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Chapter 4

TRADE AND FREIGHT MARKETS

This chapter looks at the demand side of international seaborne trade by describing conditions and trends in trade and freight markets, covering the major tanker, bulk cargo and liner sectors. This chapter expands upon the general overview of international maritime trade as described in chapter 1. The start of 2008 continued the buoyant trend experienced in the preceding year in all sectors. However, by the middle of the year, things took a turn for the worse, as the global financial crisis began to affect demand. Trade volumes in the bulk cargo and liner sectors sustained dramatic declines, which continued for the remainder of the year and well into 2009. The tanker market fared slightly better during 2008 compared to other sectors, although by the middle of 2009 all sectors were experiencing similar declines. Initially, the record oil price reached in July 2008 had been pushing tanker rates up for the first half of 2008, and tankers being used for storage helped to maintain rates high until the global economic crisis took effect.

A. CRUDE OIL AND PETROLEUM PRODUCTS SHIPPING MARKET¹

Introduction

Crude oil and petroleum products are major transport commodities, representing approximately one third of the total world seaborne trade. In addition, crude oil is still the main source of fuel that propels the world's merchant fleet. Shipping remains, on a per ton basis, the most efficient and environmentally friendly form of transportation over long distances. Understanding tanker freight rates, and thus the underlying demand for tankers, gives the reader a clear indication of how world trade is evolving. Crude oil production and consumption trends are discussed in more detail in chapter 1. During 2008, there were 903 new tankers delivered, totalling 43.5 million dwt; while 202 vessels, totalling 5.5 million dwt, were demolished. Orders received by yards for newbuildings

amounted to 907 vessels of 60 million dwt, pushing the total order book to 2,812 vessels of 190 million dwt.

1. Tanker freight rates

Freight rates for all types of tanker vessels in the first quarter of 2009 were down on the same period for the previous year (see table 29). This followed a fluctuating 2008, in which average freight rates peaked in the middle of the year, before embarking on a sector-wide downward trend. Although average tanker freight rates for 2008 were up in all vessel sectors compared to the previous year's averages, a comparison between December 2008 and December 2007 shows that all rates were substantially down. A sharp drop in freight rates for all vessels was observed in January 2008, as a result of surplus tonnage following the New Year holiday period, reduced weather delays in crossing the Turkish Straits, and lower demand for

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crude oil across the Atlantic basin as refineries stopped production and carried out maintenance. The months of May, June and July 2008 represented the yearly highs for all sectors. The record oil price reached in July 2008 had been a main driving factor pushing tanker rates up for the first half of 2008, and tankers being used for storage helped to maintain rates at high levels. Another factor that fuelled the fire was the halving of Nigeria's

2.5 million barrel-per-day output due to strikes. Freight rates for Capesize vessels took a severe nosedive in August, with rates falling by more than half, from 196 to 88 points. The smaller Panamax vessels ranging from 25,000 to 75,000 dwt maintained their resilience until October, before dropping from 263 to 175 points. They continued to slide almost unabated, to 120 points at the end of the first quarter of 2009. Declining oil

Table 29

Tanker freight indices, 2007–2009

(monthly figures)

	Lloyd's Shipping Economist				Baltic Tanker		
	>200	120–200	70–120	25–70	Clean	Dirty Index	Clean Index
2007							
October	57	104	134	180	170	902	767
November	72	126	148	205	198	1 089	812
December	201	232	214	279	239	1 535	1 184
Average	110	154	165	221	202	1 175	921
2008							
January	112	124	178	205	215	1 914	1 083
February	97	119	141	182	195	1 174	938
March	108	156	175	202	197	1 164	946
April	110	187	217	239	234	1 482	873
May	182	239	247	271	279	1 701	1 192
June	182	210	237	324	326	1 921	1 388
July	196	248	250	291	305	1 883	1 454
August	88	174	196	282	316	1 801	1 331
September	103	156	197	282	316	1 451	1 476
October	99	149	165	263	239	1 508	1 367
November	67	121	124	175	198	1 246	1 039
December	71	139	191	206	182	1 124	880
Average	118	169	193	244	250	1 531	1 164
2009							
January	54	84	100	125	130	849	623
February	44	65	84	95	126	597	600
March	33	90	82	120	105	626	543
April	29	52	67	105	72	524	371
May	30	58	66	90	103	476	424
June	43	63	102	112	98	482	479

Source: UNCTAD secretariat, based upon the executive summary in *Lloyd's Shipping Economist*, several issues; Baltic Tanker indices reported for the first working day of the month. Ship sizes are expressed in deadweight capacity.

demand brought about by the deepening economic crisis, combined with high stock levels, contributed to the declining rates. Reductions in OPEC production also affected rates for cargo from the Arabian Gulf to the United States and Eastern Asia. The slight rally that took place towards the end of 2008 proved to be very short-lived, as rates for the first quarter of 2009 continued their downward trajectory. The Baltic Exchange Dirty Tanker Index showed more of a rollercoaster ride, from highs of 1,914 in January 2008 to lows of less than 1,200 in the following two months. It then embarked on an upward trend, which culminated in June at 1,921 before embarking on a year of almost continuous falls, hitting 476 points in May 2009. The Baltic Exchange Clean Tanker Index also fell from 1,476 points in September 2008 to 371 in April 2009.

Table 30 illustrates average freight rates, measured in Worldscale (WS), a unified measure for establishing spot rates in the tanker market, on specific major routes by various vessel sizes. The table focuses on traditional benchmark routes and is not intended to be exhaustive. The main loading areas indicated in the table are the Persian Gulf, West Africa, the Mediterranean, the Caribbean and Singapore, while the main unloading areas are in Eastern Asia, Southern Africa, North-West Europe, the Mediterranean, the Caribbean, and the East Coast of North America. The growing West Africa to China route, relying on large ships, has not been included in the table.

When comparing freight indices for December 2007 with December 2008, it can be seen that rates on all routes declined, with the sole exception of those relating to vessels operating in the Mediterranean. One of the largest month-on-month increases in freight rates during 2008 occurred on routes within the Mediterranean, when rates nearly doubled from WS113 in February to WS224 in March. This was largely attributable to a light maintenance season in Europe and an increase stock intake by refineries ahead of proposed tax increases, particularly in the United Kingdom. During the same period, rates increased by over 40 per cent on the Caribbean–Caribbean/East Coast of North America route. In May, rates increased by over 60 per cent on the West Africa–Caribbean/East Coast of North America route. December also proved to be a good month for shipowners on the Caribbean–Caribbean/

East Coast of North America route, where rates almost doubled, and on routes within the Mediterranean and on the Caribbean–East Coast of North America/Gulf of Mexico route, where rates increased by over two thirds.

The most dramatic declines in freight rates during 2008 involved very large crude carrier (VLCC) and ultra-large crude carrier (ULCC) servicing routes from the Persian Gulf to Europe, the Americas and Eastern Asia. Freight rates on these routes declined by around two thirds from December 2007 to December 2008. In general, rates departed from their established pattern – which is to decrease during the first two quarters and to stabilize and climb during the last quarter of the year – to a pattern where rates climbed towards the middle of the year, before falling back and ending the year lower. This departure from the traditional pattern that follows the seasons of the markets in the northern hemisphere, where more fuel is required in the winter, occurred because high oil prices fuelled higher demand as traders sought speculative positions. Ultimately, this bubble collapsed when the market saw that oil prices had reached a peak, and consequently freight rates collapsed too. The start of 2009 did not bode well for the tanker market, when, in January, freight rates for all routes declined. By comparing rates for the northern-hemisphere summer of 2008 with those of the second quarter of 2009, it can be seen that freight rates on some routes declined by as much as 90 per cent. Even rates on the best-performing North-West Europe–Caribbean/East Coast of North America route declined by around two thirds, from WS258 in May 2008 to WS82 in April 2009.

The biggest decreases on a month-by-month basis occurred in August, when freight rates for VLCCs on the Persian Gulf to Japan and on the Persian Gulf to the Republic of Korea routes decreased by over 60 per cent, from WS238 to WS84 and WS211 to WS83 respectively. This was largely attributable to a cut in oil production by OPEC members, which meant less cargo was available in the Persian Gulf to transport elsewhere.

More detailed information is provided in the following sections about developments in 2008 in relation to the various categories of tankers.

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Table 30
Tanker market summary: clean and dirty spot rates, 2007–2009
(Worldscale (WS))

Vessel type	Routes	2008												% change 2007/2008	2009						
		2007 Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov		Dec	Jan	Feb	Mar	Apr	May	Jun
VLCC/ULCC (200,000 dwt+)																					
	Persian Gulf–Japan	195	122	96	97	109	212	204	238	84	105	81	57	66	-66.2%	51	44	41	27	27	46
	Persian Gulf–Republic of Korea	189	127	99	88	102	167	190	211	83	115	104	63	61	-67.7%	53	42	36	27	27	41
	Persian Gulf–Europe	163	135	88	84	69	160	145	141	70	80	62	61	..	-62.6%	..	35	30	..	..	28
	Persian Gulf–Caribbean/East Coast of North America	159	85	86	84	95	132	142	144	82	95	91	54	54	-66.0%	44	34	30	21	20	32
	Persian Gulf–South Africa	220	..	..	..	160	..	..	..	..	99	..	67	..	-69.5%	..	55	..	35	..	38
Suezmax (100,000–160,000 dwt)																					
	West Africa–North West Europe	237	149	124	173	200	237	199	252	159	166	158	118	140	-40.9%	84	68	68	53	52	64
	West Africa–Caribbean/East Coast of North America	251	135	125	157	175	249	190	241	162	166	144	122	139	-44.6%	86	71	77	53	50	61
	Mediterranean–Mediterranean	223	165	113	224	226	273	214	345	158	167	151	135	121	-45.7%	90	70	73	58	62	78
Aframax (70,000–100,000 dwt)																					
	North West Europe–North West Europe	190	163	128	159	196	240	206	229	194	178	149	126	165	-13.2%	99	80	81	72	66	80
	North West Europe–Caribbean/East Coast of North America	190	170	138	173	194	258	246	222	230	220	165	133	185	-2.6%	105	92	97	82	85	79
	Caribbean–Caribbean/East Coast of North America	299	204	168	240	226	288	309	233	226	264	206	130	258	-13.7%	105	78	112	59	73	77
	Mediterranean–Mediterranean	205	183	146	192	251	263	222	272	182	186	157	126	212	3.4%	107	86	74	62	68	103
	Mediterranean–North West Europe	193	187	137	174	240	265	218	268	166	187	160	118	173	-10.4%	106	90	71	59	69	90
	Indonesia–Far East	237	180	143	140	164	210	226	283	216	175	164	153	153	-35.4%	81	69	67	58	54	54
Handy size (less than 50,000 dwt)																					
	Mediterranean–Mediterranean	260	198	180	191	211	235	300	314	270	..	250	200	..	-23.1%	118	100	109	87	80	109
	Mediterranean–Caribbean/East Coast of North America	262	200	174	187	212	279	290	297	275	265	258	153	175	-33.2%	110	96	112	72	80	101
	Caribbean–East Coast of North America/Gulf of Mexico	334	194	159	221	236	275	344	299	282	291	258	142	243	-27.2%	131	80	108	70	83	106
All clean tankers																					
	70,000–80,000 dwt	195	198	150	135	141	172	260	276	339	327	..	145	..	-25.6%	84	106	62	55	56	78
	50,000–60,000 dwt	236	224	171	182	166	207	288	309	371	354	336	240	156	-33.9%	85	118	79	52	63	85
	35,000–50,000 dwt	203	216	190	189	227	298	302	303	299	260	187	165	166	-18.2%	130	116	93	72	106	96
	25,000–35,000 dwt	322	287	224	260	221	220	306	326	303	403	328	330	236	-26.7%	105	131	98	82	77	..

