no restrictions except in one or two countries. It is organised as a spot market […] and contracts are allocated on an extremely

[462] OECD, Directorate for Science, Technology and Industry, Division of Transport, "Regulatory issues in international maritime transport" DSTI/DOT(2001)3, 8th March 2002, at [24].
[463] *Ibidem*, and Ruttley, P., "From Scylla to Charybdis? The European Commission's proposal for a new regulatory regime for the maritime industry", paper presented at the EMLO Cyprus Regional Seminar, Limassol, 21st March 2005, at [26].
[464] OECD, *Op. Ult. Cit.*, *ibidem*, and Ruttley, P., *Op. Ult. Cit.*, *ibidem.*
[465] OECD, *Op. Ult. Cit.*, at [25], and Ruttley, P., *Op. Ult. Cit.*, *ibidem.*
[466] *Ivi*, at [24].
[467] Ruttley, P., *ivi.*
[468] Wareham, P., "Reflections on non-liner shipping", paper presented at the EMLO Cyprus Regional Seminar, Limassol, 21st March 2005.
[469] *Ivi*, at [3].
[470] WTO, "Maritime Transport Services; Background note by the Secretariat", S/C/W/62, 16th November 1998.

competitive basis; business is won on the basis of freight rates a few cents per tonne lower than the competition"[471].

1789. The position in the economic literature appears to be rather different and the tramp industry has been said to be both difficult to regulate and more likely to accept substandard shipping and illegal activities[472]. This proposition however is not supported by any verifiable data and is to be considered more relevant to ship safety than competition policy making.

7.1.4 *On the exemption for tramp shipping and the grounds for removing it*

1790. Even if the exemption has now become history, it may still be useful for the completeness of this review to briefly refer to the most authoritative comments on the exemption and its repeal.

1791. In the past, some consultants have raised doubts[473] on the justification for the exemption of tramp shipping[474] from the application of Regulation 4056/86[475] while others have argued for the exclusion on the basis of the Regulation's preamble itself[476]. The conflicts may be resolved by saying that the statement that rates for tramp vessel services are "freely negotiated on a case-by-case basis in accordance with supply and demand conditions"[477] may justify the assumption that tramp vessel services will hardly ever violate Art. 86 of the Treaty. In this line, Rabe and Shütte doubt that tramp vessel services would never be subject to suspected infringements of Art. 85(1) of the Treaty[478]. This view is shared by others[479].

1792. The argument – however - seems a rather circular one: if the reason for the exclusion of tramp services is based on the fact that this sector of shipping typically operates in accordance with free market principles, it appears that when this is not the case – like in joint price fixing practices – the exemption should not apply[480].

1793. The 2003 Consultation Paper[481] is generally perceived as giving guidance as to the attitude of the European Commission towards the current *status quo*, since under the heading *"Tramp Vessel Services"* in Paragraph 2.1.2.2 the European Commission states:

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471 *Ivi*, at [2]. The same view is shared by Fink, C. – Mattoo, A. – Neagu, I.C., "Trade in international maritime services: How much does policy matter?" (2001) World Bank Policy Research Working Paper no. 2522.

472 Brooks, M.R., "Janus or Hydra: The regulation of shipping multinationals" (2000) *Dalhousie Discussion Papers in International Business,* no. 178, at [11].

473 Hickey, D., "The application of the competition rules to shipping", paper delivered at the conference "The Future of Shipping in Europe: Key Legal and Commercial Issues" (London, 28th-29th June 1990).

474 Rabe, D. – Schütte M., "EC competition rules and maritime transport" [1988] LMCLQ 182, at [184]. Greaves asks: "Why have tramp vessel services been excluded?" but does not appear to attempt an answer. Greaves, R., *Transport law of the European Community* (London, 1991), ch 11, at [130].

475 Council Regulation (EEC) No. 4056/86 of 22nd December 1986 "Laying down detailed rules for the application of art. 85 and 86 of the Treaty to maritime transport" [1986] OJ 378/4.

476 Bredima-Savopoulou, A. – Tzoannos, J., *Common shipping policy of the EC* (Oxford, 1990), at [181].

477 Recital 4 of Council Regulation 4056/86.

478 Rabe, D. – Schütte M., *cit.*, at [184].

479 Ortiz Blanco, L. – Van Houtte, B., *EC Competition Law in the Transport Sector* (Oxford 1996), ch 4, at [106]; Power, V., *EC Shipping Law* (London, 1992), ch 12, at [301]. In the same sense Sinclaire Roche & Temperley, "EC law and maritime transport in the European Community" (London, 1990), at [2].

480 Dinger, F., *What shall we do with the drunken sailor? EC competition law and maritime transport* (Basel, 2001), at [14]. In the same sense Green, N., "Competition and maritime trade: a critical view" (1988) European Transport Law 612, at [617].

481 European Commission, "Consultation Paper on the review of Council Regulation (EEC) No 4056/86 laying down detailed rules for the application of articles 81 and 82 of the Treaty to maritime transport", 27th March 2003.

> "As regards Tramp Vessel Services, the exclusion of such an economically important sub-sector — covering the maritime transport of most forms of bulk cargo (oil, oars, cereals *etc*) -from effective application of Articles 81 and 82 of the Treaty may seem incongruous. A somewhat cryptic justification for the exclusion is provided in recital 4 of the preamble to regulation 4056/86 which refers to "rates for these [Tramp Vessel] Services being freely negotiated on a case-by-case basis in accordance with supply and demand conditions".
>
> "As that description would apply to most deregulated services, without it having been thought necessary to exclude them from the effective application of Articles 81 and 82, the question is whether there is any alternative and credible justification for the continued exclusion of Tramp Vessel Services".

1794. From these statements some consultants derive that the European Commission is not persuaded that tramp shipping is a special case and does not therefore see why any special treatment should be granted[482]. On the other hand, experience has shown[483] that many agreements which may attract the attention of anti-trust authorities tend to be relatively short lived; possibly reflecting the considerable potential that exists for discord between pool members, and the long history of open, competitive competition that has characterised the bulk shipping sector[484].

1795. The choice has now been made on the grounds that "No convincing reason has been brought forward to maintain the current exclusion of [the tramp shipping] services from the rules implementing Articles 81 and 82 of the Treaty"[485].

7.1.5 *On The Effects Of Removing The Exemption*

1796. The review of the rules in their entirety has been defined as "dramatic" for the industry as a whole[486]. However, the main legal effect of the removal of the block exemption[487] contained in art. 1(2) of Regulation 4056/86 – and the consequent amendment to art. 32(a) of Regulation 1/2003[488] – is said to be procedural[489] since before the entering into force of Regulation 1419/2006[490] the

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482 The European Commission's statement has been criticised as "over-simplistic" by Ersboll, N.C., "The European Commission's enforcement powers: an analysis of the exclusion of tramp vessel services from Regulation 4056/86 and Regulation 1/2003" [2003] ECLR 375, at [383].

483 According to Sjostrom, two unsuccessful attempts were made in 1905 to set up conferences in tramp shipping: the Sailing Ship Owners' International Union and the Baltic and White Sea Conference. Both had collapsed by 1908. Sjostrom, W., "The stability of ocean shipping cartels" (2003) available on line at www.ucc.ie/~sjostrom/research/grossmanchapter.pdf. See as well McGee, J.S., "Ocean freight conferences and American merchant marine" (1960) *University of Chicago Law Review*, 191.

484 OECD, "Regulatory issues in international maritime transport", *cit*., at [25].

485 Council Regulation (EC) No 1419/2006 of 25 September 2006 repealing Regulation (EEC) No 4056/86 laying down detailed rules for the application of Articles 85 and 86 of the Treaty to maritime transport, and amending Regulation (EC) No 1/2003 as regards the extension of its scope to include cabotage and international tramp services [2006] OJ L 269/1, at [3].

486 Power, V.J.G., "Selected developments in European Union shipping law: last quarter 2002" [2003] JIML 150, at [153].

487 The term exemption is considered inappropriate by Ersboll, N.C., "The European Commission's enforcement powers: an analysis of the exclusion of tramp vessel services from Regulation 4056/86 and Regulation 1/2003" [2003] ECLR 375, at [375].

488 Council Regulation (EC) No 1/2003 of 16 December 2002 on "The implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty", [2003] OJ L1/1.

489 Ersboll, N.C., *cit*.; Hickey, D., *cit*.; and Porter, J., "Shipowners must change tack to avoid EU anti-trust laws" Lloyd's List 30th May 2006.

490 Council Regulation (EC) No 1419/2006, *cit.*

European Commission had no power to impose fines[491]. Now that the exemption for tramp shipping has been removed, the European Commission has gained full enforcement powers and shipping companies and their advisors have to decide whether or not individual pooling agreements and their clauses comply with Article 81 or potentially infringe Article 82. This also means that such decisions have to be made without the benefit of being able to notify the European Commission[492] and obtain a ruling, as it had been possible in the past with agreements where there may have been room for doubt[493].

1797. The majority of consultants seem to agree that the removal of the current exemption would impose a very significant regulatory burden on the shipping industry and on the shipping pools. It is said that the change would certainly produce a lot of business for lawyers, but would impose very significant legal and internal management costs on the pools which are currently operating in the market[494].

1798. Moreover, it would not be possible to obtain any guidance from the European Commission under the new Regulation 1/2003. Some therefore argue that unless pooling agreements in the tramp sector were made the subject of some type of block exemption[495] which allowed guidance to be obtained from the European Commission, tramp pool operators would have to rely upon their own assessment and advice provided by their external lawyers in deciding whether or not their agreements complied with European Competition Law[496].

1799. As far as guidelines are concerned, some have complained some lack of clarity not only as to what will or should the guidelines contain but even as to when[497] will such guidelines be formally issued[498].

1800. Hickey asks how it can be argued to be in the interests of the industry – and ultimately the shippers served by the tramp sector – to remove legal certainty by changing the regulatory framework at the same time as the general rules governing the application of competition law, and before the new system has had time to bed down. He argues:

> "We now have the prospect of EU Competition law being applied by the National Authorities and the Courts in the Member States, including of course the new Member States from Eastern Europe which have no experience to date. Against this background it seems to be a recipe for confusion to abruptly remove the exemption currently enjoyed by tramp shipping. The alteration of the present regime would also have potentially serious consequences on existing pooling arrangements"[499].

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[491] Most recently Kofmann, M. – Reumert, K., "A safe harbour for tramp shipping pools under EC Competition law: An alternative structure to pools", paper delivered at the 22nd Seminar of the Scandinavian Institute of Maritime Law, Karlskrona, 21st-24th August 2006.

[492] Ruttley, P., "EU competition law and non-liner shipping", paper presented at the EMLO Regional Seminar, Gdynia, 8th May 2006, at [13].

[493] Hickey, D., "Pooling agreements under European Community law", paper delivered at the EMLO 10th Annual Conference (London, 18th June 2004), at [6].

[494] *Ivi*, at [7].

[495] Which is seen as "an optimal solution" by Ruttley, P., "From Scylla to Charybdis?...", *cit.*, at [26].

[496] *Ibidem.*

[497] Kofmann, M. – Reumert, K., "A safe harbour for tramp shipping pools …", *cit.*

[498] Eriksson, R., "Is the EC maritime antitrust reform contributing to a merger boom in shipping?" (2005) 31 The Maritime Advocate 32, at [33].

[499] Hickey, D., *cit.*, at [8].

7.1.6 *Alternatives For Tramp Vessel Service Providers*

1801. In a recent article Eriksson[500] writes that there is little European Commission guidance as to what types of bulk shipping are covered by the current tramp exclusion. Some "tramp pools" – he says – may no longer provide tramp vessel services, as defined by the European Commission, and therefore may not benefit from the exclusion. Instead – it is said – some non-liner carriers and pools offer so-called "specialised" services. As such, they are already subject to the competition rules just like any other industry. However, under the new legal regime proposed by the European Commission, these different categories may play less of a role as tramp vessel services will be brought within the scope of the general EC competition law enforcement rules.

