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# **REVIEW OF MARITIME TRANSPORT, 2002**

## **Chapter IV** **Trade and freight markets**



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## Chapter 4

### TRADE AND FREIGHT MARKETS

*This chapter describes the conditions and trends in trade and freight markets, covering the major liner and bulk cargo sectors; gives liner freight rates as a percentage of commodity prices; and estimates freight payments and freight costs as a percentage of import value in world trade.*

#### **A. THE CRUDE OIL AND PETROLEUM PRODUCTS SEABORNE FREIGHT MARKET**

##### **1. Seaborne trade in crude oil and petroleum products**

The production cuts agreed to by OPEC countries during 2001 depressed tanker freight rates, even though quota compliance was weak during most of the year. Overproduction was estimated to run about 1 mbpd and came down to 0.6 mbpd by the fourth quarter. This overproduction was used to replenish the oil stockpiles of OECD countries. Overproduction also occurred for Iraq, the OPEC member that continued legal exports under the oil-for-food programme mandated by the United Nations. By the end of the year there were allegations of Iraqi oil being smuggled by sea (in November a vessel was captured by the United States Navy and sank with loss of life) and also through a dormant pipeline to the Mediterranean Sea.

In 2002 crude oil shipments are likely to continue to be affected by overproduction and thus to slightly alleviate the depressed freight market. Real OPEC production cuts are expected to be at least two-thirds of those agreed to, and, even if pledges for production cuts by non-OPEC countries are not fully enforced, the resulting supply is expected to closely match demand for the year. Crude oil shipments during the first quarter

of 2002 were 2.3 per cent down from the average of 35.6 mbpd reached in the fourth quarter of 2001.

##### **2. Tanker freight rates**

The year 2001 was a bad one for tanker owners. As table 31 indicates, all freight indices for the five groups of vessels engaged in transporting crude oil and petroleum products went down during the year. Decreases for VLCC/ULCC and small crude and product carriers were most pronounced: freight indices for these two groups ended the year at 39 and 128, with decreases from January levels of 74.3 and 63 per cent respectively. Medium-size crude carriers and clean carriers of all sizes ended the year at 94 and 149, with reductions of 56.7 and 59.8 per cent respectively. The fall was scarcely smaller for Handy-size dirty carriers, which ended the year at 141, down 49 per cent.

Comparing the annual average freight indices for the year 2001 with those of the previous year, which was a good one for tanker owners, indicates that the good times were over for owners of vessels falling into the three following groups: VLCC/ULCC (76 in 2001 vs. 96 in the previous year), medium-size crude carriers (140 vs. 153) and small crude and product carriers (191 vs. 208). For the remaining two groups, the annual average indices actually improved: Handy-size dirty carriers went up to 242 from 207 and clean carriers of all sizes reached 258 from the 218 level achieved in 2000.

Table 31  
**Tanker freight indices, <sup>a</sup> 1999–2002<sup>b</sup>**  
*(monthly figures)*

Period	VLCC/ULCC			Medium-size crude carriers			Small crude & product carriers			Handy-size dirty carriers			All-size clean carriers							
	1999	2000	2001	1999	2000	2001	1999	2000	2001	1999	2000	2001	1999	2000	2001	2002				
<b>January</b>	62	48	152	40	92	93	217	90	114	126	346	100	159	146	277	165	164	148	371	148
<b>February</b>	49	54	117	41	94	108	206	87	137	141	230	126	144	154	323	168	168	170	400	150
<b>March</b>	38	58	87	39	89	116	158	86	128	164	239	116	158	167	295	159	177	189	348	150
<b>April</b>	41	70	95	36	86	135	171	91	121	196	272	117	157	186	299	164	210	197	264	149
<b>May</b>	49	81	81	36	76	127	160	105	124	177	190	144	165	187	296	194	196	205	263	179
<b>June</b>	42	96	61	50	74	136	132	90	113	174	183	159	159	194	242	204	160	210	264	177
<b>July</b>	41	101	52		73	153	112		108	245	141		148	261	230		162	218	224	
<b>August</b>	47	106	53		71	197	114		110	266	130		151	243	224		154	234	214	
<b>September</b>	50	129	51		83	191	111		111	269	148		150	230	204		142	255	218	
<b>October</b>	45	136	74		91	165	111		106	194	154		144	217	210		147	265	187	
<b>November</b>	48	134	44		93	205	98		126	267	136		148	241	163		146	258	192	
<b>December</b>	53	138	39		108	209	94		141	273	128		170	244	141		154	262	149	
<b>Annual average</b>	47	96	76		86	153	140		120	208	191		154	207	242		165	218	258	

<sup>a</sup> Compiled and published by *Lloyd's Ship Manager*. World scale = 100, as effective in each year. For tankers, vessel size groups are as follows: VLCC/ULCC – 150,000 dwt and upwards; medium-size crude carriers – 70,000–150,000 dwt; small crude and product carriers – 30,000–70,000 dwt; Handy-size dirty carriers – below 35,000 dwt; and all sizes clean carriers.

<sup>b</sup> All indices have been rounded to the nearest whole number.

*Very large crude carriers (VLCC)*

The spot rates from the Middle East Gulf to Japan and the Republic of Korea started the year at WS 116 and WS 100 respectively. Vessels heading westward to Europe and to the Caribbean and the eastern coast of North America fetched WS 96 and WS 95 respectively. Rates weakened during the following months, and by June 2001 they were only WS 42 to Japan, WS 39 to the Republic of Korea, WS 36 to Europe and WS 39 to the Caribbean and the eastern coast of North America. The reductions in time-charter earnings per day were severe: from \$72,700 to \$18,200 for the route to Japan, from \$55,300 to \$14,000 for the route to the Republic of Korea, and from \$62,900 to \$17,200 towards north-western Europe.