Source: UNCTAD secretariat, based upon *Shipping Insight* from Drewry Publishing, various issues.

Note: Two dots (..) means that no rate was reported. The classification of ship size in this table reflects the source used and may vary when compared to other parts of this publication.

Very large and ultra-large crude carriers

Representing some of the world's largest ships, VLCCs and ULCCs offer the best economies of scale for the transportation of oil where pipelines are non-existent. Overall, the VLCC market in 2008 was not favourable for shipowners; rates on all routes declined between 60 and 70 per cent when comparing December 2007 with December 2008. While the (northern hemisphere) spring and summer months saw some strong growth, rates plummeted starting from August 2008 and continued to fall well into the spring of 2009. The biggest gains for shipowners were seen in May 2008, when rates climbed by 132 per cent on the Persian Gulf to Europe route, from WS69 to WS160. This was attributable to a combination of factors, ranging from a decrease in the supply of available carrying capacity brought about by high oil prices which forced many shipowners to reduce vessels' speeds, to strikes by port workers and the increased use of tonnage to store crude. Earnings for shipowners during this period reached \$160,800 per day. By August 2008, however, the good times for shipowners were over and rates halved, from WS141 to WS70 on the Persian Gulf to Europe route. This downturn also affected the value of ships. The price of a five-year-old VLCC in April 2009 declined to around \$87 million, compared to annual average prices of \$144.7 million in 2008 and \$123.8 million in 2007. The cost of demolishing ships declined sharply too, as the price of steel plummeted from more than \$700 a ton in 2008 to around \$200 in 2009 (see chapter 2). One of the highest prices paid by breakers was in the first quarter of 2008 for the 1987-built *C Elephant* at 240,634 dwt; the Bangladeshi breakers reportedly paid \$770 per light displacement ton (ldt).

Suezmax tanker tonnage

As the name suggests, Suezmax ships are the largest tankers able to transit the Suez Canal. Capable of operating on other routes, Suezmax vessels play an important role in trading from West Africa to North-West Europe and to the Caribbean/East Coast of North America, as well as across the Mediterranean. These routes saw significant declines in freight rates at the start of 2008, ranging from 25 to 45 per cent. Although a turnaround was seen in March 2008, which lasted for the most part until the end of the year, shipowners could not withstand the global economic downturn, and the start of 2009 marked a bleak era. Freight rates

on West African routes slumped to a 10-year low of WS53 in April 2009, down approximately 80 per cent from the highs of mid-2008, as a dearth of cargoes limited activity. In March 2009, ConocoPhillips took a 149,999-dwt Suezmax built in the year 2000 from West Africa to the US Gulf at WS62.5. This was a significant fall from WS249 in May 2008. As far as income was concerned, revenues received by shipowners on the West Africa to the Caribbean/East Coast of North America route declined from \$49,000 per day (at WS95) in February 2009 to \$24,350 per day (at WS60) in the following month. A corresponding decline was noted in vessel prices. A five-year-old Suezmax in April 2009 cost \$61.5 million, compared with annual averages of \$95.3 million in 2008 and \$86.6 million in 2007.

Aframax tanker tonnage

Aframax tankers of around 80,000 to 125,000 dwt offer a large carrying capacity and flexibility. They are often deployed for trading within and between the following regions: North-West Europe, the Caribbean, the East Coast of North America, the Mediterranean, Indonesia and Eastern Asia.

In general, freight rates for all Aframax vessels declined at the start of 2008 and then peaked in the middle of the year. The Aframax market generally fared better than the market for other types of tankers in 2008. Indeed, the only type of vessel to show positive gains for the year was on the Aframax Mediterranean–Mediterranean route, with a 3.4 per cent growth rate. Freight rates for

The Aframax market generally fared better than the market for other types of tankers in 2008.

other routes decreased by between 10 and 35 per cent. The most profitable route, in terms of the most earned in a single month, was the Caribbean–Caribbean/East Coast of North America route, which peaked in June 2008 at WS309, pushing the daily time charter earnings to a yearly high of \$54,600 per day. Freight rates for vessels on the Mediterranean–North West Europe, Mediterranean–Mediterranean and Indonesia–Far East routes all peaked the following month, at WS268, WS272 and WS283 respectively. November 2008 proved to be a particularly difficult month for freight earnings, as four of the six routes shown in table 29 experienced a yearly low. The Caribbean–Caribbean/East Coast of North America route, mentioned above, declined to earnings of \$19,300 per day. Despite a rally in freight rates at the end of 2008, rates continued their downward path well into 2009, pushing rates on the Caribbean–Caribbean/East Coast of North America route down to \$5,000 per

day by April 2009. The price of a five-year-old Aframax in April 2009 was \$43 million, compared with annual averages of \$71.4 million in 2008 and \$66.4 million in 2007.

Handysize tanker tonnage

At less than 50,000 dwt, handysize tankers are capable of calling at destinations with limited draft and with length restrictions, making them very versatile. Table 30 shows the freight rates for these types of ships deployed for trades across the Mediterranean, for trades originating in the Mediterranean with destinations in the Caribbean and on the East Coast of North America, and for trades from the Caribbean to the Gulf of Mexico and the East Coast of North America.

Freight rates on all three routes shown in table 29 declined by between 23 and 33 per cent, with the Mediterranean–Caribbean/East Coast of North America route declining the most. The low point in the year occurred in November, on routes between the Mediterranean and the Caribbean and the East Coast of North America, and also on the Caribbean to the Gulf of Mexico and the East Coast of North America route.

All clean tankers

Freight rates on all four routes shown in table 29 declined by between 25 and 33 per cent, with the Persian Gulf to Japan route declining the most. The low point in the year occurred in December on the Persian Gulf to Japan route and on the Caribbean to the East Coast of North America route. Rates continued to fall in 2009, by as much as two thirds on the Persian Gulf to Japan route due to ample supplies and weak demand in refined fuels.

The chemical tanker fleet consists of around 2,500 vessels with a carrying capacity of 39.3 million dwt. Two thirds of these vessels have IMO 2 specifications to trade primarily in pure chemical cargoes such as styrene, xylene and easychems. Around 400 of these vessels trade in deep sea trades, with another 560 based in the European regional market, and 540 in Pacific Rim regional trades. Around one third of chemical tankers are classified as IMO 3, or double-hull product tankers, trading only in chemicals and vegetable oils. Less than 3 per cent of vessels possess the IMO 1 specification to trade in the most hazardous cargoes such as chlorosulphonic acid and trichlorobenzene. Most of these vessels are deployed in deep sea trades.²

The average time charter equivalent earnings for product tankers continued its downward slide. For example, average annual time charter equivalent earnings on the Caribbean–East Coast of North America/Gulf of Mexico route were \$17,567 per day in 2008, compared with \$18,575 per day in 2007 and \$20,425 per day in 2006. The average for April 2008 for this route was \$15,200, compared to just \$6,600 in April 2009.

Tanker-period charter market

In 2008, total chartering activity dropped by a million dwt to 26.951 million dwt, from the figure of 28.04 million dwt recorded the previous year. March and April both recorded less than 1 million dwt, while February and October saw the most chartering activity, with 4.197 million dwt and 4.394 million dwt respectively.

About 36 per cent of total chartering activity in 2008 was made up of long-term charters of 24 months or more, down from 46 per cent in 2007 and 58 per cent in 2006. The next most active sector of time chartering was for the period of less than 6 months (27 per cent), and then those with a duration of one to two years (26 per cent). Very large tankers (ULCCs and VLCCs) accounted for about 26 per cent of total chartering activity, down from 54 per cent in 2006. Tankers at the lower end of the range (10,000–50,000 dwt) accounted for over 12 per cent. Chartering activity in the first quarter of 2008 declined significantly to 6.4 million dwt, down from 12.3 million dwt for the same period in 2006. Rates varied little throughout most of the year, except for an increase in December of around 17 per cent over the previous month. For example, estimated tanker one-year time charter rates for a five-year-old ship of 280,000 dwt went from \$52,000 per day in January 2007 to \$62,000 per day in January 2008. The first quarter of 2008 saw a continuation of this trend, so that by March the rate stood at \$71,000 per day.