> "Unlike other industries, tramp vessel service providers have very little, if any, experience of the enforcement of competition law as they have been excluded from efficient enforcement of EC competition law for decades. They may therefore face difficulties in assessing themselves whether their operations are compatible with the competition rules or not"[501].

1802. The author further argues:

> […] transactions subject to *merger* control procedures should be regarded as an opportunity for the tramp shipping industry. As the consortia block exemption does not currently apply to non-liner operators, the arguments above in favour of concentrations as a future alternative means of cooperation will apply all the more to tramp vessel service providers. Shipping pools are common in the tramp sector. As the Commission could consider some of these to constitute price-fixing cartels, it would, in the event of an investigation, be difficult for the pool to demonstrate that it is covered by an individual exemption. Under a pool structure, ships are normally brought under a single administration (the pool manager, who may also be a ship owner) and are marketed as a single enterprise. Prices are set by the manager for the pool fleet rather than by the individual shipowners but often in close consultation with the shipowners. The Commission is likely to deem this as price-fixing, *i.e.* a hardcore restriction of competition. For many pools, the merger route, whereby the concentration is notified to the Commission, may instead be an all the more attractive option, particularly as the restructuring of the pool into a full-function JV may not significantly change the way it already operates[502].

500 Eriksson, R., "Is the EC maritime antitrust reform …" *cit*.
501 *Ivi*, at [33].
502 *Ibidem*. In the same sense Kofmann, M. – Reumert, K., "A safe harbour for tramp shipping pools…" *cit*.

8. LITERATURE ON ECONOMICS OF TRAMP SHIPPING

8.1 ECONOMIC LITERATURE REVIEW

8.1.1 *Scope of the review*

1803. The Economic Literature Review strives to provide the European Commission with an overview of the economic literature relevant to the tramp shipping sector. The bibliography found at the end of this section list a variety of academic and industry articles pertaining to the tramp sector. Those found to be particularly relevant to the Report at hand are summarised in the Literature Description section found below.

8.1.2 *Methodology*

1804. Extensive library searches including academic journals and books were perused for relevant information. Additionally, LexisNexis Professional was used to search industry publications.

8.2 CONTRACTING PRACTICES IN BULK SHIPPING MARKETS: A TRANSACTION COST EXPLANATION[503]

1805. Stephen Craig Pirrong's article, *"Contracting Practices in Bulk Shipping markets: A Transactions Cost Explanation",* examines the peculiarities of applying transaction cost theory to the ocean bulk shipping industry. Specifically, he focuses on the existence of complex long-term contracts and vertical integration in the industry when the economic conditions – absence of geographical barriers and abundance of labour and physical capital – favour the use of spot contracts and simple forward contracts. Indeed, on the surface the bulk shipping market appears to be perfectly competitive. The mobility of ships allows shippers to choose carriers over an enormous geography. Some ships are commodity specific, but Pirrong argues that the availability of several ships for each commodity prevents a carrier from obtaining a single monopoly. Labour requirements for vessel operations – navigation, engineering, and seamanship – are general and not specific to a ship or commodity. A highly competitive market is conducive to spot contract, yet many shippers and carriers rely on long-term contract and vertical integration.

1806. Pirrong argues that type of contract used between a shipper and carrier is not dependent on labour and capital costs and local supply of carriers, but is dependent on time and space factors arising from the logistical nature of shipping. Labelled 'temporal specificities', these time and space conditions are dependent on the ship routes, origin and destination markets, and the type of commodities and/or goods carried.

1807. Through empirical analysis, Pirrong found a distinct relationship between the contract used with the commodity, the density of the shipping market for the commodity in question, and whether the commodity is most efficiently shipped aboard a specialised vessel or a general purpose vessel. Spot contracting prevails in the shipment of bulk commodities such as grain and crude oil where two temporal conditions arise: shipping markets are dense and there are several alternative supply sources of the commodity shipped. Forward contracts exist when one of the temporal conditions is absent and the commodity requires special purpose vessels for shipping.

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503 Journal of Law and Economics, Vol. 36, No. 2. (October, 1993), pp. 937-976.

8.3 AN APPLICATION OF CORE THEORY TO THE ANALYSIS OF OCEAN SHIPPING MARKETS[504]

1808. Stephen Craig Pirrong's article, *"An Application of Core Theory to the Analysis of Ocean Shipping Markets",* examines how production cost and demand conditions affect the organisation of shipping markets. To this end, Pirrong utilises core theory to explain the existence or absence of perfect competition in specific segments of shipping markets, specifically the liner and bulk shipping markets. Core theory asserts that fixed production costs and unstable consumer demand within an industry can prevent the efficient allocation of goods and services resulting in an imperfect market, defined as an empty core.

1809. Looking at one of the fundamental concepts of core theory, unstable consumer demand assumes that consumer demand is not constant and can vary over time. The existence of variable demand in an industry creates a condition where it is more economical to construct several plants and periodically idle one or several in response to changes in demand, or, operate some of the active plants below capacity.[505] Pirrong purports that excess capacity creates an empty core issue when combined with the fixed costs of developing and operating a plant. Firms have a strong disincentive to develop costly capital when facing a possible disruption in supply.

1810. When an empty core issue develops within an industry, the response of individual firms is to collude through long-term contracts or organise into cartels. Collusion requires looking at contracts between buyers and sellers in the market not just through the lens of optimal allocation, but as a form of cooperation. Pirrong's example considers a producer of a commodity and several persons who wish to purchase it. "By forming a coalition – that is, by contracting among themselves to produce, buy, and sell the commodity – these individuals can generate gains from trade that they can divide among themselves."[506]

1811. Applying the above theory to organisation in ocean shipping markets; liner shipping markets exhibit empty core issues and tend organise collusively and form cartels while bulk shipping markets are more competitive and do not organise. The liner shipping markets exhibits empty core issue because: many vessels do not carry cargo at full capacity; a previous estimate of average liner shipment utilisation rates between 0.2 percent and 5 percent of a vessel's capacity.[507] Additionally the demand for liner services varies considerably over time and average costs exceed marginal costs for all feasible outputs.

1812. In contrast the bulk shipping market does not exhibit collusion and according to Pirrong, the market is close to perfectly competitive. Due to the nature of bulk commodities, the entire vessel is utilised and ship owners or operators do not have the incentive to cut prices to the marginal tonne of cargo to add marginal customers. Long-term and forward contracts do exist in the bulk markets, contradicting core theory, but this occurs with highly specialised goods when disruptions of cargo flows are costly. But in most commodities in bulk shipping exhibit a wide variety of alternative cargo sources reduces the probability of supply disruption providing the establishment for spot markets. Prime examples are grain and oil shippers, each of who have access to a wide variety of supply sources, rely on voyage and short-term charter contracts for shipping services.

1813. Pirrong concludes that, using empirical analysis, the core-based model accurately depicts competition in the ocean shipping industry, where bulk and liner were considered. Pirrong further concludes that some cartels may bolster the economic efficiency of the market.

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504 Journal of Law and Economics, Vol. 36, No 2. (October, 1993), pp. 937-976.

505 Page 93. *Journal of Law and Economics*, Vol. 35, No. 1. (April, 1992), pp. 89-131.

506 Page 91. *Journal of Law and Economics*, Vol. 35, No. 1. (April, 1992), pp. 89-131.

507 Page 106. *Journal of Law and Economics*, Vol. 35, No. 1. (April, 1992), pp. 89-131.

8.4 THE TRAMP SHIPPING MARKET[508]

1814. This Report by Clarkson Research provides a summary of the characteristics of the tramp shipping market, including both quantitative and qualitative information. To place the tramp market in perspective, the supply and demand sides of the broad ocean shipping industry are explored as are industry participants and general definitions of shipping markets. Since our current Report also explores these definitions and market characteristics for the tramp shipping market, the definitions purported in the Clarkson's study will not be re-hashed here.

1815. The Clarkson's study can serve as an additional source for general information and definitions, particularly as it describes various tramp contracts, pool arrangements, and profiles of tramp market segments.

[508] Clarkson Research Studies, April 2004.

9. CASE LAW REVIEW

9.1 SCOPE OF THE REVIEW

1816. The aim of the case law review that follows is to provide the European Commission with a – as far as possible – complete report on the case law on the application of anti-trust rules to horizontal agreements in the tramp shipping sector in accordance with the Tender Specifications[509].

9.2 METHODOLOGY[510]

1817. A list of the most relevant countries has been prepared on the basis of the volume of commodities and non containerised goods imported from these countries to the EU area[511]. On express request of the European Commission, EU Member States have been excluded from the scope of this Report. On this basis, an informal questionnaire has been sent to colleagues and correspondents in Algeria, Angola, Argentina, Australia, Brazil, Japan, Libya, Russia, South Africa and the United States of America[512]. The questionnaire contained a request for providing us with all available case law – if any – concerning the application of anti-trust rules to the tramp shipping industry. More specifically we have requested a copy of the relevant decisions if delivered in English or a summary of the facts, legal issues involved and *ratio decidendi* of the case, with an indication of the hierarchic level of the court in that legal system and its binding effect on other courts.

1818. We have received answers from most of the countries, however not all questionnaires were returned. In order to provide the European Commission with as complete a review as possible we have also contacted competition authorities (where available) and used information made available through OECD and UNCTAD. All sources are duly referred to through footnotes. In this case all we could provide is an account of the law as stated therein

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9.3 COUNTRY BY COUNTRY ANALYSIS

1819. The following paragraphs contain a detailed report on the competition law applicable to tramp shipping and the case law which this issue has generated in each selected jurisdiction. A summary box at the bottom of each state analysis spells out whether the law of that country allows a tramp exemption or not.

1820. The last paragraph of this section is devoted to the synthesis of all data gathered and contains an indication of worldwide judicial trends.

1821. Despite our best endeavours to collect all available data from reliable sources, we cannot guarantee the accuracy and completeness of the information as provided to us. When data has been rendered available in an English translation, we cannot make any representation on the accuracy or completeness of the translation provided.

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[509] Specifications to Invitation to tender COMP/2006/D2/002, at para 3.4.1.

[510] For a complete bibliography of the sources used in this chapter, please refer to Annex 10.

[511] The details about the size of each of these States' European export may be found elsewhere in this report.

[512] EU import from China does not appear to be relevant to the tramp shipping sector and no investigation on Chinese law has been carried out.

9.3.1 *Algeria*

9.3.1.1 Competition Law And Tramp Shipping

1822. Algerian competition law is now contained in the 2003 Competition Ordinance[513] and applies to all spheres of economic activity in both the private and public sectors[514]. The "Conseil de la concurrence" or Competition Council however may not take action against agreements that are not designed to hamper free competition and/or to constitute a violation of the law. This would cover agreements relating to professional bodies, exchange of information, cooperatives, trade associations and the like[515].

1823. None of these practices is punishable *per se* but only if the effect or purpose of such practice is to restrict or prevent the proper functioning of the market. The market is the yardstick against which such practices reported to the Competition Council are assessed[516]. However, it appears that natural monopolies established under other laws and regulations, including areas subject to price controls, are exempt[517].

1824. There appear to be no block nor other special exemption granted to tramp shipping.

9.3.1.2 Case Law

1825. No case involving anti-competitive behaviour in pooling agreements has been found nor provided.

Summary of relevant data – Algeria *Tramp exemption granted?* Apparently not *Qualifications?* N/A

9.3.2 *Angola*

9.3.2.1 Competition Law And Tramp Shipping

1826. Angola does not have a competition policy or law.

1827. UNCTAD is currently helping Angola with three aspects of competition law and capacity-building. It is about to launch a training of trainers on competition law and it is helping to draft legislation on competition law[518]. Work, however, is still in progress.