During the summer months and following the resumption of Iraqi oil shipments in July, there rates recovered slightly for major routes from the Middle East Gulf. Rates peaked in late August and early September, when they reached WS 84 to Japan, WS 69 to the Republic of Korea, WS 75 to Europe and WS 69 to the Caribbean and the eastern coast of North America. However, the recovery was short-lived; OPEC continued to announce further production cuts, and by the end of the year the rates were WS 39 to Japan, WS 36 to the Republic of Korea and Europe and WS 37 to the Caribbean and the eastern coast of North America.

Fixtures from the Middle East Gulf to the Red Sea and South Africa followed a similar trend but had a firm first quarter. Royal Dutch Shell secured the 270,000 dwt *New Vista* in April at WS 110 for the Red Sea, agreeing to WS 157 for an option to the Far East. Texaco chartered the 270,000 dwt *British Pioneer*, also for April, at WS 100. These rates were the same ones prevailing at the beginning of the year. The following months, however, saw rates sliding fast, reaching WS 40 by June and from then on resembling those for the main routes originating in the Middle East Gulf.

During the year, rates fell by more than 60 per cent for routes from the Middle East Gulf. Steeper rate deterioration was found in the route from West Africa to the Far East, which started the year at WS 118 and ended at WS 34. A similar drop occurred in the route from the Mediterranean to northwestern Europe, which started at WS 147 and by December reached a low of WS 40 – a decrease of 73 per cent. For vessels over 300,000 dwt, namely ULCC, trading from the Middle East Gulf to the eastern coast of North America, rates deteriorated in line with the rates for the main routes – about a 57 per cent decrease from the WS 82 achieved in January 2001.

During 2002, freight rates continued to come down until May, when a brief recovery was apparent. Rates for tankers in the range 200 to 300,000 dwt sailing from the Middle East, increased from WS 28 in April to WS 56 in May in the route to Japan and from WS 29 to WS 39 in the route to the East Coast of North America.

*Medium-size crude carriers*

During the year, the deterioration in freight rates for Suezmax and Aframax tonnage was similar to that found in VLCC tonnage. During the first quarter, spot rates for Suezmax vessels trading from the Middle East Gulf to the Far East were steady around WS 157, but by August they decreased to WS 84. After a brief recovery in September, rates slid down to WS 70 by December. Typical fixtures in this route between the end of March and mid-April were those of Shipping Corporation of India (SCI), which secured the 125,000 dwt *Lofoten* at the end of March at WS 112 for a trip to India, and Sinochem, which chartered the 110,000 dwt *Alina* in mid-April at WS 112 for a trip to China. SCI chartered the 125,000 dwt *Sea Victory* in October at WS 116 for discharge in Chennai, while China Oil engaged the 130,000 dwt *Knock Allan* at WS 80 for discharge in China.

Suezmax rates for vessels originating in West Africa were, at the beginning of the year, at the WS 200 level for destinations in the Caribbean, on the eastern coast of North America and in northwestern Europe. By June, rate deterioration vis-à-vis the former destinations was less acute; rates reached WS 84, while to northwestern Europe they reached WS 80. The opposite occurred during the second half of the year, when rates to the Caribbean declined faster to WS 72, while those to northwestern Europe slid only to WS 73.

For routes originating in the Black Sea and the Mediterranean, the rates for destinations in northwestern Europe and the Mediterranean at the beginning of the year were WS 180 and WS 190 respectively, with the spread closing during the year, and by December rates were WS 78 and WS 77. Representative fixtures were that of Tamoil, which secured the 130,000 dwt *Matilda* at WS 179 for delivery in April in Libya for a trip to the United Kingdom and continental Europe. Two fixtures from Karran illustrate the considerable drop in rates for a 135,000 dwt vessel from Novorossiysk (Black Sea) to the United Kingdom and continental Europe. In April Karran took delivery of the *Sea Sprite* at WS 175 and in November the *Sea Voyager* at WS 80. The latter amount

is not very different from the WS 90 paid by Repsol for the delivery of the 130,000 dwt *Iran Saveh*, chartered for a trip from Sidi Kerir, the offshore loading point of the SUMED pipeline that bypasses the Suez Canal, to Spain.

The trend for Aframax rates for routes originating in the Black Sea and the Mediterranean was similar. At the beginning of the year, destinations in the Mediterranean and northwestern Europe reached rates of WS 218, while for Caribbean destinations the rates were slightly lower at WS 216. By December the former were WS 93 while the latter were WS 89. Again, two fixtures from Lukoil, which chartered 80,000 dwt vessels for delivery in the Black Sea for trips to the Mediterranean, illustrate the level of rates. In April Lukoil paid WS 170 for the *Niiris*, while in October it paid WS 135 for the *Minerva Libra*.

Other routes covered by Aframax tonnage were from the Caribbean to the eastern coast of North America, which saw rates fall from WS 197 in January to WS 135 in November, with a brief recovery to WS 146 in December. This corresponds to a time charter reduction equivalent to \$9,700 per day to reach \$23,000 per day at the end of the year. In the active northwestern Europe market, which revolves around North Sea oil, Aframax tonnage went from WS 214 in January to WS 102 in December, a drop in time charter equivalent for a 80,000 dwt vessel of \$37,700 to \$21,300 per day at the end of the year.

Some fixtures of Aframax tonnage at the end of the first quarter of 2001 are as follows: for the short haul from the Middle East Gulf to India, SCI chartered two 80,000 dwt vessels, *Ocean Hope* and *Ocean Success*, for a trip to Bombay and Cochin for delivery at the end of March at WS 125 and 120 respectively; further east, Mitsui chartered the 80,000 dwt *Agate* for a trip from Balikpapan (Indonesia) to Singapore at WS 220, while SKS chartered *Silver Iris* for a trip from Bintulu (Malaysia) to Ulsan (Republic of Korea) at WS 230.