B. LIQUEFIED NATURAL GAS

Introduction

Liquefying natural gas reduces its volume by around 600 per cent when it is cooled to -162°C , making it possible to transport large volumes by vessel. The typical liquefied natural gas (LNG) tanker carries 145,000–155,000 cubic metres of natural gas on a single voyage. When vaporized, this becomes 89 million–95 million cubic metres.³ However, liquefaction plant costs

represent the highest portion of the costs for any LNG project. The other major transport mode for international shipment of gas is via pipeline. This, however, involves increased costs per kilometre (e.g. of steel pipes, anti-corrosion protective coatings, stanchions etc.) and is therefore preferable over shorter distances or where there is no direct sea alternative. LNG shipments work best over long distances, where either the use of a pipeline would render the project uneconomic, or the crossing of many territories would pose too many potential risks of a hiatus in supply. Liquefaction and regasification costs rise less rapidly as a function of distance than pipeline costs do, as once the vessel and plants are built, the major transportation cost is the operational cost of the vessel itself. Should there be a problem in supply, such as one party not honouring their contract, in theory the vessels can be moved to service another client, whereas in the case of pipelines, the assets are fixed. As reported in chapter 1, no growth was recorded in the LNG trade in 2008, with the total volume of LNG shipped amounting to 226.5 billion cubic metres (bcm). In common with other sectors, trade in LNG in 2008 suffered from the economic downturn, and from weak demand – especially for electricity. The main LNG importers included both developed and developing countries, namely Japan, the Republic of Korea, the United States, Spain, France and India – although imports by the United States have declined in recent years, dropping in 2008 alone by around 50 per cent, to 7 million tons.⁴ The main LNG exporters were located in developing regions, with Qatar being the largest (17.5 per cent). Other exporters included Algeria, Indonesia, Malaysia and Nigeria. Malaysia's MISC Berhad is the world's largest single owner-operator, with an LNG fleet of 27 vessels. In the first two months of 2009, world LNG trade declined by around 5.5 per cent. The decline in global LNG trade in 2009 was driven by reduced exports – in the face of a weak global gas market – from Algeria, Nigeria, Qatar, Indonesia, Egypt and Equatorial Guinea.⁵

1. Developments in LNG trade⁶

Whereas gas was once burnt off as a waste product in the oil extraction process, methods have developed over the last few decades to bring this product to market. In particular, the number of LNG projects has increased as transportation technology has improved. The development of the Q-Max LNG carrier has allowed a decrease in transport costs by between 20 and 30 per cent. As of June 2008, there were 80 LNG liquefaction trains at 19 sites worldwide.⁷ However,

global liquefaction capacity in the first half of 2008 increased by a mere 1.9 per cent to 87.8 million metric tons per year (MMT/Y), as major projects were delayed, including Tangguh (Indonesia), Sakhalin-2 (Russian Federation), Yemen LNG (Yemen), Qatargas 2's train 2, and RasGas 3's train 1 (Qatar).⁸ These and other projects should come in 2009 and provide about 40 MMT/Y of new capacity. The Hammerfest LNG plant at Melkøya in northern Norway resumed operation in 2008 after a few start-up problems, while in the Russian Federation, the first-ever commercial LNG export cargo left the Prigorodnoye facility on Sakhalin Island in March 2009. The plant is expected to be producing at its full capacity of 9.6 million tons per annum by 2010. Also in the Russian Federation is the giant Shtokman development in the Barents Sea, which is expected to begin exports in 2014; and the Yamal Peninsula site in the north-west of the country, which is still in the initial stages of developing LNG facilities. The first shipments of LNG cargo left Tangguh in the State of Papua Barat, Indonesia, bound for Gwangyang, Republic of Korea, in June 2009. Tangguh is Indonesia's third LNG export centre; the others are Bontang in East Kalimantan and Arun in Sumatra. The \$5 billion project will produce LNG from the first of two processing trains, which can produce up to 3.8 million tons per annum each.

2. LNG freight rates

Most LNG vessels are in stable long-term contracts and thus do not suffer from the widely varying spot market prices that affect other sectors. Daily charter rates in 2008 were, on average, in the \$40,000 to \$50,000 per day range for most of 2008. However, such rates for LNG tankers on short-term hauls declined by 17 per cent in 2008, to around \$46,600 a day for steam turbine vessels with a capacity of 138,000 to 150,000 cubic metres, due primarily to an increase in the supply of new vessels.

Trends in LNG newbuildings

The world fleet of LNG vessels numbers around 280. In 2008, 58 vessels were added to the fleet by shipyards located mainly in the Republic of Korea, and to a lesser extent in Japan and China. A further 42 vessels are planned for delivery in 2009, and another 36 in 2010. The capacity of the LNG-carrying fleet grew in 2008 by 28 per cent to 41 million cubic metres, up from 32 million cubic metres the previous year. In January 2009, the order book for new vessels stood at between 78 and 82, and at around 14.2 million cubic metres (cbm) (34.8 per

cent of the existing fleet). This was down from the peak years of 2004 and 2005, when 67 and 49 vessels of over 100,000 cbm were delivered, respectively. The price of LNG carriers has remained stable over the last few years, ranging from \$222 to \$237 million between 2006 and the first part of 2009. The largest LNG carriers, which are called Q-Max vessels and have a capacity of 266,000 cbm, operate mainly from Qatar. The scheduled new delivery of LNG vessels is expected to dampen freight rates in the medium term, as production capacity at new facilities lags behind.

C. DRY BULK SHIPPING MARKET⁹

Introduction

The dry bulk shipping market principally consists of the five main bulk cargoes: iron ore, grain, coal, bauxite/alumina and phosphate, processed as inputs for products which in turn form the backbone of merchandise trade. The dry bulk sector accounts for around 66 per cent of the total volume of cargo transported by sea. As reported in chapter 1, the total volume of dry bulk cargoes loaded in 2008 stood at 5.4 billion tons. Trade in the major dry bulks, which are considered in the following sections, was estimated at 2.1 billion tons in 2008. With a carrying capacity of around 418 million dwt, and an order book of 292 million dwt as of March 2009, the world fleet of dry bulk carriers is set to grow by around 70 per cent over the next few years. During 2008, 333 newbuildings were delivered, totalling some 23.7 million tons, whereas 76 vessels totalling 3.3 million tons were demolished. The average size of a newly delivered bulk carrier is thus around 71,000 dwt, compared to an average size of 43,000 dwt for scrapped vessels: shipowners are clearly getting rid of older, smaller tonnage in favour of new, larger ships.

In general, as a way of securing essential supplies, countries tend to have a merchant fleet that reflects their import needs. For example, China has a large fleet of bulk carriers, which supply it with raw materials for the production of goods. However, this can also be the case when one product dominates exports: countries may have a merchant fleet that reflects carriage of that good. For example, Indonesia – a major oil exporter – has a large oil tanker fleet. Thus, developing countries tend either to specialize in bulk shipping that carries the raw material they need in order to produce manufactured goods, or to be exporters of one particular cargo type (see chapter 2

for more details on the ownership of the world's fleet). The control of the world fleet of dry bulk carriers by shipowners from developing economies includes China, with a fleet of 43 million dwt or approximately 10 per cent, followed by the Republic of Korea, Hong Kong (China), Taiwan Province of China, Turkey, India and Singapore.

1. Developments in dry bulk trade

The dry bulk market – which had been riding high since 2003 – collapsed in 2008, despite a promising start. The Baltic Exchange Dry Index, which measures freight rates for dry bulk transported by sea, saw a significant decline as a result of decreased trade activity in this sector. The following sections describe some of the recent developments in each of the five main bulk trades.

Iron ore

Iron ore is an important commodity as it forms the basic ingredient for the production of steel, which in itself is a major component of heavy industrial production. Around 98 per cent of iron ore goes into iron and steel production, with the remainder used in applications such as coal washeries and cement manufacturing. Iron itself is the most commonly used metal, making up 95 per cent in tonnage of global metal production. Iron is also alloyed with a number of elements such as carbon, manganese and nickel to produce stronger and harder steels which are indispensable in construction, and for motor vehicles, ships, trains and railroad tracks.¹⁰

Australia and Brazil account for two thirds of the world's exports of iron ore. China accounts for almost half of the world's imports, and Japan remains the second-largest importer with 18 per cent. The two biggest iron ore companies are Brazil's Vale, and the British/Australian Rio Tinto, which each export around 800 million tons of iron ore annually. A roundtrip voyage between Brazil and China takes about 74 days on average, compared with a roundtrip voyage from Australia to China which takes about 30 days. This means that a typical Capesize vessel plying this trade can make either 5 return trips from Brazil to China in the space of a year, or 12 return trips from Australia to China. Considering that these vessels usually return in ballast, valuable sailing time is consumed on longer voyages when no revenue is being earned.

The dry bulk market – which had been riding high since 2003 – collapsed in 2008, despite a promising start.

Despite declining general trade volumes in other sectors, China's imports of iron ore increased in 2008 to 444 million tons, up from 383 million tons in 2007. The second and third quarters of 2008 saw the highest import levels. The average monthly import was around 37 million tons, varying from a high of 42.8 million tons in April 2008 to a low of 30.6 million tons in October 2008. In April 2009, China reached a new import high for iron ore, at 57 million tons. The first few months of 2009 showed an increase in iron ore imports by China of 22 per cent over the same period in 2008, bringing stock levels in ports to around 70 million tons (up from an average of 54 million tons in 2007) and in steel mills to around 20 million tons.¹¹ According to data released by the China Iron and Steel Association, dealers have increased the amount of their imports, hoping to benefit from any turnaround in the world economy. The second half of 2009 looks very volatile for the iron ore sector, as the Chinese Government has set a limit on steel production for 2009 at 460 million tons, which is down 15 per cent on 2008's output of 540 million tons. This may cause some mills to reduce their demand for iron ore imports as the year closes. If we assume that it takes, on average, 2.5 tons of iron ore to make one ton of steel, this means that 1,150 tons of iron ore are needed per year; this compares with the 1,350 tons of iron ore consumed in 2008. China produced approximately 906 million tons of domestic iron ore during 2008. If domestic production stays the same, then imported iron ore after August 2009 will either fall – leading to lower freight rates – or it will contribute to the stockpile and help maintain rates. In 2009, China also announced the discovery of new iron ore reserves of around 3 billion tons in Liaoning province. How this will affect world markets is not yet clear, as it will depend on the quality and the ease of extraction.

In first half of 2009, Rio Tinto sold around 50 per cent of its ore on the spot market; the remainder is sold at contract prices negotiated yearly. In comparison, BHP Billiton sold around 20 per cent on the spot market. During 2008, BHP Billiton and Rio Tinto were locked in negotiations with Chinese steelmakers over the 2008 contract price for iron ore. BHP Billiton and Rio Tinto were holding out for a freight premium because of their geographical advantage over Brazil, their main competitor. Brazil's Vale had previously won an increase of 65 per cent, but as Australia is closer to China than Brazil is, Australian commodity miners wanted a larger increase to reflect the freight savings; they eventually achieved this in June 2008, with an increase of 96 per cent. However, in 2009, Rio Tinto agreed to a 33 to 44 per cent iron ore price cut with Japan's Nippon Steel, the world's second-

largest steelmaker.^{12 13} This has signalled the way for further price cuts as the global financial crisis deepens. In June 2009, Vale slashed its benchmark iron ore prices by as much as 48.3 per cent for steelmakers from Japan and the Republic of Korea.