9.3.2.2 Case Law

1828. None.

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513 Ordennance No 03-03 du 19 Joumada El Oula 1424, correspondant au 19 Juillet 2003 relative a la concurrence.

514 Shyam Khemani, R. for UNCTAD, "Application of Competition law: exemptions and exceptions", New York and Geneva, 2002.

515 *Ibidem.*

516 OECD Global Forum on Competition, "Challenges/obstacles faced by competition authorities in achieving greater economic development through the promotion of competition – Contribution from Algeria", ref. doc. CCNM/GF/COMP/WD(2004)21 of 2nd February 2004, at [4].

517 Article 9 of the 2003 Ordnance.

518 Information available at http://www.unctad.org.

Summary of relevant data – Angola
Tramp exemption granted? No competition law exists.
Qualifications? N/A

9.3.3 *Argentina*

9.3.3.1 Competition Law And Tramp Shipping

1829. The relevant anti trust legislation in Argentina is Law No. 25.156 of 25th August 1999 (as amended)[519] and it appears mostly inspired by the EU relevant legislation. There appears to be no reference whatever to maritime exemptions/exclusions/special regimes and competition law applies entirely to shipping, both liner and tramp.

9.3.3.2 Case Law

1830. Legislation is fairly recent and cases are very few in general; none of the few decisions published deals with shipping.

Summary of relevant data – Argentina
Tramp exemption granted? No
Qualifications? N/A

9.3.4 *Australia*

9.3.4.1 Competition Law And Tramp Shipping

1831. The framework of Australian competition law is set by the 1974 Trade Practices Act (hereafter *TPA*)[520]. Part X of the *TPA* deals specifically with liner shipping and contains exemptions from key sections of Part IV of the *TPA*[521]; however it applies only to liner cargo shipping services[522].

1832. "Liner cargo shipping services" are defined as "the transport of general cargo by sea on scheduled routes" and include both "stevedoring services" and "services that take place outside Australia that relate to the cargo transported or to be transported on the scheduled cargo shipping services and provided by, or on behalf of, providers of scheduled cargo shipping services"[523]. Largely, this is trade by container vessels, but also extends to break-bulk transport, as well as roll-on, roll-off vehicular transport, so long as it is operated under a conference agreement. The exemptions allow ocean carriers to collaborate through registered conference agreements to provide coordinated, joint, regular scheduled services, share capacity and agree on freight rates[524]. There is no record of

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Ley 25.156 of 25th August 1999: "Acuerdos y prácticas prohibidas. Posición dominante. Concentraciones y Fusiones. Autoridad de aplicación. Presupuesto del Tribunal Nacional de Defensa de la Competencia. Procedimiento. Sanciones. Apelaciones. Prescripción. Disposiciones transitorias y complementarias", available on line at http://infoleg.mecon.gov.ar/infolegInternet/anexos/60000-64999/60016/texact.htm.

520 *Trade Practices Act* 1974 (available on line www.austlii.edu.au/au/legis/cth/consol_act/tpa1974149).

521 Part X has been considered and held to be "an exhaustive code, controlling and regulating" liner shipping in so far as restrictive practices are concerned: *Refrigerated Express Lines (A/Asia) Pty Ltd* v *Australian Meat & Livestock Corporation* (1980) 444 FLR 455.

522 *TPA* 10.02.

523 *Ibidem.*

524 The ACCC's 2004 Report entitled *"Review of Part X of the Trade Practices Act 1974: International Liner Cargo Shipping"* strongly recommended that Part X be repealed, making the liner cargo industry subject to the

the application of Part X of the *TPA* to the liner conference arrangements having been challenged in any way which is relevant to present discussion[525].

1833. Bulk carriers transporting bulk cargo and general cargo carried by non-scheduled vessels, *i.e.* tramp shipping, and are not covered by Part X. The tramp shipping industry would be assessed for the purposes of Part VII immunity[526] on the same principles as all other non-exempt industries in Australia in seeking exemption.

1834. Under Part VII a tramp pool may seek authorisation for anti-competitive conduct from the Australian Competition and Consumer Commission (hereafter *ACCC*) and subject to a public consultation process, be granted immunity from Part IV in the same manner as all other non-exempt industries. It is known that there are various bulk pools operating either in Australian trade or through agents or representatives based in Australia. Apart from one transaction (referred to below), none of the operators or participants in these bulk pools have (yet) sought authorisation under Part VII of the *TPA*.

1835. Authorisation under Part VII of the *TPA*, where granted, provides immunity (similar to that under Part X) from the application of the restrictive trade practices provisions contained in Part IV of the *TPA*.

1836. The *TPA* allows the ACCC, on application, to grant authorisation in relation to, *inter alia*:

making or giving effect to a contract or arrangement or arriving at or giving effect to an understanding where a provision of the contract, arrangement or understanding substantially lessens competition;

covenants affecting competition;

primary boycotts;

secondary boycotts;

anti-competitive exclusive dealing;

exclusive dealing involving third line forcing;

Mergers leading to or likely to lead to substantial lessening of competition.

1837. Where authorisation is sought and granted, a major market participant may be excused from liability for conduct which might otherwise constitute a misuse of market power.

1838. Under the notification process, immunity from court action is obtained automatically 14 days after lodgement, or immediately for exclusive dealing other than third line forcing. The ACCC may

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general provisions of the TPA. However the Australian Government has decided to retain Part X but amend it "*to promote further competitive reform of the international liner cargo shipping sector in Australia*". Amending legislation is yet to be drafted.

525 The five-yearly review of Part X by the Productivity Commission, lastly undertaken in 2005, did not consider the application or potential application of competition rules or exemptions to the tramp shipping industry.

526 *TPA*, part VII.

remove the immunity if, after examining the notification it determines that the conduct is likely to substantially lessen competition and not contribute a net public benefit[527].

1839. A tramp shipping pool may elect to pursue notification or authorisation to avoid potential liability under the *TPA* for any agreements or understandings which involve the rationalisation of services and/or reduction in availability of services. Some examples may be found in the case law Chapter below.

1840. In conclusion, if tramp shipping participants in a pooling or similar agreement were able to satisfy the net public benefit test contained in Part VII, a pooling or similar collective arrangement would be entitled to the seek a grant of authorisation. If a grant of authorisation was made, the participants in the arrangement would be excluded from the application of certain anti-competitive restraints. For example, pool agreements which rationalise services thereby reducing availability (which might otherwise be equivalent to third line forcing) may be authorised insofar as they demonstrate increased efficiency and allocation in the market.

Case Law

1841. It appears that there are no reported Australian cases involving pool agreements that raise questions about the legality of certain restrictive clauses from the point of view of competition law or restraint of trade.

1842. Moreover, we are not aware of any tramp shipping entity, pool or interests which have recently consulted or been referred to the ACCC for authorisation under Part VII of the TPA[528]. On the other hand two commodities related recent authorisations may provide guidance as to how the ACCC could assess a request for authorisation filed by operators in the tramp market.

Port Waratah Coal Services Ltd n. 1

1843. Port Waratah Coal Services Ltd[529] sought and obtained authorisation for a short term Capacity Distribution System aimed at matching the amount of coal sought to be exported by Hunter Valley coal producers to the capacity of the rail and port systems to transport that coal onto tramp vessels in the Port of Newcastle. A substantial queue of tramp vessels had formed off the Port of Newcastle to load coal in early 2004. The reason for the queue was that Hunter Valley coal producers were attempting to export more coal than, in particular, the rail system was able to transport to the Port and the coal exporters were liable to pay significant demurrage charges to shipowners and operators, given the time that their tramp vessels were queued.

1844. The ACCC determined that the key public benefit justifying the authorisation was an improvement in economic efficiency due to demurrage cost savings. This was considered to outweigh the public detriment, being the likely reduction in aggregate exports due to underuse of allocations and probable efficiency losses caused by increasing the amount of coal exported by higher-cost producers at the expense of more efficient lower-cost producers.

527 Which includes: "…anything of value to the community generally, any contribution to the aims pursued by society including as one of its principal elements (in the context of trade practices legislation) the achievement of the economic goals of efficiency and progress": *Queensland Co-op Milling Association Ltd* (1976) ATPR 40-012, at [17,242].

528 Part VII of the *Trade Practices Act* 1974 (Cth).

529 2004 Application: A90906 A90907 A90908.

Port Waratah Coal Services Ltd n. 2

1845. Port Waratah Coal Services Ltd[530] sought authorisation for a medium term Capacity Distribution System which implemented changes aimed at ensuring greater accuracy of producer forecasts and to reduce the likelihood of the underutilisation of coal loading allocations, by encouraging timely secondary trading of allocation and by providing coal producers greater flexibility in managing production. Guided by data collected from the previous authorisation, the ACCC was able to satisfy itself that the public benefit following from the arrangement would continue to outweigh the public detriment. An inherent consequence of the authorisation was that the coal traders were able to manage their chartering-in of tramp vessels to effectively control potential demurrage liabilities.

1846. However, the ACCC retained a power to review the progress made in the Hunter Valley in relation to the coordinated program of investment and any impact on the volume of exports as a result of the system.

Comment

1847. Whilst the first authorisation was for a limited period, the analogy is that the benefit in an efficient system promoting exports was seen as greater than the potential inefficiencies and expenses; logically, the same arguments could be put in respect of a tramp pool seeking similar authorisation. From the second authorisation it can be further assumed that a tramp shipping pool could be entitled to extend, adapt or continue a co-operative agreement approved by the ACCC, particularly where the ACCC retains rights to monitor or review the impact of the conduct or arrangement in question.

Summary of relevant data – Australia
Tramp exemption granted? **No** block exemption is available
Qualifications? Ad hoc exemptions may be sought through ordinary procedures

9.3.5 *Brazil*

9.3.5.1 Competition Law And Tramp Shipping

1848. To the best of our knowledge, the 1994 Brazilian Anti-trust law[531] contains no specific provisions on tramp shipping which would be subject to the general Brazilian competition rules. The local anti-trust national authority is the Administrative Council for Economic Defence (CADE), a federal independent agency reporting directly to the Ministry of Justice.

1849. Article 20 of the Brazilian Anti-trust law states:

> "Notwithstanding malicious intent, any act in any way intended or otherwise able to produce the effects listed below, even if any such effects are not achieved, shall be deemed a violation of the economic order:
> I - to limit, restrain or in any way injure open competition or free enterprise;
> II - to control a relevant market of a certain product or service;
> III - to increase profits on a discretionary basis; and

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530 2005 Application: A30236, A30237 and A30238.
531 Law No 8.884/94 of June 11, 1994, as amended by Law No. 10.149/2000.

> IV - to abuse one's market control.
>
> Paragraph 1. Achievement of market control as a result of competitive efficiency does not entail an occurrence of the illicit act provided for in item II above.
>
> Paragraph 2. Market control occurs when a company or group of companies controls a substantial share of a relevant market as supplier, agent, purchaser or financier of a product, service or related technology.
>
> Paragraph 3. The *dominant position* mentioned in the preceding paragraph is presumed when a company or group of companies controls twenty percent (20%) of the relevant market; this percentage is subject to change by CADE for specific sectors of the economy".

1850. Article 21 of the same law provides for a list of conducts which will be deemed to be in violation of the "economic order, to the extent applicable under article 20 and items thereof". The most relevant to pooling agreements may be the following ones:

> "I - to set or offer in any way — in collusion with competitors — prices and conditions for the sale of a certain product or service;
> II - to obtain or otherwise procure the adoption of uniform or concerted business practices among competitors;
> …
> XI - to impose on distributors, retailers and representatives of a certain product or service retail prices, discounts, payment conditions, minimum or maximum volumes, profit margins, or any other marketing conditions related to their business with third parties;…".