There was some slight recovery of freight rates for Suezmax tonnage in 2002. Across the Mediterranean Sea, rates increased from WS 72 in January to WS 86 in April and then, down to WS 82 in May. Rates held steady at WS 65 in the routes from West Africa to North America. The rate recovery was more pronounced for Aframax tonnage. In the routes from the Mediterranean Sea to the East Coast of North America, rates increased from WS 95 in January to WS 112 in May. For the same months and destinations sailing from the Caribbean, the rates went up from WS 113 to WS 127.

#### *Small crude and product carriers*

These vessels also suffered a bad year. In the Caribbean, dirty spot rates for vessels in the 40,000-to-70,000-dwt range trading to North America's eastern coast went down from WS 285 in January to WS 100 in December. For vessels trading within the Mediterranean, rates decreased from WS 245 in January to WS 120 in December. At the beginning of the year and for destinations in the Caribbean and on the eastern coast of North America, rates were WS 309 from the Mediterranean and WS 296 from northwestern Europe; by December, the rates had come down to WS 107 and 104 respectively.

In all these routes mild recoveries were recorded by May 2002. Rates from the Caribbean to the East Coast of North America went up to WS 162; within the Mediterranean, rates reached WS 158, and for the other two routes rates were WS 165 and WS 154 respectively.

#### *Handy-size dirty carriers*

Handy-size dirty carriers trading in short-haul routes close to major producing and refining areas also had a bad year. Rates for representative fixtures in the Black Sea and the Mediterranean indicate a downward trend: in March the 32,000 dwt *Isola Verde*, chartered by Total Fina Elf, fetched WS 320, while Agip chartered the 30,000 dwt *Venus* at WS 180 in October. Elsewhere, similar conditions prevailed, as is shown by fixtures for two 30,000 dwt vessels sailing from Kerteh Terminal (Malaysia): in March, BP Amoco chartered *Arbat* for a single voyage to Singapore for \$250,000, while in November Petco chartered *Hellas Constellation* for \$160,000 for a voyage to Thailand.

Rates for this category of tankers were steady in 2002. In May, AGIP chartered the 30,000-dwt *Isola Magenta* and *Celtica* for voyages from the Black Sea to the Mediterranean Sea at WS 180.

#### *All clean carriers*

The rates for large clean tankers in the range 70,000-to-80,000-dwt range trading from the Middle East Gulf to Japan peaked at WS 387 in January 2001 after rising continually during 2000. A downward trend established itself during 2001: in July rates reached WS 208 and in December WS 102. A similar trend was observed for tankers with an average size of 55,000 dwt, for which time-charter-equivalent earnings fell from \$58,500 in January to \$13,200, a decrease of 77 per cent. Smaller



tankers in the range 25,000–35,000 dwt trading out from Singapore to Southeast Asian destinations fetched WS 464 at the beginning of the year but only WS 165 by year's end – a drop of 64 per cent.

Clean trades from Caribbean refineries to destinations on the eastern coast of North America came down during the year from WS 333 to WS 136 for tankers in the range 35,000–50,000 dwt and from WS 419 to WS 171 for tankers in the range 25,000–35,000 dwt.

During 2002, there was a minor improvement in rates. Large tankers trading from the Middle East to Japan fetched WS 119 by May, while smaller tankers sailing from Singapore reached WS 168 in the same month. Tankers in the range 35,000–50,000 dwt sailing from the Caribbean fetched rates of WS 160 by May while the smaller ones in the 25,000–35,000 dwt category sailing from the same origin reached WS 198.

#### *The tanker period charter market*

The recovery of activity started in November 2000 and peaked in February 2001, when 3.7 million dwt, mostly Aframax and VLCC tonnage, were chartered for two-year periods. Estimated period rates for one-year charter and prompt delivery for five-year-old 80,000-to-95,000-dwt and 280,000 dwt VLCC vessels were \$25,500 and \$44,000 per day respectively. The following months saw reduced activity, and in May activity matched the low of October of the previous year, when only 0.8 million dwt were traded.

There was a brief recovery in June, when 2.7 million dwt, mainly VLCC; were chartered, mostly for periods up to six months. However, the estimated period rate for a five-year-old 280,000 dwt vessel was \$40,000 per day, 10 per cent lower than that estimated in February. By August, when 2.2 million dwt were chartered, the preferences were for ULCC, vessels over 320,000 dwt, and also for six months, and this preference continued in the months of November and December when 2.4 million dwt and 1.1 million dwt were traded respectively. However, the estimated period rates for one-year charter and prompt delivery were very depressed – in the range of \$27,500 per day for a 280,000 dwt vessel. This rate was 50 per cent above the one for a 10-year old 60,000 dwt tanker.

During 2002 chartering activity increased substantially from 1.0 million dwt in January to 4.0 million dwt in May. There was a clear preference for VLCCs in the

range of 200,000–300,000 dwt, with chartering periods of over two years being more than one third of charters committed during May. Nevertheless, period rates for one-year charter and prompt delivery continued to be depressed. A five-year-old 280,000 dwt tanker fetched only \$23,000 per day in May 2002.

## **B. THE DRY BULK SHIPPING MARKET**

### **1. Dry bulk trade**

The main activity in this market was along the iron ore routes from Australia to the Far East and from Brazil to the Far East and Europe, over which mostly Cape-size tonnage was deployed. The coal routes from Australia to the Far East and from South Africa to the Far East and Europe attracted the same tonnage. Panamax tonnage was deployed on several routes, including the transatlantic coal and iron ore routes from the eastern coast of the United States and Canada respectively and in ore exports from West Africa to Europe. Panamax tonnage was also used on iron ore and coal routes within Asia, such those originating in India, China and Indonesia, and those within Europe originating in Sweden.

Panamax tonnage, together with other smaller vessels such as Handymax, was deployed along the grain routes from North America Gulf and the eastern coast of South America. Handy-size tonnage was employed for several grain destinations, notably those having ports with restricted drafts. This tonnage was also used on bauxite, alumina and rock phosphate routes.