Towards the end of 2008, the Indian Government announced a series of financial measures aimed at boosting its dry bulk trade. These included abolishing the country's 8 per cent export duty on iron ore, and a reduction in value added tax from 15 per cent to 5 per cent. One of the immediate effects was a fivefold increase in Indian iron ore imports by China, pushing the country's total exports to 13.9 million tons for the month of January 2009. Subsequent months saw a decline in exports as the increasing cost of rail freight from Karnataka and eastern India took effect. Draft restrictions at Indian ports also been a contributing factor in limiting exports, as only the smaller Supramax vessels – rather than Capesize vessels – can serve this trade, and this may lead to higher levels of port congestion.

Coal

In addition to being an important ingredient in steel production, coal (coking) is used to make many products, and is also used to create energy (thermal coal) to fuel industry. The demand for coal imports in Europe¹⁴ decreased to 141.1 million tons in 2008, from 158.8 million tons in 2007. Likewise, in Taiwan Province of China, coal imports decreased from 60.3 million tons in 2007 to 50.9 million tons in 2008. On the other hand, coal imports into Japan increased from 180.6 million tons in 2007 to 185.8 million tons in 2008. The Republic of Korea increased its level of coal imports, too, from 84.8 million tons to 93.5 million tons.

In other parts of the world, coal exports from Ukraine were affected by a number of incidents, including a methane explosion at the Karl Marx mine in the Donetsk region. In March 2009, the Ukrainian Government introduced a 13 per cent import duty on all coal, in order to protect domestic producers. India received the first in a series of shipments amounting to 2.5 million tons of coal from Australian mines in Wollongong. This came at a good time for India, which is facing increased costs for its coal imports from China after the Government there raised export tariffs from 10 to 40 per cent.¹⁵ In Viet Nam, the Government introduced a series of tax increases on coal exports, bringing the duty up to 20 per cent. In South Africa, exports of coking coal decreased during March and April 2008 as domestic steel production rose.

Grain

Grains form the key ingredients that go into the manufacture of food stock for humans and animal feed. The single largest exporter of grains is the United States, followed by Argentina, Canada, the European Union and Australia. Grain exports from the United States decreased in 2008 to 90.4 million tons, down from 98.2 million tons in 2007. Grain exports from Canada also declined, from 22.2 million tons in 2007 to 20.9 million tons in 2009. The European Union¹⁶ increased its exports from 16.9 million tons in 2007 to 24.9 million tons in 2008 following a recovery in the harvest, after a particularly bad 2007. Australia increased its exports from 9.2 million tons in 2007 to 13.1 million tons in 2008, while Argentina's exports of grain remained relatively unchanged at 26 million tons, despite months of protests and a 16-day farmers' strike against the Government's increase in agricultural export tax. In the Russian Federation, government proposals were made regarding the creation of a state grain company to control grain exports.

Bauxite/Alumina

Bauxite and alumina are primarily used to make aluminium metal. On average, it takes 4 tons of dried bauxite to produce 2 tons of alumina, which, in turn, provides 1 ton of primary aluminium metal. Aluminium metal itself is used mainly in the transportation (14 per cent of demand), construction (11 per cent) and packaging (6 per cent) industries.¹⁷ The total use of aluminium, including all forms of secondary metal, amounts to about 51 million tons annually. World mine production of bauxite increased by an estimated 1.5 per cent to reach 205 million tons in 2008. The expansion of bauxite mines in Australia, Brazil, China and India accounted for most of the slight increase in the worldwide production of bauxite in 2008. Meanwhile, world alumina production increased by an estimated 4 per cent in 2008. China dominates the global aluminium industry, accounting for one third of both world production and world consumption of primary aluminium. After China, the most important producing countries are the Russian Federation, Canada, the United States, Australia, Brazil, Norway and India, accounting for about three quarters of the world output of primary aluminium. Globally, there are some 200 smelters that produce primary aluminium, half of which are

World mine production of bauxite increased by an estimated 1.5 per cent to reach 205 million tons in 2008.

in China; 14 companies operating about 100 plants control over 60 per cent of Chinese production. In 2009, there were almost 50 new aluminium smelter projects on the drawing board at various stages of development, with a total capacity of 20 million tons per year. However, construction had begun at only 10 of these, with a total capacity of 2.8 million tons per year. A new 300,000-ton-per-year smelter factory began operations in Oman.

The world's largest aluminium and alumina producer, UC Rusal,¹⁸ restarted output at the Alscon plant in Nigeria, which has a capacity of 197,000 tons annually. Located not far away from Nigeria is Guinea, which has the highest reservoir of bauxite in the world, and where UC Rusal owns the Friguia bauxite and alumina complex, which has the capacity to produce 640,000 tons of alumina and 1.9 million tons of bauxite a year. The Alscon plant, which is owned by UC Rusal (77.5 per cent), the Nigerian Government (15 per cent) and Ferrostaal AG (7.5 per cent) was built in Nigeria because a smelter consumes an enormous amount of energy, which Nigeria has in the form of hydrocarbons. Electrical power and alumina remain the two costliest inputs in the production of primary aluminium. However, a secure and low-cost supply of power is a more important factor than either nearby raw materials or markets, when deciding on a location for an aluminium smelter. Examples of this are the large smelters in Bahrain, Dubai, Oman, South Africa, Mozambique and Iceland. Some countries such as Canada and Norway take advantage of both plentiful hydroelectricity and nearby consumption markets.

Global bauxite resources are estimated at 55 to 75 billion tons. In terms of regions, 33 per cent are located in South America and the Caribbean, 27 per cent in Africa, 17 per cent in Asia, 13 per cent in Oceania and 10 per cent elsewhere. The leading bauxite-producing countries, which together account for three quarters of total world production, in decreasing order of tonnage mined, are: Australia, Brazil, China, Guinea and Jamaica.

The London Metal Exchange (LME) monthly average cash price for high-grade aluminium fell from a record high of \$3,070 per ton in July 2008 to \$1,329 per ton in February 2009 as LME stocks increased from 1.1 million tons to 3.2 million tons.

Phosphates

Phosphates are used for a variety of purposes, but most commonly in the agricultural industry, which accounts for more than 90 per cent of world phosphate rock consumption. Phosphate rock minerals are the only significant global resources of phosphorus, which is an essential element for plant nutrition (e.g. liquid and solid fertilizers) and for animal nutrition (e.g. livestock and poultry feed). Industrial applications for rock phosphates include anti-corrosion agents, cosmetics, fungicides, ceramics, water treatment and metallurgy. Phosphate rock resources occur principally as sedimentary marine phosphorites.

The largest sedimentary deposits are found in northern Africa, China, the Middle East and the United States. Significant igneous occurrences are found in Brazil, Canada, the Russian Federation and South Africa. The world's

large complexes for phosphate rock are located in the Khibiny Complex (Russian Federation) and the Kara Tau Complex (Kazakhstan), although Morocco remains the world's major exporter, and the United States the world's major importer. Morocco's exports accounted for nearly half of world shipments, totalling 32 million tons, the bulk of which was exported to Europe and the Americas. Shipments by lesser exporters in other African countries and the Middle East accounted for 40 per cent of world exports. Large phosphate resources have been identified on the continental shelves and on seamounts in the Atlantic Ocean and the Pacific Ocean.

In 2008, world mine production of phosphates increased by an estimated 6.5 per cent to reach 167 million tons. Estimated known world reserves of rock phosphate have been put at around 18,000 million tons. China and Morocco hold approximately 36 per cent and 32 per cent respectively, followed by South Africa with 8 per cent and the United States with 6 per cent. The leading producers of rock phosphates are OCP Group (Morocco), the Mosaic Company (United States), la Compagnie des phosphates de Gafsa (Tunisia), and PCS Phosphate (United States), accounting for about 15 per cent, 11 per cent, 5 per cent and 5 per cent respectively of world capacity in 2005.

... the tonnage of dry bulk ships on order in 2009 outstripped that of any other vessel type.

In 2008 world mine production of phosphates increased by an estimated 6.5 per cent to reach 167 million tons.

The price of phosphate rock in recent years has increased significantly, owing to rising agricultural demand (for food use, animal feed and biofuels) and tight supplies. In 2008, average spot prices from North Africa and other exporting regions approached \$500 per ton, which was more than five times the average for the previous year. This has had a knock-on effect on the price of other forms of fertilizer, such as nitrogen, potash and sulphur.

Trends in bulk carrier newbuildings

In total, there were 355 dry bulk carriers delivered in 2008, up from 315 the previous year. Their combined tonnage was 28.9 million dwt, up from 24.7 million dwt in 2007. As reported in chapter 2, the tonnage of dry bulk ships on order in 2009 outstripped that of any other vessel type. The dry bulk tonnage order book represents 69 per cent of the existing dry bulk fleet. In 2009, Brazilian ore miner

Companhia Vale do Rio Doce (VALE) cancelled an order placed in May 2008 for delivery in 2011 of 12 very large ore carriers (VLOCs) with China's third-largest shipbuilder, Jiangsu Rongsheng Heavy Industries. The vessels, bigger than the *Berge Stahl*, were to be 400,000 dwt, 360 metres length overall (LOA) and 65 metres wide, with a draft of 23 metres and a carbon footprint 34 per cent lower than that of traditional Capesize vessels. The 2008 order for 12 VLOCs would have made Vale the largest global operator of VLOCs, and was reported to be worth \$1.6 billion to the Chinese shipyard. As of 2009, there were over 100 ore carriers of over 200,000 dwt on order for delivery in 2011 and 2012. How many of these will actually be delivered remains to be seen. The venture into shipowning started for Vale in 2006, as dry bulk rates

began to creep higher. The reason for the move into shipowning can be seen in the rising freight costs, which meant that by mid-2008 it cost nearly \$108 per ton to ship iron ore from Brazil to China, eroding Vale's competitiveness against the

Australian iron ore producers who are closer to the Asian market and have cheaper freight costs. By the end of 2008, the collapse in dry bulk freight rates saw rates for shipping iron ore from Brazil to China drop to \$8.35 per ton for the first time in nearly seven years, undermining the prospects for viable operation of a VLOC fleet with 12 new and costly vessels.

2. Dry bulk freight rates

A turning point in the fortunes of dry bulk shipowners was reached in 2008 after four years of strong growth. The demand for pre-Olympic deliveries led to reports of congestion problems in China. Brazil and Australia helped tighten supply and lift freight rates at the start of the year. In northern China, high stockpiles of iron ore interrupted schedules and resulted in an average delay of 10 days for vessels to berth, while in Brazil queues of up to 50 vessels were reported. At the Australian port of Newcastle, there were 40 vessels in the queue waiting to enter the port during June 2008, as a result of delays caused by major flooding. In early 2009, flooding in the region again caused delays at the port.