1851. However there is no case law on the application of neither art. 20 nor art. 21 to the tramp sector to date and whether pooling agreements may fall under the anti-competitive acts mentioned above is still to be seen.

9.3.5.2 Case Law

1852. The only case we could identify is a Preliminary Investigation[532] triggered by a complaint filed by the Brazilian Coffee Exporters' Council (CECAFÉ) in December 2004 in respect of the Terminal Handling Charge and other charges imposed by shipowners on Brazilian exporters. The CADE however decided that the practice was not to be considered in violation of Brazilian competition law[533].

1853. It also appears that the Confederation of Industries of the State of Sao Paulo (CIESP) has instructed lawyers to bring an action against recently announced freight increases by Hamburg Sud, Hapag-Lloyd, MSC and CSAV. CIESP's argument is that the above liners have formed a cartel and therefore violate the Brazilian competition law[534]. What the outcome of the investigation will be remains to be seen. In any event and whatever the outcome may be, both the nature of the issue at stake and the operators involved make this case only marginally relevant to this Report.

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532 *Averiguação Preliminar* No. 08012.010713/2004-96.
533 The final judgment was awarded by CADE on 25th October 2006.
534 Ward, R., "Brazil shippers allege box cartel", Lloyd's List, 2nd November 2006.

Summary of relevant data – Brazil
Tramp exemption granted? No
Qualifications? Ordinary competition rules apply

9.3.6 *Japan*

9.3.6.1 Competition Law And Tramp Shipping

1854. The matter of the application of competition law to the shipping industry is dealt with by the Japanese Marine Transportation Law[535] which refers to the Japanese Law relating to Prohibition of Private Monopoly and Methods of Preserving Fair Trade[536].

1855. Article 28 of the 1949 law (as amended[537]) excludes the application of the 1947 antimonopoly law to "the conclusion of agreements or contracts or joint actions by ship operators concerning freight rates, charges, other transport conditions, trade routes, ship deployment and cargo loading on the routes between a Japanese port and a port of other regions outside Japan"[538] and it clearly covers tramp shipping[539]. The exclusion would not apply where there is evidence of *unfair trade practices* or where "users' interests are unduly impaired by practically restricting competition in certain fields of trade"[540].

1856. The wording of art. 28 makes it necessary to define the meaning of the expression "unfair trade practices". A shipping-specific Fair Trade Commission Notice was issued in 1959 to shed some light on what has to be considered as "unfair trade practices" for the purposes of the applicability of the exclusion to the shipping business[541]. However, the notice has been repealed on 13th April 2006 and its contents and the case law which it has generated (see below) have now become irrelevant; the Fair Trade Commission will now have to apply Article 28 according to the general principles of competition law.

1857. Section 2 (9) of the 1947 antimonopoly law[542] provides for the following definition of "unfair business practices":

> (9) The term "unfair trade practices" as used in this Act shall mean any act coming under any one of following paragraphs, which tends to impede fair competition and which is designated by the Fair Trade Commission as such:
> (i) Unjustly discriminating against other entrepreneurs;
> (ii) Dealing at unjust prices;
> (iii) Unjustly inducing or coercing customers of a competitor to deal with oneself;
> (iv) Dealing with another party on such terms as will restrict unjustly the business activities of the said party;
> (v) Dealing with another party by unjust use of one's bargaining position;

535 Law No. 1949/187 amended lastly by Law No. 2006/19.
536 Law No. 1947/54 amended lastly by Law No. 2006/66.
537 The Amendment of the Marine Transportation Law by the Law for the Adjustment of the Immunity System from the Anti-Monopoly Law, www.mlit.go.jp.
538 Law No. 1949/187, ch. II, art 28(4).
539 Tramp shipping is also somewhat defined in art. 2(6) of the Marine Transportation Law where it says that "The tramp service enterprise … mean[s] … ship operation enterprise other than the liner service enterprise".
540 *Ivi*, art. 28.
541 Fair Trade Commission Notification n. 17 of 1959, on the "Designation of Specific Unfair Trade Practices in the Maritime Business", 11th November 1959.
542 Law No. 1947/54 above.

(vi) Unjustly interfering with a transaction between an entrepreneur who competes in Japan with oneself or the company of which oneself is a stockholder or an officer and his another transacting party; or, in case such entrepreneur is a company, unjustly inducing, instigating, or coercing a stockholder or an officer of such company to act against the interest of such company[543].

1858. In 1982 the Fair Trade Commission issued a "Designation" notice[544] with the aim of providing an explanatory list of what operators should regard as unfair trade practices. Such practices are:

Concerted refusal to deal;

Other refusal to deal;

Discriminatory pricing;

Discriminatory Treatment on Transaction Terms, *etc*.;

Discriminatory Treatment in a Trade association, *etc*.;

Unjust Low Price Sales;

Unjust High Price Purchasing;

Deceptive Customer Inducement;

Customer Inducement by Unjust Benefits;

Tie-in Sales, *etc*.;

Dealing on Exclusive Terms;

Resale Price Restriction;

Dealing on Restrictive Terms;

Abuse of Dominant Bargaining Position;

Interference with a Competitor's Transaction;

Interference with Internal Operation of a competing company.

1859. If ship operators intend to make an agreement which fall within the definition contained in art. 28 of the 1949 Act they will have to submit (in advance) a report to the Minister of Transport who may or may not approve the terms of the agreement[545]. The same shall also apply in cases where ship operators intend to modify existing agreements[546].

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543 Law No. 1947/54 above, section 2(9).

544 Fair Trade Commission Notification n. 15 of 1982 on the "Designation of Unfair Trade Practices", 10th June 1982.

545 Criteria are contained in art. 29 of the 1949 Act.

546 *Ibidem*.

9.3.6.2 Case Law

1860. The only two partly relevant Fair Trade Commission cases available concern the interpretation of the 1959 notice now repealed. They should not be considered good law anymore; they are here reported merely for the sake of completeness.

(a) The Far East Return Voyage Shipping Conference

1861. In *the Far East Return Voyage Shipping Conference* case[547] (concerned with liner conferences) the FTC specified the meaning of "unreasonably favourable treatment in regard to freight, charges and other terms and conditions", one of the specific unfair trade practices in the maritime business listed in the 1959 Notification.

1862. The European Commission decided that:

The difference between the rate paid by a contracting shipper and non-contracting shipper shall be not more than 9.5% (spread) of the fare;

1863. The contract may be terminated by three months prior notice;

1864. The compensation owed for not using the ship belonging to the conference shall not be more than 50 % of the fare applicable for using a vessel operated by the conference.

1865. It appears that after this decisions all contracts were amended accordingly.

(b) The Triple Fair

1866. In the Triple Fair (Nippon Yusen) case[548], another very specific conference case, the FTC held that in case the shipper agreed to pay compensation to the carrier for using a ships not belonging to the conference, such shipper may receive 9.5 % (spread) and also receive 2.5 % of fare deduction.

1867. To the best of our knowledge no other case was ever published or made otherwise available.

Summary of relevant data – Japan *Tramp exemption granted?* **Yes** *Qualifications?* Restrictions apply as per other industry sectors.

[547] FTC Decision, 23rd December 1959.
[548] FTC Decision, 18th August 1972.

9.3.7 *Libya*

9.3.7.1 Competition Law And Tramp Shipping

1868. To the best of our knowledge, at present Libya is still to develop its competition law.

9.3.7.2 Case Law

1869. None

Summary of relevant data – Libya
Tramp exemption granted? No competition law exists.
Qualifications? N/A

9.3.8 *Russia*

9.3.8.1 Competition Law And Tramp Shipping

1870. The relevant anti-trust legislation in Russia is the 2006 "Law on Protection of Competition"[549] which repeals the earlier 1991 Law on competition and limitation of monopolistic activity on commodity markets. More importantly, the 1993 Russian Constitution explicitly includes provisions supporting competition as a constitutional value in two separate articles:

Article 8.
1. In the Russian Federation, the unity of the economic space, the free movement of goods, services and financial assets, support for competition and the freedom of economic activity shall be guaranteed.

Article 34 (2).
Economic activity directed toward monopolisation and unfair competition shall not be permitted.

1871. As far as the new law is concerned, Article 13 deals with exemptions and provides as follows:

1. ... agreements and concerted practices […] can be recognized as permissible if [they] do not create for particular person opportunity to eliminate competition in the relevant commodity market, do not impose restrictions superfluous for achievement of the[ir] goal[s] on the participants or third persons and also if they result or can result in:

1) perfection of production, sale of goods or stimulation of technical, economic progress or raising of competitive capacity of the Russian goods in the world market;
2) obtaining by consumers of benefits (advantages) which are proportionate to the benefits (advantages) obtained by the economic entities in the result of actions (inaction), agreements and concerted practices, transactions, other actions.
2. The Government of the Russian Federation has the right to determine the cases of permissibility of agreements and concerted practices meeting the conditions stated in items 1 and 2 of part 1 of the present article (general exemptions).

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549 Federal Law n. 135-FZ of July 26, 2006, available in non-official English translation on line at www.fas.gov.ru.

1872. Hence, general exemptions may be granted by the Government of the Russian Federation on proposal of the federal antimonopoly authority for a limited period of time[550]. However to our knowledge there are no block exemptions for shipping[551].

9.3.8.2 Case Law

1873. The only shipping case we could trace relates to pilotage services and has to be considered outside the scope of this Report.

Summary of relevant data – Russia
Tramp exemption granted? No
Qualifications? Exemptions may be granted on the basis of art. 13 of the 2006 Law on Protection of Competition.

9.3.9 *South Africa*

9.3.9.1 Competition Law And Tramp Shipping

1874. In South Africa, cooperative arrangements such as tramp shipping pools would be subject to section 4 (Prohibited Restrictive Horizontal Practices) and Part B (abuse of a dominant position), of the 1998 South African Competition Act[552].

1875. Section 4 of the 1998 Act reads as follows:

Restrictive horizontal practices prohibited.
(1) An agreement between, or concerted practice by, firms, or a decision by an association of firms, is prohibited if it is between parties in a horizontal relationship and if-
  (a) It has the effect of substantially preventing, or lessening, competition in a market, unless a party to the agreement, concerted practice, or decision can prove that any technological, efficiency or other pro-competitive gain resulting from it outweighs that effect; or
  (b) It involves any of the following restrictive horizontal practices:
    (i) directly or indirectly fixing a purchase or selling price or any other trading condition;
    (ii) dividing markets by allocating customers, suppliers, territories, or specific types of goods or services; or
    (iii) collusive tendering.

9.3.9.2 Case Law

1876. There appears to be no South African case law dealing with tramp shipping or cooperative arrangements, including pools.

1877. The only case which may be considered partly relevant is a recent decision by the Supreme Court of Appeal of South Africa: *American Natural Soda Ash Corporation and another* v *Competition Commission of South Africa and others*[553].

550 Art. 13(3).
551 OECD, *Competition law and policy in Russia*, Paris, 2004, at [63 and ff].
552 The South African Competition Act, No 89/1998.

1878. The court held that the United States approach of "characterizing the conduct complained of" to determine whether it constitutes price fixing or not shall be adopted and, consequently, price fixing per se does not contravene section 4(1)(b)(i).

Summary of relevant data – South Africa *Tramp exemption granted?* No *Qualifications?* N/A

9.3.10 *United States of America*

9.3.10.1 Competition Law And Tramp Shipping

1879. In the United States the matter is regulated by the Sherman Antitrust Act[554]. Section 1 of the Sherman Act states:

> "[e]very contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several states, or with foreign nations, is declared to be illegal."[555]

1880. Regardless of the nature of the practice challenged, three elements must be established to prove a violation of Section 1:

the existence of a contract, combination, or conspiracy among two or more separate entities that

unreasonably retrains trade and

Affects interstate or foreign commerce.