### **2. Dry bulk freight rates**

Freight rates for all sectors and sizes of dry bulk carriers finished the year 2001 at levels below those prevailing at the beginning of the year. The Baltic Dry Index decreased by 12.5 per cent during the first half of the year and accelerated its downward trend during the third quarter, when it decreased by 28.6 per cent. After a brief recovery in October, the index fell again to end the year 45 per cent below its level at the beginning of the year.

As table 32 shows, dry cargo tramp time charter decreased steadily during the year to 68 – a 35.2 per cent decline over the year. Dry cargo tramp trip charter went over the 200 mark briefly during the second and third quarter and then fell back to 195 – still 1 per cent up from that of the beginning of the year. The average time charter index for 2001 was lower than that of the previous year, while the average trip charter index was steady. Owners of tankers

Table 32

**Dry cargo freight indices, 1999–2002<sup>a</sup>**  
(monthly figures)

Period	Dry cargo tramp time-charter <sup>b</sup> (1995 = 100)				Dry cargo tramp trip-charter <sup>c</sup> (July 1965 to June 1966 = 100)			
	1999	2000	2001	2002	1999	2000	2001	2002
January	46	86	105	72	166	190	193	194
February	49	89	103	74	170	191	198	199
March	60	101	108	80	169	190	195	199
April	59	107	108	82	172	191	200	199
May	68	108	109	77	173	193	206	199
June	64	106	106	71	176	202	205	207
July	63	108	93		179	202	205	202
August	66	113	72		178	203	192	
September	70	122	68		185	206	193	
October	79	121	67		185	207	195	
November	80	122	67		195	206	194	
December	82	107	68		192	208	195	
<b>Annual average</b>	66	108	90		178	199	198	

<sup>a</sup> All indices have been rounded to the nearest whole number

<sup>b</sup> Compiled by the German Ministry of Transport.

<sup>c</sup> Compiled and published by *Lloyd's Ship Manager*.

and dry cargo vessels benefited from reductions in bunker prices. The average posted prices for intermediate fuel oil 180 at nine ports collected by Lloyd's Ship Manager went down from \$175 to \$115.

Decreases in freight rates were more apparent for Cape-size tonnage to the extent that late in the year a large new pool having 75–80 vessels, Cape International Inc., was announced as the result of an agreement between Bocimar and Zodiac, but the downward trend was inexorable. The establishment of another pool, Bergessen and General Ore, with about 20 vessels, represented efforts by shipowners to close ranks to survive in depressed markets. Rates for Panamax tonnage weakened less than those for Cape-size tonnage, with Handymax and Handy-size tonnage behaving still better. Chartering activity was concentrated in the Far East, with about one-third of deliveries being in that region and one-fifth in Europe.

*Dry bulk time charters (trips)*

Representative fixtures concluded for vessels of different sizes in typical routes illustrate the extent of the depressed

markets. At the beginning of 2001, Cape-size tonnage was chartered for round trips via the transatlantic and Singapore-Japan to Australia routes at daily rates of about \$19,300. In December the corresponding rates were about \$7,600 per day – a decrease of 61 per cent. Again, Panamax tonnage chartered at the beginning of the year for round trips between Northern Europe and the eastern coast of South America and between the Far East and the eastern coast of Australia fetched \$10,900 and \$12,850 a day respectively, while in December, the rates were \$5,530 and \$6,020 a day respectively with the latter rebounding from a low of \$4,645 per day in November.) The picture for smaller vessels (Handymax and Handy-size) was similar. Over the Far East to Australia route, a Handymax rate for a round trip went down from \$8,750 per day in January to \$5,940 per day in December – a 32.1 per cent drop. For a round trip from the European continent to West Africa, the rate for a Handy-size vessel decreased from \$6,350 per day in January to \$5,000 per day in November and then rose to \$6,000 in December.

In the following months all these rates showed recovery, although some were modest. Rates for Capesize tonnage in the routes Australia to Singapore and Japan, registered a 24.4 per cent increase to reach \$9,455 per day in May 2002. Panamax vessels in the trade Northern Europe to East Coast of South America and Far East to East Coast of Australia saw rates rising by 43.8 per cent and only 1.7 per cent to reach \$7,950 and \$6,125 per day respectively. Rates increases for smaller tonnage were less impressive with 5.3 per cent for Handymax vessels trading between the Far East and Australia and 10.0 per cent for Handy tonnage engaged in the North-West Europe–West Africa trade.

#### *Dry bulk time charters (periods)*

Estimates of rates for chartering vessels for a 12-month period and prompt delivery indicate that rate decreases were less pronounced for Handymax tonnage. Capesize vessels less than five years old and in the range of 150,000–160,000 dwt were getting \$18,000 per day in January 2001 but only \$10,000 per day in December, a 41.7 per cent decrease. Rates for a five-year-old Panamax started at \$11,000 in January and decreased by 36.4 per cent during the year, with the drop being larger for 15-year-old vessels – 47.5 per cent. Rate deterioration for 15-year-old Handy-size tonnage was similar: from \$6,750 in January, rates fell 42.2 per cent by December. Less battered was the Handymax tonnage: rates for a five-year-old vessel started the year at \$9,250 per day and dropped 32.4 per cent by December.

The rebound came in 2002. Freight rates for five-year-old Capesize vessels in the range of 150,000-160,000 dwt increased by 27.5 per cent to \$12,750 per day in May 2002. Rate increases for Panamax vessels were slightly higher at 28.6 per cent to \$9,000 per day. Handy-sized vessels also had a good recovery over the same period (+21.8 per cent) to reach \$4,750 per day. The least impressive recovery was that of Handymax vessels (approximately 16 per cent) to reach freight rates of \$7,250 per day.

#### *Dry bulk trip charters*

Over the year, Capesize tonnage suffered badly. Coal freight rates from Richards Bay (South Africa) to Western Europe started the year at \$9.20 per ton; by the end of July rates had come down to \$6.55 per ton; and worse followed when in November and December they bottomed at \$4.90 per ton, a decrease of 46.7 per cent from the

beginning of the year. A similar trend was found in the iron ore sector. The freight rate from Brazil to China went down from \$11.25 per ton in January to \$8.65 per ton by July and \$6.15 per ton by November, and decreased further in December to \$6.05 – a drop of 46.2 per cent.