A turning point in the fortunes of dry bulk shipowners was reached in 2008 after four years of strong growth.

The Baltic Exchange Dry Index (BDI) performed spectacularly during the first half of 2008, reaching an all-time high of 11,793 in May. However, by the end of the year, the BDI had fallen more than seventeenfold to 663 points. In June 2008, the average earnings for a modern Capesize stood at \$176,200 per day.¹⁹ However, by December 2008, rates had dropped tenfold to \$17,500 per day. One analyst put the earning rates of Capesize, Panamax and Supramax vessels at \$2,425, \$5,021 and \$6,500 respectively for a BDI rate in the low 700s. Thus, the over 90 per cent decrease in the BDI most affects the owners of large vessels, such as Capesize ships. Information provided at first hand to UNCTAD reveals that owners of small vessels, such as a 4,000 dwt dry bulker used in coastal shipping, experienced freight rate declines of around 30 per cent in 2008. However, at these rates, shipowners are finding it difficult to meet their marginal costs (i.e. their daily running costs), let alone pay their capital costs. Capital costs vary considerably, and a shipowner who bought a vessel at the height of the market will undoubtedly find current rates difficult and exit strategies limited. Some companies, such as Britannia Bulk, Atlas Shipping and Armada Singapore Pte Ltd. have filed bankruptcy proceedings. The derivatives market, which was riding high for some time, just kept falling in December 2008, and the speculative positions that these shipping companies took worked against them. Not only were they struggling to meet their capital repayments having generated barely enough money to cover their running costs on the physical side, but they also had to meet heavy margin calls to collateralize their positions with banks and other shipping companies. This, of course, had a knock-on effect, and bad debts added further to the

misery of those companies still standing. When Armada Singapore Pte Ltd. filed for bankruptcy, it was owed more than \$100 million by Fortescue Metals, Ashapura Minechem, Pioneer Freight Futures, Atlas Shipping, Britannia Bulk and Glory Wealth.²⁰

The declining earnings market naturally affected the prices of vessels. A five-year-old Capesize vessel cost \$128 million at the start of 2008, then rose to \$156.5 million in August, before closing the year at \$47.5 million. This rapid decline in vessel prices followed the

decline in the Baltic Exchange Dry Index, which peaked in May 2008 and rapidly fell to record lows in December 2008. Prices of second-hand Capesize vessels levelled off during the first quarter of 2009 to reach \$44.5 million in April, and the

daily hire rate rose slightly to \$21,300. Historically, these figures compare favourably with the average earnings of below \$16,000 per day for a Capesize vessel in the 1990s – a decade when the highest daily rate could not top \$25,000.

The dry bulk market continues to remain volatile in 2009. In February 2009, the Baltic Exchange Capesize Index (BCI) doubled its value over the preceding month to reach 3,822 points, from an all-time low of 830 points in December 2008. This was attributable to increased iron ore exports from Australia and Brazil. Spot earning from Brazil approached \$50,000 per day, up from around \$10,000 in December. In February 2009, Panamax and Supramax earnings were around \$10,000 per day – twice the level of the previous month. By June 2009, rates for Capesize vessels even surpassed the \$100,000 per day mark, although the sustainability of these rates seems unlikely, given the increasing supply factor which averages one new vessel per day.

The price of bulk carriers has also fallen significantly: a five-year-old Panamax vessel costing \$90 million in December 2007 was valued at \$30 million in November 2008. Shipowners unable to sell their vessels face operational losses and possible capital squeezes, brought on by the financial crisis. Consequently, shipowners are faced with the stark choice of either withdrawing services or laying up ships in an effort to restore rates.²¹

In 2008, the tramp market for dry cargo, both time and trip charters, continued to rise over the course of the first half of the year (see table 31). However,

Table 31

Dry cargo freight indices, 2006–2009

Period	Dry cargo tramp time charter (1972 = 100)				Dry cargo tramp trip charter (1985 = 100)			
	2006	2007	2008	2009	2006	2007	2008	2009
January	302	491	812	193	294	632	1 018	154
February	298	480	657	259	292	577	908	227
March	327	550	810	305	321	644	1 221	296
April	326	576	795	254	325	707	1 080	277
May	323	671	1 055	306	304	712	1 544	358
June	331	626	1 009	410	359	759	1 250	
July	360	673	868		421	875	1 036	
August	417	718	716		475	920	976	
September	447	828	550		518	1 078	657	
October	450	985	313		522	1 044	267	
November	447	1 013	192		463	1 280	117	
December	484	926	181		594	1 251	121	
Annual average	376	711	663	288	407	873	850	262

Source: UNCTAD secretariat, based upon various issues of *Shipping Statistics and Market Review* produced by the Institute of Shipping Economics and Logistics.

Note: All indices have been rounded to the nearest whole number.

the second half of the year saw a decline from 1,009 points in June to 181 points by December. Similarly, the dry cargo tramp time charter declined from 1,250 points in June to just 121 by December. The peak month for both indices was May, with 1,055 points and 1,544 points respectively. The first quarter of 2009 showed some small gains, although levels were still around two thirds below their peak.

Dry bulk time charter (trips)

In 2008, freight rates for Capesize tonnage chartered for transatlantic round trips experienced a rollercoaster ride. Rates were at \$111,835 per day in January, rising to a high of \$220,385 in May, before plummeting to end the year over 97 per cent lower at a mere \$5,055 per day. Rates on the Singapore–Japan to Australia route showed a similar trend to that observed on the transatlantic route. For Capesize tonnage deployed on the Singapore–Japan to Australia route, freight

rates rose significantly in the first half of 2008, with owners of the relevant ships receiving \$112,765 per day at the start of the year, compared to \$66,630 for the same period in 2007, and \$192,845 by May 2008. November 2008, however, marked a low point, with rates down over 98 per cent, standing at a mere \$2,640 per day.

Dry bulk time charter (periods)

Estimates of rates for 12-month period charters (prompt delivery) indicate that rates for the first half of 2008 rose to reach a peak in June, before declining significantly. Capesize ships of 200,000 dwt aged five years fetched \$125,000 per day at the start of 2008 – against \$63,000 for the same period in 2007 – and peaked at \$176,200 in June. The period from January 2008 to January 2009 saw an 82 per cent decline in rates for a one- to five-year-old Capesize of 170,000 dwt. Freight rates for Panamax ships of 75,000 dwt aged

In 2008 freight rates for Capesize tonnage chartered for transatlantic round trips experienced a rollercoaster ride.

five years started at \$57,000 per day in January, up from \$31,000 in January 2007, but ended the year down, at \$10,000 per day. Freight rates for Handymax ships of 28,000 dwt aged 10 years saw a decline from \$26,000 per day in January 2008 to \$6,600 per day by December 2008.

Dry bulk trip charter

Iron ore freight rates from Brazil to China started 2008 at \$64.05 per ton, up from \$35.50 per ton the previous year. By May 2008, this figure had reached \$101.80 per ton, but it ended the year at a mere \$8.35 per ton. The freight rates for January 2008 over January 2007 showed an 80 per cent rise, however January 2009 showed a decline of around 86 per cent when compared to January 2008. A similar picture emerges for all other routes, as the effects of the global economic downturn curtailed the demand for raw materials.

D. THE LINER SHIPPING MARKET²²

Introduction

The liner shipping market is mainly served by container ships and represents around 16 per cent of world goods loaded in volume terms (tons). While most items can be transported in containers, including cargoes previously transported in bulk, and components of products, containers mainly carry finished products ready for consumption. In 2008, the total world containerized trade was estimated at 1.3 billion tons, an increase of 4.6 per cent over the previous year.²³ Full container trade is estimated at 134.5 million TEUs in 2008. The share of containerized trade, as part of the world's total dry cargo, increased from 5.1 per cent in 1980 to 25.4 per cent in 2008. The rapid growth in containerization over the last 20 years is the result of a combination of factors that includes dedicated purpose-built container vessels, larger vessels capable of achieving increased economies of scale, improved handling facilities in ports, and also the increasing amount of raw materials being carried in containers, for example base metals such as copper cathodes and copper concentrates.²⁴ The fleet of container ships increased by 17.3 million dwt, or 11.9 per cent, to reach 162 million dwt, which is approximately 13.6 per cent of the total world fleet. At the beginning of 2009 there were 4,638 container ships, with a total capacity of 12.14 million TEUs.

1. Developments in the liner trade

General developments

The most notable development in the liner trade in 2008 was the repeal of the block exemption that liner conferences had received in the European Union with regard to price and capacity setting. As of 18 October 2008, former members of the Far East Freight Conference have had to establish their own tariffs and surcharges, resulting in different rates and amounts applied across the board. The multiplicity and variety of rates applied by shipping companies are putting an extra burden on shippers, who have to make additional efforts to keep track of them all. To date, no other countries or regions are reported to have pursued the European Union approach.

Figures published by the European Liner Affairs Association (ELAA) show that container volumes on the Asia–Europe trade fell by around 15 per cent in 2008. By the start of 2009, container rates on this route were at around \$300 per TEU – a fall of around 80 per cent compared to the boom of 2007. In an effort to shore up rates after the abolishment of European liner conferences, APL, Hapag-Lloyd and MOL all announced increases in their rates to levels higher than the spot price from 1 April 2009. As an additional measure to absorb capacity, some operators re-routed their operations from Europe to Asia to transit the longer Cape of Good

... container volumes on the Asia–Europe trade fell by around 15 per cent in 2008.

Hope route. While this increased average sailing times on that route by seven days and bunkers consumption by around 30 per cent, the route eliminates transit fees for the Suez Canal. In some cases, this re-routing brought about savings of over \$300,000 for the largest ships, even after allowing for extra fuel and crew costs. With rising fuel costs, however, the long-term viability of longer routes will come into question.

As a consequence of re-routing, revenues for the Suez Canal fell by over 22 per cent in April 2009 compared to the same period in 2008. During April 2009, 1,482 vessels transited the canal, incurring fees of \$448.9 million. This translates into an average rate of around \$300,000 per vessel, although the largest container ships can expect to pay twice that amount for a single transit. Interestingly, in May 2009, MSC, which had re-routed its eastbound traffic around the Cape of Good Hope, reversed its decision, with some analysts believing it had negotiated a discount with the Suez Canal Authority.