1881. Cooperative pool agreements are collaborations among competitors that could potentially be viewed as meeting all three elements under Section 1 of the Sherman Act. It appears to be likely that an agreement among two or more tramp shipping competitors to form a pooling agreement would be seen as a contract or combination affecting interstate commerce. Thus, the relevant inquiry under Section 1 of the Sherman Act is whether such pooling agreements "unreasonably restrain trade."

1882. There are no exceptions or exemptions under the Sherman Act for companies involved in cooperative agreements or collaborations. The Supreme Court uses two types of analyses to determine the lawfulness of activities under the Sherman Act: *per se* and rule of reason[556]. *Per se* agreements are so likely to harm competition and to have no significant pro-competitive effect that they do not warrant any factual inquiry[557]. Types of agreements that have been held *per se* illegal include agreements among competitors to fix price or output, rig bids, or share or divide markets by allocating customers, suppliers, territories, or lines of commerce[558]. Under the *per se* standard,

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553 *American Natural Soda Ash Corporation and another* v *Competition Commission of South Africa and others* [2005] 1 CPLR 1 (SCA).

554 Sherman Antitrust Act, Act of July 2, 1890, ch. 647, 26 Stat. 209, as amended, codified at 15 U.S.C. § 1 through 15 U.S.C. § 7 (hereafter "*Sherman Act*").

555 *Sherman Act*, 15 U.S.C. § 1.

556 *National Society of Professional Engineers* v *United States,* 435 U.S. 679, 692 (1978).

557 See "Antitrust Guidelines for Collaborations among Competitors", issued by the Federal Trade Commission and the U.S. Department of Justice, April 2000.

558 See, e.g., *United States* v *Trenton Potteries Co.,* 273 U.S. 392 (1927); *Arizona* v *Maricopa County Medical Society*, 457 U.S. 332 (1982).

a court will conclusively presume such agreements, once identified, to be illegal without considering any evidence that the agreement might have a legitimate business purpose or a pro-competitive effect upon commerce in a given market.

1883. Alternatively, all other agreements are evaluated under the rule of reason, which involves a factual inquiry into an agreement's overall competitive effect[559]. The central question in a rule of reason inquiry is whether the agreement will likely harm competition by increasing the ability or incentive to raise price or reduce output, quality, service, or innovation below what would likely prevail absent the agreement. A court will look to several factors including but not limited to: (1) the business purpose of the agreement, (2) the relevant markets at issue, and (3) the pro-competitive benefits of the agreement. No one factor is decisive in the analysis.

1884. The *per se* standard is generally reserved for arrangements that employ bare restraints on trade, such as price fixing and market division. Assuming these elements are not present, because tramp shipping pools have to date not been extensively examined in the antitrust context, courts would likely have little basis upon which to conclude that collaborations such as pooling agreements always have a net anti-competitive effect. Moreover, where participants have combined in an efficiency-enhancing joint venture that is reasonably designed to achieve pro-competitive benefits, courts will usually analyse the arrangement under the rule of reason. Pool agreements would seem to fall under this category because, among other benefits, they enable participants to use their assets more efficiently and allow for investments that might not be possible absent the agreement. Thus, courts would likely employ the rule of reason standard when analysing pool agreements.

1885. Whether or not a particular pooling agreement would withstand an antitrust challenge under a rule of reason analysis is a fact-specific inquiry that would depend on several factors[560]. Under the rule of reason, the court will weigh all of the particular circumstances to determine whether a restrictive practice would be unreasonable. An agreement will only be deemed unlawful if, after sufficient market analysis, it is determined that the agreement has resulted in, or is likely to result in, a net adverse effect on competition in the relevant market.

1886. Factors considered in rule of reason analysis include relevant product market, relevant geographical market, market power (defined as ability to raise price or restrict output within the relevant market), purpose of a restraint, anticompetitive effect (*e.g.*, higher prices, lower output, *etc*.), pro-competitive effect (*e.g.*, better service, lower prices, *etc*.) and availability of reasonable, less restrictive alternatives[561]. Also evaluated is the extent to which the collaboration participants have the ability and incentive to compete independently, the ability of others to enter the market, and the pro-competitive effects of the collaboration such as reduced costs to the consumer, better utilisation of assets and other efficiencies. If the examination of these factors indicates more pro-competitive benefits than anti-competitive harm, the arrangement or agreement would likely withstand an antitrust challenge under the rule of reason approach.

9.3.10.2 Case Law

1887. None found nor provided.

Summary of relevant data – USA
Tramp exemption granted? No

[559] See *Chicago Board of Trade* v *United States*, 246 U.S. 231, 238 (1918).

[560] *Continental T. V., Inc.* v *GTE Sylvania Inc.*, 433 U.S. 36, 49 (1977).

[561] See *California Dental Association* v *FTC,* 526 U.S. 756 (1999); *NCAA* v *Board of Regents,* 468 U.S. 85 (1984); *SCFC ILC, Inc.* v *VISA USA, Inc.*, 36 F.3d 958 (10th Cir. 1994).

Qualifications? Conformity of pooling agreement with the *Sherman Act* will probably be evaluated according to the "rule of reason" analysis.

9.4 SYNTHESIS OF THE CASE LAW AND CONCLUSIONS

1888. We have concentrated our efforts on researching the laws of those countries considered to be the most relevant to this Report in terms of volume of commodities and non containerised goods imported to the EU. Some of the jurisdictions considered are still developing their own competition laws under the auspices of international organisations, and in the meantime have no anti-trust rules at all. Among the countries that do have more or less complex thematic legislation, some grant express (conditional) exemptions to liners and/or tramp shipping, some others just consider the shipping industry as any other service provider and make it fall *tout court* within the scope of their respective anti-trust regimes.

1889. What may be said, however, is that – no matter whether the local anti-trust legislation provided for an *ad hoc* exclusion or not – in none of the jurisdictions considered it was possible to identify decided cases or antitrust authority judgements dealing specifically with the tramp shipping sector. In countries with a fairly recent anti-trust history, this may be due to the relatively short life of the relevant regulatory framework; however, the lack of judicial review in countries with a long and well respected pro-competitive history may rather be a clear signal that pooling agreements are actually not likely to generate any distortive effect on the markets within which they operate.

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10. CONCLUSIONS

1890. This Report was commissioned by the European Commission to provide it with the necessary expertise on tramp shipping markets so as to be in a better position to apply the EC competition rules in the tramp shipping sector and, if appropriate, to issue sectoral guidelines. Following a wide-ranging legal and economic analysis of the sector, the consultants have drawn the following conclusions as to the nature of the competition law issues arising and their likely analysis.

POOLS IN THE TRAMP SHIPPING MARKET

1891. The consultants identified over 40 pools in the chemical products, tanker, LPG, dry bulk and reefer markets[562] but were only in a position to analyse a limited and random selection of them. Of the total number of actual pooling agreements subjected to detailed analysis (17),[563] one was for a pool that has been disbanded, and two had incomplete documentation. Within the sample analysed certain definite patterns nevertheless emerged, both in terms of their organisational structure and in terms of the types of contract used and individual contract clauses. The main characteristics of the pools surveyed in this Report were as follows.

1892. While their organisational and contractual features were generally seen to be similar, there were no common or standard contracts for pool agreements (in contrast to the position for charter parties). Each pool agreement seen by the consultants differed in its detailed provisions.

1893. In the majority of cases, the pools surveyed had separately constituted pool management companies in which the members of a pool were the shareholders (usually with a Shareholders' Agreement that sets out their respective rights and obligations) but which enjoyed a fair degree of commercial responsibility in relation to the management and operation (including, significantly, the marketing) of the vessels that the members place into the pool.

1894. A more limited number of pool agreements were structured more simply, with one of the members fulfilling the pool manager's role. Despite this organisational difference, however, the functions performed by the member appointed as the pool manager were largely similar to those performed by the independently incorporated pool management companies in the survey.

1895. For convenience, we grouped the functions that are usually retained by owners and/or entrusted to pool management companies or, as the case may be, members performing that role, into three broad categories: technical management of the vessels, commercial management of the vessels and commercial operation of the vessels. This categorisation not only corresponds to the commercial realities but we felt were also helpful distinctions for the purpose of carrying out the competition analysis.

1896. In no cases did we find pools being given responsibility for the technical management of the vessels in the pool, that responsibility always remaining the owners'. That means that *owners* always, as far as we could tell, retain quite considerable responsibility for everything relating to the vessels themselves, the physical assets used to provide the tramp vessel services, such as finance, insurance, safety and maintenance, classification *etc.*

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562 Pools were not found in the LNG or PCC segments: the consultants concluded that the reason for this was that, for the LNG segment, the majority of the vessels are committed for long-term contracts before delivery. Moreover, some of the vessels are owned by both the ship owner or operators and the gas owners together. Similarly, there is very little spot trading in the PCC market. Because of the nature of these markets entering into pools would not be a sensible option or offer any particular advantages for suppliers or customers.

563 The pool agreements were accessed on a confidential basis. The results of that detailed analysis are presented in anonymised form in a table contained in Annex 7.

1897. Against this, all but one of the pool agreements in the analysis provided for *the pool* to carry out the *commercial management and operation* of the vessels.

1898. We took a broad view of what we included within the category of commercial management functions, including all those aspects of the provision of tramp vessel services that relate to the fixing of vessels and are essentially "client-facing", such as the active seeking out of new business, maintaining contacts with brokers and other potential customers, responding to requests for tenders, negotiating charter or contract terms, including fixing hire or rates, and concluding contracts and planning the vessel scheduling in such a way that this can be achieved.

1899. The operational functions include the deployment of vessels to provide the services contracted for, including performing voyage charters, and delivering and taking redelivery of vessels at the start and end of each period charter, plus procurement of all the necessary services and supplies to enable the vessels to do their job.

1900. From a competition law point of view, perhaps the most significant feature of all but one of the pools analysed was that in providing for commercial management of the vessels they all provided (to a greater or lesser degree) for joint marketing of the services of the pool. In using this term we use it not in the narrow sense of advertising the service (which in most parts of the tramp industry is not generally necessary given the role of brokers and the way vessels are usually fixed) but in a broader sense of holding the pool out in the market as a single marketing entity. Charterers, shippers and other customers are all aware they are dealing with a pool and not individual competing owners. Pools are therefore integrated providers of the relevant tramp vessel services, and appear to compete directly, as entities in their own right, with owners who operate independently of any pool.

1901. The consultants would assume that in practice, the integration of the commercial management and operational functions, is seen by the pool members as the best way of supplying the relevant services as efficiently as possible so as to match pool capacity to customer demand. Where the constituent pool agreements analysed had a stated purpose, this was generally expressed to be the maximisation of the pool's earnings, but in view of the fact that pools are commercial arrangements, it did not strike us as surprising to find this expressed to be the primary commercial motivation.

1902. In performing the relevant commercial management and operational functions, the pool manager inevitably needs to be able to fix the vessels in the pool, and have the relevant authority from their owners to do so. Legally, this is achieved in one of two ways: either through time charters or through agency. In the former case vessels are chartered to the pool management company or relevant member with pool management responsibility, for subsequent sub-chartering by the pool management company or member to charterers under time charters or voyage charters in the usual way, or else used to perform voyages under any relevant CoAs entered into by the pool management company or relevant member.

1903. The majority of pools assessed were net revenue pools in which the pool manager (whether or not separately incorporated) collects the freight rates or charter hire and other income and pays the voyage-related expenses before distributing the earnings to the members. The earnings are frequently based on each vessel's pool points and the number of days the vessel has been on-hire and various other factors, which vary from one agreement to the next.