In the Panamax sector the trend was also downhill but less pronounced. Grain freight rates from the US Gulf to Western Europe went down from \$14.5 per ton to \$13.90 in July and \$9.60 by December, a decrease of 33.8 per cent. Firmer rates were found in the Handy-size sector: freight rates for scrap from the United States' western coast to the Republic of Korea started the year at \$26.80 per ton and decreased only 20.3 per cent by the end of the year.

All rates recovered in 2002. Those for Capesize vessels carrying coal from Richards Bay to Northern Europe increased by 17.3 per cent to reach \$5.75 per ton in May while those for carrying iron ore from Brazil to China increased by 20.7 per cent to reach \$7.30 per ton in the same month. Panamax vessels transporting grain from the US Gulf to Northern Europe saw an even higher recovery of 29.2 per cent to \$12.40 per ton. Less impressive was the increase in rates for carrying scrap from the US West Coast to the Republic of Korea (15.3 per cent) to \$26.40 per ton.

## **C. THE LINER SHIPPING MARKET**

### **1. Developments in liner markets**

#### *General developments*

The impact of containerization on the liner trade is larger than that implied by the size and growth of the container ship fleet as analysed in table 7 of chapter 2. Total seaborne container carrying capacity during 2001 rose by 0.63 million TEUs to 7.41 million TEUs – an increase of 9.2 per cent. Container ships increased their share of this total from 68.9 to 71.4 per cent at the beginning of 2002, for a total of 5.3 million TEUs. The share of general cargo ships reached almost 20 per cent. Single-deck vessels accounted for 0.81 million TEUs (about 11 per cent) while multi-deck ships added 0.66 million TEUs (about 8.9 per cent). During the year, single-deck tonnage increased 4 per cent while multi-deck tonnage actually decreased 5.4 per cent.

Ro-ro cargo and ro-ro passenger ships accounted for 0.33 million TEUs and their share of total container



carrying capacity increased by 1.3 per cent during the year to 4.5 per cent. Bulk carriers with container carrying capacity added 0.21 million TEUs, with tonnage decreasing by 1.9 per cent. The share of this category of vessel stood at 2.8 per cent. The balance of about 1.4 per cent was TEU carrying capacity available in reefer, tanker, specialized and passenger vessels.

Moreover, the accelerated growth of the fully cellular container ship fleet mentioned in chapter 2 was accompanied by an expansion in the share of larger vessels. During 2001, 180 shipbuilding contracts were reported, of which 55.5 per cent were for vessels with TEU capacity of more than 2,000 and, for the first time, six vessels had capacity of more than 8,000 TEUs.

As table 33 indicates, 241 container ships were delivered during 2001, while only 23 were retired from operations and broken up. More significantly, 27.4 per cent of the ships added were above the 4,000 TEU size and represented 57.7 per cent of the total TEU capacity added (639,000 TEUs). The addition of larger vessels is assured for the future: 41 of the 180 vessels on order had a size above 4,000 TEU, and these represented 52.3 per cent of the total TEU capacity on order (213,000 TEUs). Therefore, the number of vessels above the 4,000 TEU size increased from 264, or 10.3 per cent of the container ship fleet, to 330, or 11.9 per cent of the container ship fleet. The TEU capacity deployed in vessels above 4,000 TEU, currently 1,667,000 TEUs and equivalent to 31.5 per cent of the total TEU capacity, will continue to increase.

Table 33

**Growth of the world cellular container fleet**  
(ships and thousand of TEU)

TEU	Broken up in 2001		Additions in 2001		Fleet as of 1 January 2002		Orders as of 1 January 2002	
	Ships	TEU	Ships	TEU	Ships	TEU	Ships	TEU
Unknown	23	29	-	-	14	-	7	-
<999	-	-	65	35	888	451	59	32
1,000–1,999	-	-	49	69	852	1 202	33	47
2,000–2,999	-	-	45	111	451	1 112	23	57
3,000–3,999	-	-	16	55	247	853	17	59
4,000–4,999	-	-	9	40	174	767	17	75
> 5,000	-	-	57	329	156	900	24	138
<b>Total 2002</b>	23	29	241	639	2 782	5 285	180	407
<b>Total 2001</b>	11	10	151	420	2 564	4 674	396	1 266

Source: Compiled by the UNCTAD secretariat on the basis of *Containerisation International* (2002), February, 19.

Sea carriers providing services that encompass the major routes are the main users of the large vessels and gradually redeploy their smaller ships on secondary or feeder routes. Fleets dominated by ships of 4,000 TEUs or more restrict the ports of call of these carriers, leaving openings for enterprising smaller operators to pioneer different routes using smaller, often chartered tonnage to serve regional ports bypassed by the big ships.

During 2001, the number of vessels engaged in the North-South trades increased from 549 to 579. These trades link Africa, Australia–New Zealand and Latin America with the major east-west routes running along the northern

hemisphere. More significant is the fact that the size of these vessels was increasing. The number of vessels with capacity of more than 2,500 TEUs increased from 50 to 83 and the number of those in the range 1,500–2,499 TEUs increased from 320 to 344. Conversely, the number of vessels in the range 1,000–1,499 TEUs decreased from 179 to 152.

The complex operation and management of container systems encompassing different types and sizes of ships and their containers, sea and inland terminals and inland transport networks require considerable skill and flexibility. The constant adaptation of transport activities

to serve the large number of customers making use of liner shipping services having different and changing trading needs is transforming sea carriers and transport operators into logistics operators better attuned to the needs of the trade. In April 2002, China Shipping set up a logistics subsidiary, following a similar decision by Cosco the previous January.