In addition to saving fuel and absorbing spare capacity, re-routing ships around the Cape of Good Hope avoids the piracy hot spot off Somalia and the need to purchase additional insurance.²⁵ It has been reported that insurance costs for piracy attacks rose more than tenfold in 2008. There were 141 reported attacks of piracy off Somalia in 2008, a figure which early analysis of 2009 data suggests will double.

Following a decline in traffic volumes, the liner shipping company Evergreen announced service and personnel reductions in early 2009 relating to trade on the route from Asia to the Pacific. The liner shipping industry in 2008 followed a trend similar to the tanker and dry bulk sectors mentioned earlier – with a strong first half followed by a weak second half, as the global financial crisis spread. Overall, though, 2008 was not a bad year for owners of liner ships, with average rates for smaller vessels above their 2007 levels.

As reported in chapter 2, the total seaborne container-carrying fleet capacity, including fully cellular capacity, stood at 14.4 million TEUs in 2009. A large number of newbuildings were ordered in 2008, whereas up to the first half of 2009 no orders for new container ships were placed. Very little tonnage was reported broken up in 2008: around 728,000 dwt from January to October. The last in a series of eight behemoth container ships from Maersk Line – the 12,508 TEU *Eugen Maersk* – entered service in 2008, as well as the 13,800 TEU *MSC Daniela*, which is owned and operated by the Swiss-based Mediterranean Shipping Company (MSC).

Major liner shipping operators

Over the course of 2008, the carrying capacity of the top 10 global container ship operators increased by 11 per cent – down from the previous year’s growth rate of 15.7 per cent – to reach 7.4 million TEUs (table 32). This is somewhat lower than the exceptionally high gains of 26.5 per cent achieved in 2006. Overall, the share of the top 20 liner operators in 2008 increased by 11.6 per cent to reach 9.9 million TEUs. In the previous year, the fleet of the top 20 liner companies had grown by 15.5 per cent, helping to concentrate the liner market. On 1 January 2009, the 20 leading operators accounted for about 69 per cent of the total container capacity deployed, down by around 1 per cent on 2008. Within the top 20 liner companies, 11 were from developing

economies, 9 were from developed economies, and none were from countries with economies in transition. Asian economies dominated the list – there were 14 companies from that region, 5 from Europe and 1 from Latin America. There was one new member on the list of the top 20 liner shippers, which entered at position 18 – namely the United Arab Shipping Company, headquartered in Kuwait and operating from Dubai, with 43 vessels and a carrying capacity of 155,462 TEUs. The United Arab Shipping Company caused a stir in 2008 when it revealed a \$1.5 billion newbuilding contract for nine container vessels of 13,100 TEUs. MOL, Hanjin and HMM all moved up two places during 2008, to positions 9, 10 and 15 respectively. APL and Yang Ming both moved up one place, to positions 7 and 13 respectively. China Shipping Container Lines (CSCL), K Line and Pacific International Lines (PIL) each lost ground by one place, to occupy positions 8, 14 and 19 respectively. Wan Hai from Taiwan Province of China – which was formerly ranked in position 19 – moved out of the top 20 as a result of a retrenchment programme to reduce the number of ships it operates. Despite this, Wan Hai increased its container-carrying capacity in 2008, and agreed with Pacific International Lines to enter into a long-term strategic partnership.

Maersk Line maintained its lead position, closely followed by MSC and CMA-CGM. However, the gap between first and second position continued to narrow, from 437,000 TEU to just 230,000 TEU. During 2008, MSC grew by 20.5 per cent and CMA-CGM grew by 18.9 per cent, while the market leader – Maersk Line – grew by just 5.9 per cent over the previous year. Maersk Line’s market share in terms of fleet capacity reportedly fell from 16.1 per cent to 14.1 per cent between January 2008 and April 2009, whereas MSC’s share went from 10.4 to 11.5 per cent. In 2005, when Maersk acquired P&O Nedlloyd, its market share in terms of fleet capacity exceeded 18 per cent. The only major change in ownership with the top 20 liner companies was with Hapag-Lloyd, which was sold by its parent company TUI to a Hamburg consortium in late 2008.

On 1 January 2009, the 20 leading operators accounted for about 69 per cent of the total container capacity deployed, down by around 1 per cent on 2008.

Financial performance of the major shipping lines

The financial performance of the major liner shipping companies in 2008 was significantly lower than in previous years, as the global financial crisis began to impact on world trade in the last quarter. Maersk Line

Table 32

The 20 leading service operators of container ships at the beginning of 2009*(number of ships and total shipboard capacity deployed (TEUs))*

Ranking	Operator	Country/territory	Number of ships in 2009	TEU capacity in 2009
1	Maersk Line	Denmark	426	1 740 936
2	MSC	Switzerland	431	1 510 720
3	CMA-CGM Group	France	280	864 893
4	Evergreen	Taiwan Province of China	181	629 615
5	Hapag-Lloyd	Germany	132	496 724
6	COSCON	China	141	491 580
7	APL	Singapore	128	470 901
8	CSCL	China	121	431 582
9	MOL	Japan	109	387 107
10	Hanjin	Republic of Korea	83	365 605
Subtotal			2 032	7 389 663
11	OOCL	Hong Kong (China)	90	364 384
12	NYK	Japan	82	358 094
13	Yang Ming	Taiwan Province of China	85	317 473
14	K Line	Japan	99	309 496
15	HMM	Republic of Korea	58	258 648
16	Hamburg Sud	Germany	81	256 513
17	Zim	Israel	82	251 717
18	UASC	Kuwait	43	155 462
19	PIL	Singapore	76	147 985
20	CSAV	Chile	56	141 957
Total 1–20			2 784	9 951 392
World container cellular fleet at 1 January 2009			9 447	14 429 080

Source: UNCTAD secretariat, based on *Containerisation International Online*, Fleet Statistics. Available at <http://www.ci-online.co.uk>.

and related business reportedly made \$205 million in 2008 on a turnover of around \$26 billion. This compares very unfavourably to the golden year of 2005, when Maersk Line made a profit in excess of \$1.2 billion.²⁶ In 2009, with around 5 per cent of its ships lying idle, the prospects for the world's number one liner company were looking very challenging. CMA-CGM's profits dropped in 2008 by around 87 per cent, from \$966 million in 2007 to \$124 million, as freight rates plummeted on all of its major trade lanes. However, with some three quarters of its fleet chartered in, and with around 180 of its fleet of 280 due for renewal in 2009, there is plenty of scope for CMA-CGM to reduce operating costs.²⁷ Evergreen Line reported reduced profits in 2008 of \$639

million new Taiwan dollars (NT\$) (\$19 million), down seventeenfold from NT\$10.4 billion (\$319 million) a year earlier. Hapag-Lloyd appears as an exception to the top 20 rule, with revenues increasing by 4.3 per cent to \$8.4 billion in 2008, and profits by 19 per cent to \$285 million, as cargo volumes rose by 2 per cent to reach 5.54 million TEUs. COSCO's revenue in 2008 increased by 16.6 per cent to 130.87 billion yuan (\$19.17 billion), while profits declined by 40 per cent to 11.62 billion yuan (\$1.7 billion). Revenue from container operations slipped by 4.3 per cent to 43.8 billion yuan (\$6.42 billion) in 2008, when the company moved 5.8 million TEUs, about 1.5 per cent more than in 2007. Neptune Orient Lines reported a net profit for 2008 of

\$83 million, which was 84 per cent lower than in 2007, despite increasing total revenue by 14 per cent to \$9.29 billion. MOL's revenue decreased by 4 per cent in 2008 over the previous year to ¥1,865 billion (\$19.3 billion), while operating income plunged by 32 per cent to ¥197.2 billion (\$2.03 billion) and net income by 33 per cent to ¥126.9 billion (\$1.31 billion). China Shipping Container Lines (CSCL) saw revenue drop by 11 per cent to 34.75 billion yuan (\$5.1 billion) and net profit collapse by 98 per cent in 2008 to 42 million yuan. Hanjin made a 3.35 trillion won (\$2.4 billion) operating profit, up by 34.9 per cent, from all its divisions in 2008, based upon total revenues of 9.36 trillion won. Its container division achieved revenues of 7.17 trillion won, up by 26.7 per cent, owing to the increased transpacific freight rates. However, operating profits declined by 19 per cent to 89 billion won (\$64 million).

The pressure for lower freight rates is being fuelled by the global economic downturn combined with dire forecasts for world trade. The reports of vessels lying idle and a large supply of new vessels on the order books are exacerbated by the rising cost of fuel.

2. Container freight rates

Chartering of container ships

German shipowners dominate the global liner shipping market, with Hamburg brokers controlling about 75 per cent of the container ship charter tonnage available. Since 1998, the Hamburg Shipbrokers' Association (VHSS) has published the Hamburg Index, which provides a market analysis of container ship time charter rates of a minimum duration of three months. Table 33 presents the average yearly rates since the year 2000, and monthly charter rates for container ships for 2008, as published by VHSS.

Average yearly charter rates for 8 of the 10 types of vessels shown in table 32 fell in 2008; freight rates for vessels between 1,600 and 1,999 TEUs declined the most – by 15.8 per cent. Earnings for geared/gearless vessels between 200 and 299 TEUs actually grew by almost 8 per cent, and those for geared/gearless vessels of 300–500 TEUs only improved marginally. This is remarkable considering the decline experienced across the shipping market as a whole. While average rates were higher in 2008 than the peak registered in 2004, the declines at the end of the year continued well into

2009. By April 2009, freight rates for most vessels were below their year 2000 levels.

Freight rates on main routes

Table 34 shows the freight rates on the three main containerized routes (Pacific, Asia–Europe and transatlantic). Freight rates showed mixed results for the three major routes during 2008. A comparison of the fourth quarter results from 2007 and from 2008 suggest that the routes from Europe to Asia, from the United States to Europe, and in both directions on the transpacific route experienced growth. Freight rates decreased on the Asia to Europe and the Europe to United States routes during the same period. Freight rates on the Asia–Europe route had dropped to an all-time low of zero by early 2009. The so-called “zero” rates were only possible because other inescapable costs involved in handling cargo were billed as extras. The figures shown in table 34, however, include these extra costs, e.g. currency adjustment factors, bunker adjustment factors and terminal charges, to give a more accurate figure of freight rates along selected routes.