1904. When describing the various pool managers' functions as being provided "jointly", the consultants used the term in the sense that the owners pooling their vessels effectively relinquish responsibility for marketing those vessels' services, just as they relinquish responsibility for the two other functions transferred to the pool manager in relation to the pooled vessels. The owners retain responsibility for the vessels' technical management and, so far as they are not required to put all their vessels into the pool, for any other vessels they may own at that, or any later date.

1905. In conclusion, the survey we carried out establishes a clear pattern. The pool manager normally has authority to fix and operate the vessels entered in the pool without reference to the owners. The pool manager accordingly performs a single integrated economic activity, combining responsibility for organising the provision of the pooled services with responsibility for marketing and selling those services. From a charterer's perspective the pool is seen to be a single entity, effectively separate from its members.

1906. Inevitably, owners who place their vessels into such a pool structure, lose control over the way their vessels are traded and the prices obtained for the services provided through the use of those vessels. This is achieved through the provisions relating to the fixing of vessels (which includes the agreeing of freight rates or charter hire with specific customers) by the pool manager. From a competition law point of view, we reached the inevitable conclusion that this structure of itself required analysis under Article 81 as it *prima facie* leads to the fixing of prices, sharing of customers and markets and limitation of output contrary to Article 81(1).

1907. We also identified some specific clauses contained in the pool agreements examined that required analysing under Article 81(1) as they might have the object or effect of preventing, restricting or distorting competition. Such clauses included non-compete clauses, termination and notice clauses and provisions on the lay-up of vessels.[564]

1908. As a preliminary step in carrying out the competition analysis, we first sought to define the relevant markets for competition law purposes, using the usual approach laid down in case law and practice, and relying on both demand-side and supply-side factors to arrive at appropriate product and geographical market definitions. Our basic conclusions as to the relevant markets were as follows.

TRAMP SHIPPING MARKET DEFINITIONS:

Liquid bulk:

1909. It was concluded that at its broadest the relevant product market is the provision of transport services by sea of liquid bulk products and/or commodities. Arguably, this can be sub-divided into the various product categories (such as chemicals, CPP, crude oil, *etc*.), vessel sizes and vessel types. On a narrow product market definition, some of the liquid bulk products, such as CPP, crude oil and dirty petroleum products can also be sub-divided into more categories and therefore markets. This is due, for example, to the regulated nature of certain products or the equipment available to certain vessels to carry particular products. It was in particular noted that there was relatively little substitution between VLGCs and smaller gas carriers except at times of extreme shortage of relevant tonnage, leading to the conclusion that the market for VLGCs should be considered a distinct product market from that for other gas carrying vessels.

1910. We concluded that the geographical market for liquid bulk could be considered global, although exceptions were found to exist where narrower product markets (such as the market for VLGCs) are considered. Only LPG stands out from this trend on a narrow market definition. In that

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564 The pool contracts were analysed by reference to the following specific headings: how the pools are organised, the degree of integration, whether there is a dominant member, what the objectives are, if the agreements contain clauses which may be anti-competitive, how long the notice periods are, whether there are any clauses on lay-ups, the amount of vessel capacity and compensation clauses for breaches, how disputes are to be solved, which decision-making bodies there are and what authority the various bodies have, what the corporate identity is and, finally, how the revenue sharing is organised.

context, the geographical market for this commodity can be subdivided between East of Suez and the West of Suez trade routes.

Dry bulk:

1911. In relation to the dry bulk sector, the consultants tested whether there was a single broad relevant product market for the provision of transport services by sea, of dry bulk goods and/or commodities. Some indications were found that tended to imply separate markets for iron ore and grain, but the evidence was conflicting. On a narrow product market definition based on the size of the vessel used to provide the service, Capesizes and Panamaxes could be distinguished from Handysizes and Handymaxes, as most commodities can be carried by all vessels, but a limited number can only be carried by certain specific vessels. In reality, all four vessel types could be said to belong to different markets due to their respective sizes, but the significance of this would vary according to the shipper's choice of parcel size.

1912. In terms of the relevant geographical market, we concluded on balance that the relevant market for dry bulk commodities is global, although Handymaxes are an exception. Size appears to be the determining factor for whether a particular vessel size is regularly used globally or normally traded in discrete geographical regions. It seems that the larger the vessel, the more global the market for dry bulk commodities. Although vessel sizes largely overlap, there seem to exist separate regional markets on a narrow geographical market definition. The market for Capesizes and Panamaxes is global, whereas that for Handymaxes and Handysizes is more regional.

1913. The consultant were at the end of the day unable to reach any final conclusions based on the limited price correlation analysis they were able to carry out within the scope of the study, which was limited to a broad comparison of freight rates across commodities, vessel sizes and geographical regions. Broadly the price correlation analysis showed positive correlations of generally above +0.70 and in many cases above +0.80. A fuller econometric study would, however, be necessary to test each of the above hypotheses more fully and accurately.

Neo-bulk:

1914. The neo-bulk sector (as the consultants have defined it) covers the provision of transport services by sea of dry bulk goods and/or commodities. However, a number of products and commodities have particular transport service requirements and features that make it necessary to distinguish them from the majority of dry bulk goods and commodities considered above (and from each other). The product market in the neo-bulk segment is accordingly divided between the different types of commodities carried, such as perishable goods, motor vehicles and forest products. Being very different types of commodities, they need to be transported in vessels that are specifically equipped. They therefore fall into different product market categories.

1915. We noted in particular that:

- Forest products must be distinguished as they are carried on board specialised OHBCs. Evidence nevertheless suggests that they are moving towards being less of a separate product market with time as they can increasingly be transported in containers.
- Although often seen as quasi-liner, PCCs may also be in a separate market due to the special facilities needed to transport cars, motor vehicles, *etc*.
- For perishable goods, the relevant product market is the specialised reefer market, as distinct from the market for the liner market which provides for the transport or perishable products by refrigerated containers; but there was found to be considerable switching to the reefer container market and only limited switching back.
- Finally the Ro-Ro market is also a separate market.
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On a wide definition, most of these product markets overlap with the container market to some extent, but evidence shows that they in fact remain separate product markets.

1916. The geographical market for neo-bulk goods and/or commodities can generally be defined as global, although different routes can be seen in the different segments of the product markets. In that respect, OHBC geographical markets can be divided into Asia, intra-Europe and intra-Americas. Arguably, these routes all form part of a global network, supporting the idea that the geographical market for the products is global. Since the reefer and PCC markets bear some similarity with liner markets, to the extent that their geographical markets are narrowly defined they could be sub-divided along different corridors. For Ro-Ros, the geographical markets defined narrowly can be sub-divided between short-sea and deep-sea, and Africa could also be considered as a separate geographical market in its own right. Otherwise, the geographical market for Ro-Ros is global.

THE IMPACT OF POOLS ON COMPETITION IN THE TRAMP SHIPPING MARKET

1917. The competition law analysis in the Report has principally been focused on shipping pools as they are the predominant form of horizontal cooperation in the tramp shipping sector. The analysis, however, also covered other contractual arrangements between owners or operators to the extent they were thought to raise competition issues.

1918. As stated, all but one of the pools examined involved a full integration of commercial and operational functions, with the result that *prima facie* they were brought within the scope of the prohibition in Article 81(1).

1919. However, we have considered whether the prohibition in Article 81(1) applied to pools in all cases and, where it applied, the extent to which Article 81(3) defences might be available. Our analysis was structured in three main stages:

(a) Application of Article 81(1);

(b) Application of Article 81(3);

(c) Possible application of block exemptions.

1920. We then looked at various other forms of cooperation in the industry and carried out a similar, if briefer, competition analysis.

1921. Finally, we also considered the possible application of Article 82 on abuse of a dominant position to pools with a collective dominant position and the application of the EC Merger Regulation[565] where pools constitute full-function joint ventures.

Article 81(1)

1922. We approached this stage of the analysis, under Article 81(1), by examining, first, whether pools involve one or more restrictions of competition; secondly, whether they are deemed by their object to infringe Article 81(1); thirdly, whether they could be said to have appreciable effects on competition; and lastly, whether they have the necessary effect on trade between Member States.

[565] Council Regulation (EC) No 139/2004 of 20 January 2004 on the control of concentrations between undertakings (the EC Merger Regulation), OJL 24/1 of 29.1.2003.

1923. We concluded that the European Commission's Horizontal Guidelines[566] provided a suitable framework for the overall analysis even though it is currently stated not to apply to transport services as at the time they were subject to separate sectoral rules. We also made reference, as appropriate, to the *de minimis* Notice[567] and the Notice on effect on trade.[568]

1924. The Horizontal Guidelines make it clear there can be no automatic presumption that horizontal cooperation produces economic benefits and that horizontal cooperation agreements consequently always escape the prohibition in Article 81(1). The anti-competitive effects need balancing against the economic benefits and agreements must be analysed in their full economic context.

1925. The Horizontal Guidelines suggest three situations where horizontal cooperation would not normally restrict competition, namely (i) where the parties are not actual or potential competitors, (ii) where the parties would not have been capable (principally through lack of resources) to engage in the project or activity independently and (iii) where the cooperation concerns an activity that does not "influence the relevant parameters of competition".

1926. We concluded that the first situation did not appear to apply on the basis of facts known to us to any of the pools surveyed in the Report as in general, even new entrants, had some connexions with the shipping industry and could potentially have competed. The second situation might assist in some cases but we concluded that, in the majority of cases the decision to pool vessels was dictated by commercial considerations and not an inability to trade those vessels independently. That left only the third situation, which we thought might avail some purely technical forms of cooperation and information exchanges not involving commercially sensitive information.[569]

1927. We next turned to consider if pools, by integrating a number of commercial functions and removing those functions from the vessels' owners, should be treated as involving hardcore restrictions and so be deemed by their object to infringe the prohibition in Article 81(1).

1928. The Horizontal Guidelines list cooperation agreements that have the object of fixing prices, limiting output, sharing markets or sharing customers as automatically falling within the Article 81(1) prohibition, regardless of their effects. The section of the Horizontal Guidelines headed 'Commercialisation Agreements' makes it clear that, for this category of agreement, Article 81(1) will always be applicable by virtue of its prohibited objects, regardless of whether it may have appreciable effects on competition or any such effects at all, and will only rarely be capable of satisfying the conditions of application of Article 81(3).

1929. At first sight we were forced to conclude that pool agreements did have hardcore restrictions as their object in the sense that the pool manager always (except in one case) negotiated contracts and fixed vessels, so by implication leading to the members agreeing price and output, and by implication also markets and customers.

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[566] Guidelines on the applicability of Article 81 of the EC Treaty to horizontal cooperation agreements, OJC 3/2 of 6.1.2001.

[567] Commission Notice on agreements of minor importance which do not appreciably restrict competition under Article 81(1) of the Treaty establishing the European Community (*de minimis*), OJC 368/7 of 22.12.2001.

[568] Commission Guidelines on the effect on trade concept contained in Articles 81 and 82 of the Treaty, OJC 101/7 of 27.4.2004.

[569] We noted that Article 2 of Council Regulation 4056/86 of 22 December 1986 laying down detailed rules for the application of Articles 85 and 86 of the Treaty to maritime transport, OJL378/4 of 31.12.86, listed a number of agreements in the liner sector whose sole object was "technical" with the result that they could be presumed to fall outside the scope of the prohibition in Artilce 81(1): we suggested that some of them might by analogy be treated in the same way in the tramp sector.