#### *Concentration in liner shipping*

The concentration process of recent years has resulted in increased carrying capacity being deployed by the biggest liner operators. As table 34 indicates, over the one-year period ending 30 September 2001, the top 10 liner operators increased their carrying capacity by 12.5 per

cent to 3 million TEUs – almost 42.5 per cent of the world total container carrying capacity. Similarly, the share of the top 20 liner operators increased by 12.1 per cent to 4.2 million TEUs – 60.1 per cent of the world total container carrying capacity. A clear reflection of the momentum being gained by industry consolidation is the permanence of the same operators in the list of the top 20. Among the top 10 operators, only CMA-CGM group moved up two places. Most of the shifting is found among operators positioned from 11<sup>th</sup> to 20<sup>th</sup>: three kept their places (Yang Ming, CSAV and Hamburg Sud), four went up (K Line by one place, OOCL and China Shipping by two places each, and Hyundai by four places) and three went down (MOL by two places, Hapag Lloyd by three places and Zim by four places).

Table 34

#### **Leading 20 container service operators (as of end September 2001) on the basis of number of ships and total shipboard capacity (TEUs)<sup>a</sup>**

Ranking	Operator	Country/Territory	No. of ships in 2001	TEU capacity in 2001	TEU capacity in 2000 <sup>b</sup>
1	Maersk Sea-Land	Denmark	293	693 237	682 411
2	P&O Nedlloyd	UK/Netherlands	147	380 009	301 686
3	Evergreen Group	Taiwan Province of China	131	348 650	317 940
4	Hanjin/DSR-Senator	Republic of Korea/Germany	87	299 490	246 397
5	MSC	Switzerland	150	296 064	229 074
6	NOL/APL	Singapore	85	244 848	213 790
7	COSCO	China	130	228 060	210 289
8	CMA-CGM Group	France	72	176 278	141 652
9	NYK	Japan	78	169 921	170 907
10	CP Ships Group	Canada	81	160 206	148 745
<b>Total 1–10</b>			<b>1 254</b>	<b>2 996 763</b>	<b>2 662 891</b>
11	K Line	Japan	63	151 945	124 655
12	OOCL	Hong Kong (China)	49	144 450	120 096
13	MOL	Japan	56	144 014	137 379
14	Hyundai	Republic of Korea	74	140 979	109 303
15	China Shipping	China	71	128 387	103 876
16	Yang Ming	Taiwan Province of China	44	125 207	103 358
17	Zim	Israel	56	117 293	135 199
18	Hapag Lloyd	Germany	30	114 827	108 156
19	CSAV	Chile	47	91 803	105 035
20	Hamburg-Süd	Germany	45	90 757	76 614
<b>Total 1–20</b>			<b>1 789</b>	<b>4 246 425</b>	<b>3 786 562</b>
<b>World fleet</b>			-	<b>7 057 915</b>	<b>6 411 947</b>

Source: Compiled by the UNCTAD secretariat on the basis of data from *Containerisation International* (2001), November, 65, and Institute for Shipping Economics and Logistics (2001), *Shipping Statistics and Market Review*, November/December.

<sup>a</sup> All subsidiaries are consolidated.

<sup>b</sup> As of September 2000.

## 2. Freight level of containerized liner services

### Chartering of container ships

Global liner shipping market developments are best reflected in the movements of the container ship charter market. This market is largely dominated by German owners, particularly by members of the Hamburg Shipbrokers' Association (VHSS), which control some 75 per cent of all container ship charter tonnage available in the free market. Since 1998 the association<sup>4</sup> has published the "Hamburg Index", which provides a market analysis of container ship time charter rates. Rates on 14-ton slot (TEU) per day were published monthly for three gearless and six geared size groups and compared to average rates obtained in 1997. The year 1997 was chosen as the reference year because it was the last year when a remunerative rate level could be achieved. Since July 2002, rates are published for two types of gearless vessels up to 500 TEU capacity, two types of gearless/geared vessels over 2,000 TEU capacity and six types of geared vessels up to 1,999 TEU capacity. The development of time charter rates is reflected in table 35.

In 2001 the average time charter rates for all types of container ship having capacity of 500 TEUs or less were

slightly higher than the corresponding averages for 2000. The reverse was true for all groups of larger vessels, which recorded yearly averages for 2001 below the levels of the year before. The steepest declines were for larger vessels: the average rate for gearless vessels over 2,000 TEUs went down 25.1 per cent to \$7.97 per 14-ton slot day, while that for the largest geared vessels declined 22.9 per cent. Interestingly, rates for geared container ships in the range 1,600–1,999 TEUs are similar to those applied to gearless ships with capacity of over 2,000 TEUs.

Time charter rates for container ships larger than 2,000 TEUs were compressed downwards by the attractive newbuilding prices quoted by shipyards in recent years and the significant capacity still on order, about 400,000 TEUs per year over the next two years. Reported representative fixtures for March 2002 indicate that two 2,950 TEU gearless vessels engaged for trading over the trans-Pacific and over the Southeast Asia–Australia–New Zealand route for 12 months fetched \$4.06 and \$3.56 per 14-ton slot day. Depressed freight rates even caused a 41 per cent drop in traffic along the Trans-Siberian land bridge as the cost of the maritime route fell.

Table 35

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

Ship type	Yearly averages			Monthly averages for 2002			
	1997	2000	2001	January	February	March	April
<i>Gearless</i>							
200-299 TEU	21.80	15.71	16.04	15.26	15.68	15.73	15.83
300-500 TEU	16.79	14.52	14.72	13.78	14.28	15.28	14.81
2,000-2,299 TEU <sup>a</sup>	9.31	10.65	7.97	3.37	3.45	4.55	4.55
<i>Geared</i>							
200-299 TEU	22.00	17.77	17.81	16.26	16.32	16.97	17.04
300-500 TEU	17.24	14.60	14.90	12.31	13.26	13.47	13.05
600-799 TEU <sup>b</sup>	13.87	12.21	11.30	8.13	8.70	8.47	8.88
600-799 TEU <sup>c</sup>	14.08	11.90	11.04	8.15	8.04	8.09	8.83
1,000-1,299 TEU	12.47	11.87	8.78	5.11	5.52	5.65	6.07
1,600-1,999 TEU	10.50	10.35	7.97	4.29	4.29	4.27	4.99

<sup>a</sup> This category was created in 2002. Data for the period January to June 2002 correspond to cellular vessels in the size range 2,300-3,900 TEU sailing at 22 knots minimum. Since July 2002 cellular vessels size range 2,300-3,400 TEU sailing at 22.5 knots minimum.