As mentioned earlier, as of 18 October 2008, liner conferences to and from the European Union were prohibited, and as a consequence, the main source of freight rates on these routes – the Far East Freight Conference – no longer exists. Liner companies are cautious of revealing rates, for fear of this being interpreted as price fixing. The European

Liner Affairs Association, a trade association set up in the wake of the closure of the Far East Freight Conference, reported a decrease in trade volumes in the first quarter of 2009 on the Europe to

Asia route of 22 per cent on the westbound route from Asia and of 17 per cent on the eastbound route to Europe. Trade volumes on the transatlantic westbound route to North America in the first quarter of 2009 also decreased by 17 per cent, while on the eastbound route to Europe volumes were down by 30 per cent.

Table 35 indicates the development of liner freight rates on cargoes loaded or discharged by liners at ports of the German coastal range for the period 2006–2008. The average overall index for 2008 decreased by 4 points from the 2007 level, to reach 90 points (the base year of 1995 is equal to 100 points). The average homebound index increased by

By April 2009, freight rates for most vessels were below their year 2000 levels.

Table 33

Container ship time charter rates
(*\$ per 14-ton slot/day*)

Ship type (TEUs)	Yearly averages								
	2000	2001	2002	2003	2004	2005	2006	2007	2008
Gearless									
200–299	15.71	15.74	16.88	19.57	25.02	31.71	26.67	27.22	26.00
300–500	14.52	14.72	15.14	17.48	21.73	28.26	21.67	22.27	19.95
Geared/Gearless									
2,000–2,299	10.65	7.97	4.90	9.75	13.82	16.35	10.51	11.68	9.96
2,300–3,400 ^a			5.96	9.29	13.16	13.04	10.18	10.74	10.66
Geared/Gearless									
200–299	17.77	17.81	17.01	18.93	27.00	35.35	28.04	29.78	32.12
300–500	14.60	14.90	13.35	15.55	22.24	28.82	22.04	21.34	21.39
600–799 ^b			9.26	12.25	19.61	23.70	16.62	16.05	15.64
700–999 ^c			9.11	12.07	18.37	21.96	16.73	16.9	15.43
1,000–1,299	11.87	8.78	6.93	11.62	19.14	22.58	14.28	13.69	12.24
1,600–1,999	10.35	7.97	5.67	10.04	16.08	15.81	11.77	12.79	10.77

Ship type (TEUs)	Monthly averages for 2008											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Gearless												
200–299	29.23	28.49	30.16	27.96	28.77	29.10	29.87	28.25	23.89	19.55	20.31	16.45
300–500	22.37	23.77	24.49	23.34	21.88	23.04	23.82	20.53	20.68	16.32	13.91	9.78
Geared/Gearless												
2,000–2,299	13.18	13.10	12.59	12.78	11.98	10.15	10.15	9.20	8.54	6.62	6.62	4.63
2 300–3,400 ^a	12.53	12.53	10.97	11.31	10.82	10.82	10.48	10.53	9.47	9.47	9.47	9.47
Geared/Gearless												
200–299	32.39	33.61	33.35	35.78	35.78	35.85	35.85	30.70	30.05	30.74	25.65	25.65
300–500	23.66	27.60	24.03	22.51	23.37	18.75	21.52	22.22	21.33	20.94	16.35	14.44
600–799 ^b	16.47	17.59	17.94	18.27	17.43	17.43	15.77	15.37	14.94	12.14	12.14	12.14
700–999 ^c	18.42	18.74	17.39	18.18	17.63	17.21	17.63	16.01	14.39	12.55	9.57	7.40
1,000–1,299	14.58	15.04	15.49	15.80	15.29	15.04	13.48	10.89	10.19	9.37	6.35	5.39
1,600–1,999	13.68	13.84	13.75	13.09	12.48	11.36	10.51	11.30	9.75	7.62	7.13	4.69

Table 33 (continued)

Ship type (TEUs)	Monthly averages for 2009					
	Jan	Feb	Mar	Apr	May	Jun
Gearless						
200–299	15.49	12.49	13.22	11.75	10.61	13.48
300–500	10.94	9.59	9.13	8.46	8.94	8.79
Geared/Gearless						
2,000–2,299	4.63	3.22	3.22	2.40	2.40	2.51
2 300–3,400^a	9.47	9.47	2.79	2.60	2.46	2.31
Geared/Gearless						
200–299	20.84	18.21	17.17	17.17	15.70	15.33
300–500	12.54	10.67	9.37	9.51	8.69	10.99
600–799^b	12.14	7.19	6.21	6.31	6.18	6.35
700–999^c	7.52	6.89	5.86	5.98	6.00	5.93
1,000–1,299	5.03	4.89	4.53	4.10	3.79	3.82
1,600–1,999	4.65	3.71	3.45	3.22	2.84	2.84

Source: Compiled by the UNCTAD secretariat, from the Hamburg Index produced by the Hamburg Shipbrokers' Association, available at http://www.vhss.de/hax2006_001.pdf; and from *Shipping Statistics and Market Review*, volume 52, number 1/2 2009: 54–55, produced by the Institute of Shipping Economics and Logistics.

^a This category was created in 2002. The data for the first half of the year correspond to cellular ships in the range 2,300–3,900 TEUs, sailing at 22 knots minimum.

^b Sailings at 17–17.9 knots.

^c Sailings at 18 knots minimum.

3 points to 106 over the year. The monthly figures indicate a gradual strengthening of rates, with a sharp decline in December 2008. In the outbound trade, the average level in 2008 declined to 77 points, a reduction of 4 points, with a low of 65 in December 2008 signifying a sharp drop in trade from Europe to Asia.

E. CONTAINER PRODUCTION²⁸

Introduction

For the first three quarters of 2008, container production output continued much the same as in 2007. However, during the last quarter of 2008, production was severely curtailed so that by the end of the year, the total number of new boxes produced – 3.45 million TEUs – was almost 19 per cent less than in the previous year. Prior to this, container production had been increasing significantly, with 37 per cent growth in 2007 and 18 per cent growth in 2006.

The average price of new containers in 2008 was still higher than in 2007, however prices were expected to drop in 2009 as the market reacted to the lower demand for new boxes. The growth of trade and the expansion of the world's container ship fleet (chapter 2) continued to drive the price of containers upwards during the first three quarters of 2008 (table 36). As the rate of deliveries of new vessels increased, the demand for new containers increased exponentially. The ratio of container ship carrying capacity to the world fleet of containers is approximately 1 to 2.4. A 1,000-TEU ship requires approximately 2,400 TEU to serve its needs, as some containers are needed for loading, some for discharge and others carried onboard.

Increases in the costs of raw materials, especially Corten steel, were also a factor in the high price of new boxes. The price was pushed upwards to adjust for the high demand while container-producing factories were operating at

Table 34

Freight rates (market averages) per TEU on the three major liner trade routes
(*\$ per TEU and percentage change*)

	Trans-Pacific		Europe-Asia		Transatlantic	
	Asia-US	US-Asia	Europe-Asia	Asia-Europe	US-Europe	Europe-US
2007						
First quarter	1 643	737	755	1 549	1 032	1 692
Change (%)	- 2	- 5	- 5	0	- 3	- 4
Second quarter	1 675	765	744	1 658	1 067	1 653
Change (%)	2	4	- 1	7	3	- 2
Third quarter	1 709	780	792	2 014	114	1 667
Change (%)	2	2	6	21	- 89	1
Fourth quarter	1 707	794	959	2 109	1 175	1 707
Change (%)	0	2	21	5	931	2
2008						
First quarter	1 757	845	1 064	2 030	1 261	1 637
Change (%)	3	6	11	- 4	7	- 4
Second quarter	1 844	987	1 104	1 937	1 381	1 610
Change (%)	5	17	4	- 5	10	- 2
Third quarter	1 934	1 170	1 141	1 837	1 644	1 600
Change (%)	5	19	3	- 5	19	- 1
Fourth quarter	1 890	1 196	1 109	1 619	1 731	1 600
Change (%)	- 2	2	- 3	- 12	5	0
2009						
First quarter	1 670	913	853	1 023	1 481	1 325
Change (%)	- 12	- 24	- 23	- 37	- 14	- 17
Second quarter	1 383	802	742	897	1 431	1 168
Change (%)	- 21	- 12	- 13	- 12	- 3	- 12

Source: UNCTAD secretariat, based upon *Containerisation International Online*, available at <http://www.ci-online.co.uk>.

Notes: The freight rates shown are "all in", that is to say, they include currency adjustment factors and bunker adjustment factors, plus terminal handling charges where gate/gate rates have been agreed, and inland haulage where container yard/container yard rates have been agreed. All rates are average rates of all commodities carried by major carriers. Rates to and from the United States refer to the average for all three coasts.

utilization rate averaging 80 per cent. New standard TEU prices went up by more than 9 per cent between the first and second quarters of 2008, and by 6 per cent between the second and third quarters. Container prices fell by almost 14 per cent to \$2,200 during the last quarter of 2008, when demand for containers suddenly dropped and the fleet expansion of container ships levelled off. Besides having to lower prices to attract customers in a weak market, producers were forced to cut costs, and the utilization level of factories declined to 40 per cent. At

the beginning of 2009, the utilization level of factories stood at approximately 6 million TEUs per annum – less than half of their total productive capacity. Although in 2008 China remained the major producer of new boxes, the impact of the crisis led to immediate and drastic cost-cutting measures, such as the closure of many box factories and the layoff of workers. The subsequent fall in the cost of raw materials helped somewhat in bringing down the price of new boxes. Figure 22 shows the yearly trend of new boxes for the 2001–2008 period.

Table 35

Liner freight indices, 2006–2009*(monthly figures: 1995 = 100)*

Month	Overall index			Homebound index			Outbound index		
	2006	2007	2008	2006	2007	2008	2006	2007	2008
January	104	89	98	95	98	116	113	81	83
February	105	88	95	95	98	114	113	80	80
March	106	86	92	97	96	110	114	78	77
April	105	87	88	96	100	106	113	77	74
May	101	88	89	92	101	107	110	76	75
June	104	92	89	94	105	106	113	81	75
July	105	94	89	96	114	104	113	80	76
August	98	95	93	92	118	107	103	81	81
September	96	98	97	92	121	113	100	84	85
October	95	97	90	93	119	105	97	84	77
November	91	97	86	89	115	101	93	86	74
December	87	100	73	86	118	83	88	88	65
Annual average	100	94	90	97	109	106	110	81	77

Source: Compiled by the UNCTAD secretariat, on the basis of information in *Shipping Statistics and Market Review*, volume 53, number 3, March 2009: 61–62, published by the Institute of Shipping Economics and Logistics.