1930. In footnote 18 of the Horizontal Guidelines the Commission nevertheless acknowledges that what are termed "production joint ventures" with an integrated distribution function are an exception to the presumption that all agreements involving joint pricing or output decisions *per se* fall within the prohibition in Article 81(1). It is "inherent to the functioning of such a joint venture that decisions on output are taken jointly by the parties."[570] The same applies to prices where a joint venture also markets the jointly manufactured goods: "[I]n this case, the inclusion of provisions on prices or output does not automatically cause the agreement to fall under Article 81(1). The provisions on prices and output will have to be assessed together with the other effects of the joint venture on the market to determine the applicability of Article 81(1)."[571]

1931. In principle we have seen no reason why the above guidance should not be capable, broadly speaking, of applying *mutatis mutandis* to shipping pools in so far as they enable services to be both produced and brought to the market on a joint basis. We have explained in some detail how we believe this could be made to apply to the circumstances of the shipping industry (and to a service sector), given that the Guidelines are written in terms of goods where it is easier to differentiate between the production and distribution stages. Our conclusion was that they were capable of so applying and that this was the correct approach, but that as the law stands the position is far from clear.

1932. In our analysis, it is not the case that owners produce a service and pool managers merely redistribute or market that service.[572] The pool manager's functions are substantial and inherent in the production of the downstream transport services provided to customers. Looked at from the other point of view, when owners enter their vessels into the pool, those vessels then merely become the means of production of the joint services. The vessels themselves are merely an input into the transport services jointly provided by the pool manager, enabling that service to be provided and so like the raw materials needed for the manufacture of physical goods. Each of the owners provides some of those inputs. The joint functions themselves (which typically include the commercial management and operation of the pooled vessels, in other words organising the service itself and marketing it) are, however, integrated into the hands of the pool manager, in the same way as production and distribution of goods might be integrated in a single joint venture factory as envisaged in the Horizontal Guidelines.[573]

1933. The corollary of such an interpretation is that pools would not be categorised as joint commercialisation. Joint commercialisation is defined in the Horizontal Guidelines[574] as including joint selling, distribution and promotion. These are of course all functions that we found in the vast majority of pools we analysed which we in fact entrust the pool manager to perform, but at the same time the pool manager organised and arranged the provision of the actual services, which for the reasons explained above, we clearly categorise as quite different from mere distribution. Consequently, so far as pools integrate the functions of commercial vessel management and operations, both the backroom functions associated with the provision of the tramp vessel services and all the client-facing functions, are in our view a clear example from the service sector of joint production coupled with joint distribution.

1934. It would in our opinion be wrong to view the owners as providers of the service and the pool manager as merely having a sale, distribution and promotional function. To the extent that the sale

570 Horiontal Guidelines (see footnote 566), footnote 18.

571 *ibid.*, further developed at para. 90 of the Horizontal Guidelines.

572 This is highly relevant to the question whether the Specialisation Block Exemption could apply, as it specifically does not cover mere distribution services. However, we return to this point below.

573 See, in particular, para. 90 of the Horizontal Guidelines (footnote 566) for the underlying concepts.

574 Horizontal Guidelines (footnote 566), para. 139.

and promotion of tramp vessel services are pooled, they form in our view a critical and integral part of the operation of the vessels and are fully integrated into such operations.

1935. The issue is of crucial importance for determining how pools should be assessed under the EC competition rules. Insofar as they allow the integration of the provision of shipping services, including all the operational aspects connected with their delivery to customers, they involve joint production and distribution together and are not to be regarded under the Horizontal Guidelines as automatically falling under Article 81(1). We have identified this as the crucial issue that needs resolution before any definitive legal analysis can be undertaken.

1936. We would favour an interpretation whereby the majority of traditional pools, all of which are fully integrated, are analysed as forms of joint production and distribution of services. We showed in the Report that this could make a significant difference to their compatibility with the competition rules. The difference in legal treatment is as follows.

1937. The Horizontal Guidelines indicate that horizontal cooperation agreements under which the parties integrate both production and distribution of goods or services are an exception to the rule and that joint price and output decisions are automatically in breach of the prohibition in Article 81(1) by reason only of their objects. They will fall within that prohibition only if they have the effect of appreciably preventing, restricting or distorting competition in the relevant market. An analysis of their surrounding economic and factual context must be carried out. The higher the market share of the parties, the more likely it is that those effects will be appreciable.

1938. In this context, we noted that where the pool members belongs to one or more other pools that this can be expected to have a coordinating effect on the behaviour of all pools in which that member has interests. This raises potential competition issues to the extent that the pools are in the same market. In such cases, it will in practice require aggregation of the market shares of the pools involved.

1939. If pools can be treated as types of joint production and distribution, as we have argued, they are in any event eligible to be exempted by the Specialisation Block Exemption[575] to the extent that they fall within the Article 81(1) prohibition. It would only be necessary to have resort to Article 81(3) insofaras the parties' aggregate market share was situated above 20% (the limit set by the Specialisation Block Exemption as a condition of block exemption) and/or the agreements contained restrictions that were not ancillary.

1940. In considering whether a joint production agreement had appreciable effects on competition we identified what appears to us to be a particular anomaly in the Commission's guidelines. On the assumption that certain types of pool can indeed be classified as joint production, and so would *prima facie* be viewed favourably under the horizontal cooperation guidelines and the Specialisation Block Exemption, we would have expected them not to be treated under the *de minimis* Notice[576] as *per se* falling within Article 81(1) where the parties' market power was limited. As drafted, however, the *de minimis* Notice contains no exception for joint production and distribution joint ventures in either the goods or the services sector and cannot be relied on. This did, however, strike us as an apparent inconsistency.

1941. Our analysis of pools as joint production and distribution joint venture agreements has been put forward as our best analysis, but may be wrong. If it is wrong it is equally clear to us that it

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[575] Commission Regulation (EC) No. 2658/2000 of 29 November 2000 on the application of Article 81(3) of the Treaty to categories of specialisation agreements, OJL 304/3 of 5.12.2000.

[576] Commission Notice on agreements of minor importance which do not appreciably restrict competition under Article 81(1) of the Treaty establishing the European Community (*de minimis*), OJC 368/07 of 22.12.2001.

follows that pools would have to be analysed as commercialisation agreements (as defined in the Horizontal Guidelines[577]) and consequently deemed to fall within the prohibition in Article 81(1). The definition in question covers agreements involving "cooperation between competitors in the selling, distribution or promotion of their products".

1942. In order to count as commercialisation agreements, pools would require to be solely concerned with the "selling, distribution and promotion" of the relevant services. They would only escape the prohibition in Article 81(1) if they could satisfy the efficiency and other requirements of Article 81(3). Self-assessment would therefore be required in all cases.

1943. Although we did not find any directly applicable case law or legislation in the course of the review of any non-EU jurisdictions in Chapter 9, that provided direct guidance on the assessment of pools, we did find that the review of US antitrust legislation provided support for the general approach under Article 81(1) and Article 81(3). As was observed, under US antitrust law[578] a rule of reason analysis would likely be admitted for pooling agreements, requiring the weighing up of all of the particular circumstances to determine whether a restrictive practice would be unreasonable. Even though no decided cases were found, it was thought that a pool which could be shown to have pro-competitive benefits and which did not give the parties the ability to raise prices or restrict output would generally be able to withstand an antitrust challenge in the US courts under the rule of reason approach. US law would therefore seem to provide for a similar balanced assessment of the pro- and anti-competitive effects of pool agreements, which should give a result that is not dissimilar to the result obtained following the carrying out of the balancing exercise required by Article 81(3). This would not, however, preclude the application of the Specialisation Block Exemption or a sectoral block exemption if those conditions were deemed to be satisfied with regard to a whole category of agreements of a similar type and with similar economic effects.

1944. We proceeded to consider what arguments, if any, could be put forward in favour of pools under Article 81(3) on the assumption that self-assessment is needed (whether in all cases or only in those cases we have identified above). *Prima facie*, pools, by integrating vessels from different owners, should be more able to achieve efficiencies of scale and scope than the members could achieve on their own. The case law and the relevant Guidelines[579] do, however, set the bar at quite a high level in terms of the degree of proof needed to satisfy the relevant conditions and the corresponding evidence that must be adduced.

Article 81 (3)

1945. Self-assessment under Article 81(3) requires the parties to justify their agreements, and in particular to adduce proof that they create sufficient efficiencies to outweigh their presumed anti-competitive effects, as well as proof of the indispensability of the joint selling, distribution and promotional restrictions, proof that those efficiencies are in principle able to benefit consumers, and proof that there is no risk of market power exercisable by the pool being such as to create the risk of market foreclosure.

1946. There are generally four key efficiency factors which we have identified as being generally applicable to all pools. These are:

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577 Horizontal Guidelines (footnote 566), paras. 139 *et seqq.*

578 See Section 9.3.10, Paras 1879 *et seqq*. which considers the application of the Sherman Act to pools in the light of the Antitrust Guidelines for Collaborations among Competitors issued by the Federal Trade Commission and the U.S. Department of Justice.

579 We relied on both the relevant sections of the Horizontal Guidelines and on the Commission's Notice on the application of Article 81(3), OJC 101/81 of 27.4.2004.

(i) the increased capacity utilisation and output;
(ii) economies of scale;
(iii) economies of scope and lowering of the trading risk;
(iv) efficiency enhancement and technical improvements.

1947. We took the view that most of the benefits that pools could show are of a quantitative nature. However there were also qualitative service improvements following from the better utilisation of the fleet and some pools that promote technical improvements, particularly in those markets which require specialised tonnage or access to specific shore side facilities. However, the majority of the efficiencies in the tramp sector fell under the general heading of improvements in the production or distribution of goods.

1948. These benefits are particularly evident in the case of CoAs, which require a certain minimum number of vessels to be commercially attractive to charterers, shippers and other customers wishing to contract on that basis.

1949. On the side of the owners, the predominant reasons for entering into a pool were found to be risk spreading and efficient fleet deployment: three specific reasons are generally given, namely the greater certainty of being able to secure an income when markets are poor and thus ensuring a more stable service, improving members' ability to meet customers' needs compared with the position if they acted alone (mainly through much more effective utilisation of capacity), and a greater opportunity to undertake large CoAs and persuade customers who want to enter into CoAs to contract with them.

1950. Our research confirmed that no pools in existence today pursue a single business model of only trading on the spot market or only trading on the basis of CoAs or long-term charters. This means that there are not any pools that would as a matter of policy restrict themselves to contracting exclusively on the basis of CoAs, but like any owner or operator outside a pool pools seek to maximise their efficiency and their revenues by responding to demand. They therefore organise themselves so as to meet demand for CoAs, time charters or spot business depending on what the market wants from time to time and from customer to customer.

1951. Modern pools tend to be highly flexible in the commercial strategies which they can offer their members, running spot business in parallel with CoAs, period time charters, and FFA cover. Many pools allow ship owners or operators to choose their preferred level of risk, depending on whether they want secure income, probably at a lower level compared to a usually riskier option of pure spot market operations where income can be much higher at times, but variable.

1952. This greater stability of income generally appeals to financial institutions, and it is often a condition of a loan for a newbuilding or even second hand tonnage that the vessel should be entered into a pool: in that sense pools can act as an incentive to enter the market and provide a secure base for shipowners to expand capacity. This was seen in all parts of the market to have a beneficial effect in terms of bringing rates down.

1953. The consultants concluded that in the majority of cases there were strong efficiency arguments in favour of pooling, although in some markets and as between some parties the arguments might be stronger than it is for others.

1954. Furthermore the consultants identified a number of ways in which the various economies of scale and scope outlined could in turn be expected to contribute to net consumer welfare. Most of the benefits (in terms of better vessel utilisation, availability and flexibility of services, lower operational and administrative costs and other economies of scale) would in their view tend to increase the capacity available to perform services and so directly benefit customers both in terms of increased output and lowering of rates.