<sup>b</sup> Until June 2002, minimum speed 16-18 knot range; and from July 2002, onwards minimum speed 17-17.9 knots.

<sup>c</sup> Until June 2002, vessels size range 600-799 TEU over 18 knots; and from July 2002 onwards, vessel size range 700-999 TEU - minimum speed 18 knots.

During the first half of 2002, the upward trend for time charter rates was clearly established for all groups of vessels with the exception of gearless ships in the 300-to-500-TEU range.

#### *Freight rates in main routes*

By the end of 2001 freight rates on the main containerized routes – trans-Pacific, transatlantic and Asia–Europe – were all below levels prevailing at the end of 2000 (see table 36). Amid the general collapse of rates, those across the Atlantic fared better than Pacific and Asia–Europe ones. Rates on the westbound transatlantic leg connecting Europe with North America fell by 2.1 per cent, while rates on the eastbound leg decreased by 8.9 per cent. On trans-Pacific routes the freight rates prevailing in the eastbound and westbound directions decreased by 16.8 per cent. The Asia–Europe route suffered most, with rates decreasing by 17.1 per cent westward and 28.7 per cent eastward.

On the transatlantic route, freight rates for the eastbound leg decreased by about 5 per cent during the first quarter and again during the third quarter; modest gains were made in the second and especially the fourth quarter. As a result, freight rates started at \$938 and ended the year at \$899 per TEU. Opposite rate movements were registered on the westbound leg, where gains of 2.8 and 1.4 per cent were recorded in the first and third quarters while rates slid by 4.2 and 2 per cent during the second and fourth quarters. Therefore, rates for the westbound leg came down to \$1,236 per TEU during the second quarter, rebounded to \$1,253 per TEU in the following quarter and receded to \$1,228 per TEU by the end of the year. The relatively good performance on this route was helped by the carriers' decision to impose equipment repositioning surcharges and the deployment of larger newbuildings in other routes because of the insufficient draft in ports along the eastern coast of the United States.

A clear downward trend prevailed in the trans-Pacific trade. In the more dominant eastbound direction, the trend had started during the fourth quarter of 2000 when rates decreased by 5.3 per cent and prevailed until September 2001, with rates falling 3, 5.8 and 8 per cent in the following quarters. This situation was caused by the deployment of larger container ships that added tonnage at a time of slack demand resulting from the slowdown in the United States economy. The modest 1 per cent fall in freight rates during the fourth quarter of 2001 reflects carriers' decision to implement reduction capacity programmes to align demand and supply. Rates started

the year at \$1,874 per TEU and ended at \$1,608, a significant 14.2 per cent decrease. Westbound rates actually rose by a modest 1.1 per cent during the first quarter of 2001 to \$877 per TEU. Then the downward trend imposed itself and accelerated towards the end of the year – the 1 per cent decline of the second quarter was followed by a 7.8 per cent decrease in the following quarter and a further 10 per cent decline that left freight rates at only \$721 per TEU at the end of 2001. Apparently the measures undertaken by carriers were not enough to align supply and demand in the westward direction.

During the first half of 2001, freight rates for the eastward and westward legs of the Asia–Europe route moved in opposite directions. The 3.6 per cent gain in freight rates for the eastward leg was almost mirrored by the 3.2 per cent drop for the westbound leg during the first quarter. The following quarter saw wider and opposite fluctuations: the 7.9 per cent drop for the eastbound leg coincided with a 6.2 per cent gain for the westbound leg. Nevertheless, by mid-year freight rates were lower than those for the end of 2000. Worse was to follow, and rates for the eastbound and westbound legs fell simultaneously by 9.5 and 11.7 per cent in the following quarter and a further 11 and 4 per cent during the fourth quarter. Carriers implemented capacity withdrawal programmes to align supply and demand and announced freight increases for 2002. Also, carriers within the Far Eastern Freight Conference decided to introduce terminal handling charges for calls in Chinese ports and to redefine the origin and receiving charge applied in some parts of southern China as terminal handling charges beginning in early 2002.

As table 36 indicates, with the exception of the westward trans-Pacific route, which registered increases of 4.2 per cent, the downward trend for freight rates in the three main containerized routes continued unabated during the first quarter of 2002. The trend continued in the following month in spite of significant increases in cargo volumes. Carriers started to announce freight increases in July for those shipments not covered by service contracts in an attempt to boost revenues. According to the Shanghai Shipping Exchange, the freight rate index for services to Europe increased by 7.8 per cent to 1,103 in July while the index for services to the West Coast of North America went up by 5.1 per cent to 1,034.

During 2001, the downward pressure on freight rates felt by shipowners was compounded by increases in marine insurance and led to surcharges that were promptly opposed by shippers (see box 2).