Table 36

World container fleet*(thousands of TEUs)*

	Global	Lessor	Sea carrier fleet
2005	21 415	9 380	12 035
2006	23 335	9 850	13 485
2007	26 235	10 680	15 555
2008	28 685	11 525	17 160

Source: UNCTAD secretariat, based upon “A new lease of life”, in *Containerisation International Online*, 1 August 2008.

Container leasing

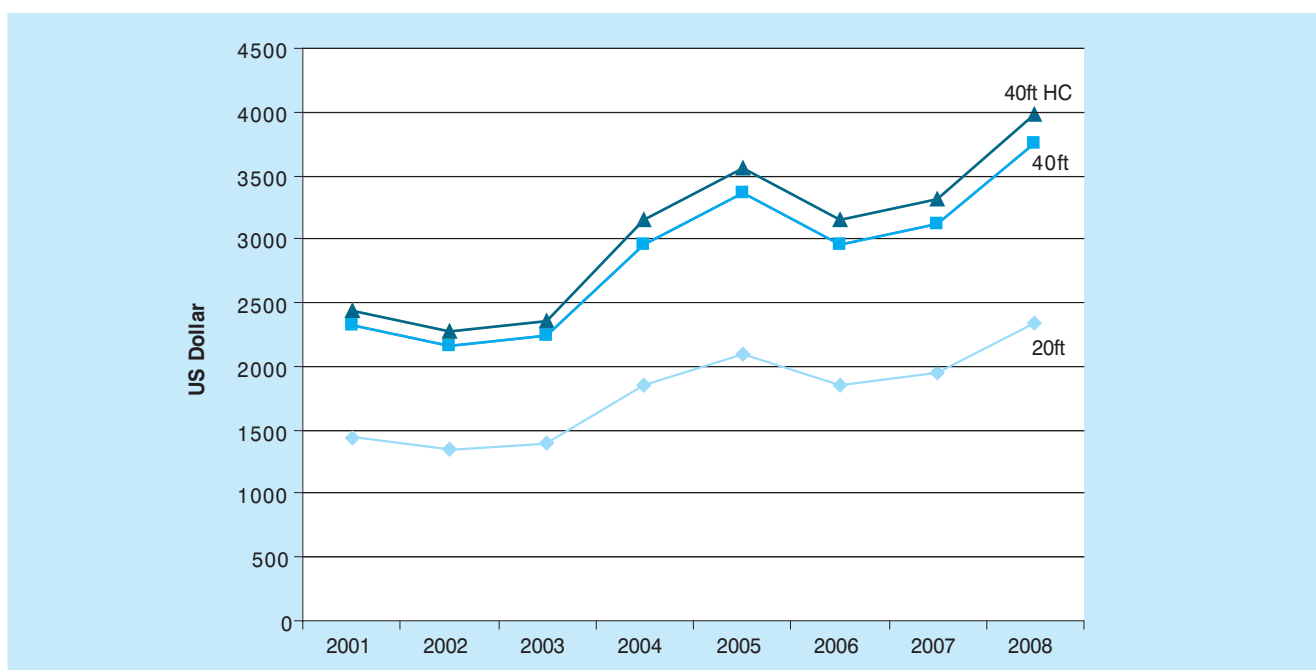
At the end of 2008, alongside the fall in the price of new boxes, the leasing rate also fell, to less than \$0.70 per day on a five-year-term option for standard TEU, and to less than \$1.20 for FEU (forty-foot equivalent unit) high-cube boxes. Figure 23 shows the quarterly leasing rates during 2007 and 2008.

The average initial cash investment return in 2008 for the standard TEU was 11.5 per cent, and 12.5 per cent for FEU high-cube. The leasing sector witnessed

a high level of utilization for its equipment and a considerable level of investment during 2008. Lessors acquired about 1.5 million TEUs for 2008, while ocean carriers and other operators purchased less than 2 million TEUs. Consequently, the rental market for containers formed about 45 per cent of the global fleet. According to the June 2009 report of the Institute of International Container Lessors, at the end of 2008 more than 450,000 TEUs of container rentals were disposed of, putting the operating leasing fleet of global containers at about 10.7 million TEUs.

Figure 22

Evolution of prices of new containers (\$ per box)

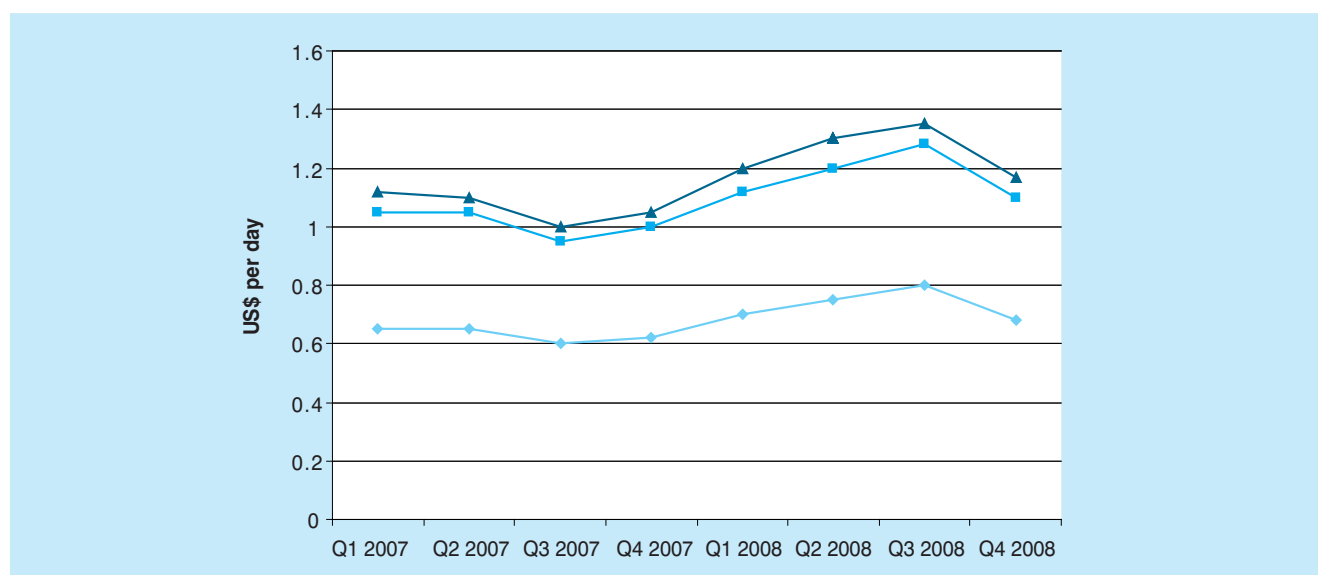


Source: UNCTAD secretariat, based upon *Containerisation International* (various issues).

Figure 23

Evolution of leasing rates

(\$ per day)



Source: UNCTAD secretariat, based upon *Containerisation International* (various issues).

ENDNOTES

- 1 UNCTAD secretariat, based on *Shipping Insight* by Drewry Shipping Consultants, various issues; Fearnleys *Review*, 2006; and *Shipping Review and Outlook* by Clarkson Research Services, 2006 and 2007.
- 2 *Lloyd's List*. About the fleet. 1 April 2009.
- 3 *ibid.*
- 4 <http://eneken.ieej.or.jp/en/data/pdf/471.pdf>.
- 5 <http://www.globalnginfo.com/develop2009.htm>.
- 6 Based upon a paper from May 2009 by Aurelia Rochelle Figueroa, entitled "Proposals, pipelines and politics: Natural gas supply security in Europe".
- 7 Energy Charter Secretariat (2008). *Fostering LNG Trade: Role of the Energy Charter*. Brussels.
- 8 <http://www.globalnginfo.com/develop2009.htm>.
- 9 UNCTAD secretariat, based on *Shipping Insight* by Drewry Shipping Consultants, various issues; Fearnleys *Review*, 2006; *Shipping Review and Outlook* by Clarkson Research Services, 2006 and 2007; and *Dry Bulk Trade Outlook* by Clarkson Research Services, May and June 2007.
- 10 http://www.australianminesatlas.gov.au/aimr/commodity/iron_ore.jsp.
- 11 http://www.menafn.com/qn_news_story.asp?StoryId=%7B0B8E63AA-E14B-45D8-B30A-50C651F53280%7D.
- 12 <http://english.caijing.com.cn/2009-05-26/110171723.html>.
- 13 *Lloyd's List*. 27 May 2009.
- 14 Europe's old 15 member countries.

- ¹⁵ Clarkson Research Services. *Dry Bulk Trade Outlook*. August 2008: 7.
- ¹⁶ These figures refer to the 25 member States of the European Union prior to the 2007 enlargement.
- ¹⁷ http://us-cdn.creamermedia.co.za/assets/articles/attachments/21659_roskill.pdf.
- ¹⁸ Formed after the consolidation of the Russian companies Rusal and Sual with Glencore in 2006.
- ¹⁹ In the previous month, one vessel – the 203,512 dwt, 2006-built carrier *China Steel Team* – had reportedly been chartered at the unprecedented rate of just over \$303,000 per day, for a voyage to carry iron ore from Brazil to China.
- ²⁰ http://www.tradewinds.no/crisis_watch/article527611.ece.
- ²¹ <http://www.lloydslist.com/ll/news/viewArticle.htm?articleId=20017583457&src=rss>.
- ²² UNCTAD secretariat, based on *Drewry Shipping Insight*, various issues; *Containerisation International*, various issues; *Containerisation International Online* (<http://www.ci-online.co.uk>); Clarkson Research Services, *Container Intelligence Monthly*, various issues, and *Shipping Review and Outlook*, 2008 and 2009; *Dynaliners Trades Review*, 2008; *Lloyds Shipping Economist*, various issues; and *Fairplay*, various issues.
- ²³ Clarkson Research Services. *Shipping Review and Outlook*. May 2009.
- ²⁴ This fact was highlighted in 2007 with the grounding of the container ship *MSC Napoli*, when it was revealed that it had on board 20 per cent of the world's inventory of nickel – a vital ingredient for stainless steel production.
- ²⁵ <http://www.businessdailyafrica.com/-/539444/617370/-/rvrw6d/-/>.
- ²⁶ *Lloyd's List*. 2 June 2009. The new prescription to cure Maersk Line's blues.
- ²⁷ *Lloyd's List*. 7 April 2009. CMA CGM to cut \$600m from costs as profits fall.
- ²⁸ UNCTAD secretariat, on the basis of information published in *Containerisation International Yearbook*, 2008 and 2009 issues.