1955. The increased utility for buyers of pools services were to our mind therefore potentially clear. We considered that it was reasonable to expect that they would be passed on to customers, and ultimately consumers, provided that the fourth condition of Article 81(3) is duly met and the pool does not enjoy a level of market power in its relevant market that allows it to control capacity or rates and therefore influence the normal competitive balance of supply and demand.

1956. In addition to the central clauses dealing with joint operation and commercial management, pool agreements contain various other potentially restrictive clauses which we analysed under Article 81(3) with a view to establishing whether they are indispensable.

1957. Twelve of the pools analysed contain a form of non-competition covenant. The exact wording varies. They usually make it clear that the restriction on competing activities applies only to vessels of the same type as those committed to the pool ("qualifying" or "restricted" vessels) and/or in the same trade as the pool and some specify that the activities must be "in competition with" the pool.

1958. The termination provisions show some variations. Generally pools have no fixed term, but contain provisions whereby they can be dissolved on giving between 6 and 12 months' notice, or whereby individual vessels can be withdrawn subject to notice (periods ranging from 90 days to 6 months) and provided they are not already committed by the pool.

1959. Express provisions governing lay-up were found in nine of the pools analysed. Decisions on lay-up are required in such cases to be taken jointly, though the precise method differs.

1960. The application of the indispensability test will differ according to whether a pool is analysed as a joint production agreement or a joint commercialisation agreement. In the latter case, the rate fixing functions of the pool manager would need justification on grounds that they were indispensable for the achievement of the efficiencies of the pool. We take the view that these functions are indeed indispensable for providing an integrated service and should therefore be considered indispensable. We considered also whether non-compete covenants were, in some or all cases, indispensable for the achievement of the efficiencies of the pool. We considered that there might be a number of reasons, in particular where the restriction on competing activities is limited to the vessels placed in the pool.

1961. The evidence did not indicate that pools have historically ever been able to use their joint resources and combined market power to push prices up at any time in any segment of the industry. Far from it. Where there are pools, they operate as a single commercial entity in competition with other operators (both independent and pooled) and the freight rates show all the signs of responding to normal forces of supply and demand without the existence of pools apparently causing any distortions.

1962. We gave our best estimates of the market shares held by pools in the various relevant markets that we had identified and found few examples of any pools with significant market shares except in the LPG sector. In calculating the market shares of pools we took account of possible coordination effects arising from common memberships of several pools by aggregating those pools' market shares.

The Specialisation Block Exemption[580]

1963. The consultants have concluded that in their opinion there is no reason in principle why the Specialisation Block Exemption should not be relied upon by independent owners of tramp vessels who decide to integrate the management and operation of their vessels through a pool by appointing a pool manager or one of their members to manage, fix and operate those vessels on their behalf. The scope of the Regulation appears broad enough to cover the two different legal routes available for achieving a pooled fleet of vessels, *e.g.* the pool manager may have the right to sub-charter the vessels on common, pre-agreed, terms, or may be constituted a full commercial agent with power to contract on his principals' behalf (whether on a disclosed or undisclosed basis). However, there are some legal issues and issues of legal construction which we have acknowledged will in due course require further discussion and analysis.

1964. If the Specialisation Block Exemption could in principle be applied to shipping pools, the majority of them could probably benefit from block exemption as the law already stands. We considered that the block exemption would then automatically extend to any provisions whereby the parties agreed jointly to set the capacity or production volume of the joint venture or to set sales targets or the "price" charged to third parties for products sold by the joint venture. In the context of shipping pools, this would cover a number of the key provisions governing the management and deployment of the vessels in the pool, and arrangements for the fixing of those vessels, including the setting of the relevant freight rates or charter hire by the pool manager. An assessment of the non-compete clauses (if any), provisions governing lay-up and provisions governing the minimum period of notice of termination and/or the withdrawal of vessels from the pool, would need separate assessment: if ancillary, they would be covered by the Specialisation Block Exemption, but if not self-assessment would be required pursuant to Article 81(3).

The Liner Consortium Regulation

1965. Before the Regulation could be extended to pools in the tramp sector the question would arise whether such market share levels would be appropriate in the case of maritime transport services that, unlike liner services, are unscheduled and not systematically advertised. Is there something in the fact that liner services are advertised and scheduled in advance, between advertised ports and at pre-determined sailing dates, in standardised containers, that justifies different treatment from tramp vessel services?

1966. It may be that the extension would be more appropriate only in some of the tramp markets, for instance the neo-bulk markets which display many of the characteristics of liner services, such as PCC, forest products, *etc*. where there is regularity of sailing; but possibly a case could also in our view be made out in the dry bulk industry where volumes are moved at regular intervals and in large quantities.

1967. A change would also be needed to remove the provision in the Liner Consortium Regulation that requires the shipping services provided by the members of the consortium to be chiefly containerised. Much more significantly, however, if the Liner Consortium Regulation were applied *mutatis mutandis* to pools in the tramp shipping sector it is obvious that *the* central feature of shipping pools as they exist today would have to change: namely the fact that pool managers are given central responsibility for commercial management, including the fixing of vessels, the

[580] Commission Regulation (EC) No 2658/2000 of 29 November 2000 on the application of Article 81(3) of the Treaty to categories of specialisation agreements, OJL 304/3 of 5.12.2000.

determination of rates and other aspects of marketing. This is because the Liner Consortium Regulation does not permit any direct or indirect fixing of prices between the consortium members.

Other forms of Horizontal Cooperation

1968. We reviewed a number of other forms of horizontal cooperation of a sort which in our view might raise competition issues.

1969. They were:

Charters and other bi-lateral agreements:

1970. The majority of charterparties and other agreements entered into between owners or operators would not normally be expected to raise competition issues as they are vertical in nature. They are often entered into as a means of procuring additional capacity for operators who do not want to invest in additional tonnage, or do not have sufficient tonnage available for various reasons to meet their contractual obligations at any time.

1971. They will often benefit from automatic exemption under the block exemption for vertical agreements,[581] subject to satisfying the relevant market share cap of 30% if they are exclusive.[582]

1972. They do, however, raise issues if they part of a wider economic context, in particular if they are used overtly or covertly as the means to create a pool.

1973. Similarly where they are reciprocal, they clearly do raise horizontal cooperation issues and would require analysis under Article 81(1) and/or 81(3) in the same way as pooling agreements. They would not, however, be able to show the same degree of integration as the majority of pool agreements which we have specifically reviewed.

Ad hoc vessel or space sharing arrangements

1974. We found evidence of this type of agreement to be quite widespread, though specific details were scanty. We noted that they were often encountered in the reefer industry and other markets subject to cyclical peaks, enabling carriers to meet temporary capacity shortages. They tend to be spot fixtures and rates are determined in accordance with prevailing spot rates. Our analysis did not suggest any particular competition issues.

Joint outsourcing

1975. It happens that owners may contract with the same specialist ship management companies for technical management services where, as is frequently the case, such services are outsourced. There could be an issue under competition law in terms of spillover of information from one owner to another or in terms of any possible coordinating effects. It did not seem to us that it would raise any competition issue if the relevant vessels were in different markets or if confidential information flows could be prevented by means of firewalls as with B2B exchanges between competitors.

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581 Commission Regulation 2790/1999 of 22 December 1999 on the application of Article 81(3) of the Treaty to categories of vertical agreements and concerted practices OJL 336/21 of 29.12.1999 (Vertical Block Exemption).

582 *Ibid.*, Art. 3.

Pure cargo or vessel sharing pools

1976. We in fact identified only one example of a pool agreement described by its participants as a pool, but purely limited to joint scheduling. We had too few details to come to any conclusions but considered that there might be an analogy with vessel sharing arrangements in the liner industry, which are classified as consortia and potentially exempted by the Liner Consortium Regulation.

Co-service agreements

1977. According to the limited information available to the consultants, co-service agreements are common only in the chemical tanker markets but variants may exist in other markets. They are a relatively loose form of arrangement focused mainly on finding joint operational efficiencies to improve the services offered to customers. We thought they were clearly distinguishable from vessel pooling.

1978. Co-service agreements differ from pool agreements as the ship owners retain their commercial independence and bid against each other when tendering for the relevant contract from the customer (except in those cases where joint bids are accepted and the joint bid is submitted with the customer's knowledge and approval). There is therefore no question of them constituting collusive tendering, a hardcore offence. Generally, however, the consultants believe this type of cooperation to be limited to purely operational areas, without joint marketing and selling, in contrast to pool agreements.

Requirements contracts

1979. For the most part we considered that requirements contracts, under which all a customer's requirements are met by the carrier, would be unlikely to raise competition issues as they would normally be classified as vertical agreements and would be eligible for block exemption under the Vertical Block Exemption, subject to the relevant 30% market share cap and a 5-year limit if exclusive.[583]

Multiple time charters

1980. The situation where a single owner or operator, operating in its own right in the market, enters into a series of long-term time charters with other vessel owners – so extending its fleet without incurring the capital cost of acquisition or financing the relevant tonnage or the legal responsibility for technical management may raise competition issues even though individually each charter is ostensibly a vertical agreement.

1981. This situation may apply to an owner with some owned vessels in his fleet or to a pure operator with no vessels under direct ownership.

1982. The effect on the market for transport services is indirect, insofar as the arrangement potentially reduces the total capacity of vessels under the control of the operators' competitors or the vessels that those competitors could charter in. By bringing all vessels into a single operation it has effects on competition in the downstream market that resemble the effects of a pool, though it is legally quite distinct in that it does not involve any express agreement between the owners. However to the extent such arrangements can be analysed under the Vertical Block Exemption, the overall market share held by the operator under all "parallel" agreements would in our view need to be taken into account.

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583 See in particular, Articles 3 and 5 of the Vertical Block Exemption, OJL 336/21 of 29.12.1999.

Other arrangements

1983. Finally, this section of our Report covered various types of agreement which we thought would be unlikely to raise competition issues as they could generally be presumed not to influence the relevant parameters of competition, mainly because they are of a purely technical nature.

Article 82

1984. We examined briefly if Article 82 could apply to pools on the basis that the members of a pool might hold a dominant position collectively. The case law suggests that this could be the case, but a dominant position would only arise if the pool had sufficient market power to achieve dominance in the relevant market. In addition the pool would have to engage in abusive conduct that was not objectively justifiable. We thought that the grounds of justification might be similar to those under Article 81(3). Finally, we considered that that the establishment of a pool could involve a strengthening of a pre-existing dominant position contrary to Article 82 in certain cases.

Full-function Joint Ventures

1985. We thought the pools analysed in this Report were clearly distinguishable from the sort of full-function joint venture that the European Commission cleared under the EC Merger Regulation[584] in the *NYK/Lauritzen* decision.[585] The latter related to the establishment of a full-function autonomous jointly owned undertaking that was intended to operate long-term on the market independently of its parents, whereas the typical shipping pool is a much looser form of cooperation and the powers of the Pool Manager are not as extensive as would be needed to create an autonomous undertaking.

1986. Nevertheless, in certain cases some pools might have the necessary characteristics to take them within the scope of the EC Merger Regulation, in which case they would require notification and would not be lawful if they had been implemented without prior clearance.

[584] Council Regulation 139/2004 on the control of concentrations between undertakings (the EC Merger Regulation), OJL 24/1 of 29.1.2003.

[585] Case COMP/M.3798 – *NYK/Lauritzencool/Laucool JV.*

Overall conclusion

1987. In conclusion, the Report has identified a number of competition issues which are raised by the traditional pool structure.

1988. Wherever possible, we have attempted to give our assessment of the legal position but in certain cases this was not possible as the existing rules are not clear. In any event our conclusions should be seen as our best effort at analysing the relevant structures in the light of the information that was available to us and our opinions cannot be taken as substituting for the relevant parties' own assessment or indeed that of the Commission.

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