Table 36

**Freight rates (market averages) on the three major liner trade routes 2000-2001<sup>a</sup>**  
(US dollars per TEU)

	Trans-Pacific		Europe-Asia		Transatlantic	
	Asia-USA	USA-Asia	Europe-Asia	Asia-Europe	USA-Europe	Europe-USA
<b>2000</b>						
<b>First quarter</b>	2 125	751	664	1 594	939	1 148
<i>Change (%)</i>	-3.0	2.0	-14.0	-1.0	-9.0	2.0
<b>Second quarter</b>	1 953	852	710	1 597	958	1 148
<i>Change (%)</i>	-8.0	13.0	7.0	0.0	2.0	4.0
<b>Third quarter</b>	2 041	939	793	1 673	1 022	1 264
<i>Change (%)</i>	5.0	10.0	12.0	5.0	7.0	6.0
<b>Fourth quarter</b>	1 932	867	797	1 618	987	1 255
<i>Change (%)</i>	-5.3	-7.7	0.5	-3.3	-3.4	-0.1
<b>2001</b>						
<b>First quarter</b>	1 874	877	826	1 566	938	1 290
<i>Change (%)</i>	-3.0	1.1	3.6	-3.2	-5.0	2.8
<b>Second quarter</b>	1 765	869	760	1 468	943	1 236
<i>Change (%)</i>	-5.8	-1.0	-7.9	6.2	0.5	-4.2
<b>Third quarter</b>	1 624	801	688	1 296	890	1 253
<i>Change (%)</i>	-8.0	-7.8	-9.5	-11.7	-5.6	1.4
<b>Fourth quarter</b>	1 608	721	660	1 153	899	1 228
<i>Change (%)</i>	-1.0	-10.0	-4.0	-11.0	1.0	-2.0
<b>2002</b>						
<b>First quarter</b>	1 540	751	601	1 073	866	1 180
<i>Change (%)</i>	-4.2	4.2	-8.9	-6.9	-3.7	-3.9

<sup>a</sup> Information from six of the trades' major liner companies. All rates are all-in, including the inland intermodal portion, if relevant. 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. Rates to and from Europe refer to the average for Northern and Mediterranean Europe. Rates to and from Asia refer to the whole of Southeast Asia, East Asia and Japan/Republic of Korea.



## Box 2

**The impact of terrorist attacks on marine insurance and shippers**

After the Tamil Tiger attack on the Colombo airport on 24 July 2001, marine underwriters imposed additional hull and machinery premiums for vessels calling at Colombo, hurting trans-shipment activity and Sri Lanka exporters. As a result of this, container carriers applied surcharges of \$350 per TEU on import and export cargoes and of \$150 on transshipment cargoes. After representations made by Sri Lankan shippers to commercial underwriters and shipowners, those surcharges were considerably reduced over a period of about two months.

The terrorist attacks of 11 September 2001 in the United States, along with the subsequent military action in Afghanistan, severely affected global marine insurance markets. By early October it was clear to shipowners that hull and machinery premiums were going up not only in South Asia, where most of the military activity concentrated, but also in a wide geographical area extending to Algeria in the Mediterranean Sea. Additional premiums of up to 0.4 per cent of the hull and machinery value for a seven-day period were quoted by commercial marine underwriters for vessels going to Pakistan, with premiums of 0.25 per cent imposed to those heading to Iran and 0.175 per cent for destinations in the United Arab Emirates and Saudi Arabia. The rate for Iraq continued to be the highest one at 0.5 per cent, with the rate for vessels crossing the Suez Canal quoted at 0.1 per cent. Four State-owned Indian insurers followed the trend and quoted additional premiums of 0.5 per cent of hull and machinery value.

Conferences, consortia and agreements started to charge emergency war surcharges to shippers. These surcharges were in the range of \$125 to \$250 per TEU, with \$10 per TEU being charged for transiting through the Suez Canal. Lesser surcharges of \$50 per TEU were applied to Damietta and Port Said (Egypt) and \$60 per TEU to Jeddah (Saudi Arabia). Shippers and associations opposed the surcharges and questioned the method used to calculate them, with the European Shippers' Council expressing disappointment regarding war risk premium increases.

Negotiations involved underwriters, shipowners and shippers. By the end of the year and during the first quarter of 2002, many of the premiums and surcharges were coming down. For instance, additional hull and machinery premiums for vessels going to Pakistan stood at 0.25 per cent, while the India Pakistan Bangladesh Ceylon Conference reduced the surcharge for cargoes going to the same country from \$120 in mid-January to \$82 by mid-February.

As for the other main insurance supported by shipowners, several protection and indemnity clubs announced a steep rise in premiums, between 25 and 30 per cent, starting in February 2002. Two reasons given by the clubs were their inability to offset losses with financial revenues as a result of the weakened state of the financial markets and the increase in reinsurance after the terrorist attacks of 11 September. However, other structural trends seem also to be at work, such as the increased reluctance of cargo owners and their insurers to accept shortfalls of cargo at delivery and the increased value of each claim, although the frequency has diminished.

Moreover, by the end of January 2002, the United States Maritime Administration decided to accept requests for war risk insurance for U.S. and foreign vessels trading in the Middle East Gulf, the Arabian and Red Seas and Israel and Lebanon in cases where commercial insurance was not available on reasonable terms.

*Source: Containerisation International (2001), November: 77; Containerisation International (2002), January: 18; Fairplay (2002), 17 January: 23, 33; Fairplay (2002), 24 January: 12; [www.shipownersclub.com/library/circulars/pages/war\\_risks\\_cancellations.htm](http://www.shipownersclub.com/library/circulars/pages/war_risks_cancellations.htm); [www.blazer.lanka.net/upali/island/2001/08/21/news12.html](http://www.blazer.lanka.net/upali/island/2001/08/21/news12.html).*

### 3. Supply and demand with respect to main liner services

During 2001 there were clear indications that supply and demand were starting to diverge. The increases in tonnage, the addition of service strings by several carriers and the weakening of economic activity in North America could not overcome the optimism created by the accession of China to the WTO. By year's end it was clear that oversupply was a problem to contend with.

The estimates of cargo flows on the three major containerized routes for the first nine months of 2001 show only modest increases. In fact, these aggregates mask some fast-growing intraregional trade such as that between China and Japan, which grew 18 per cent during the same period.

In trans-Pacific trade, the year 2001 witnessed reduced carrier expectations for increases in cargo flows from

10 per cent at the beginning of the year to about 4 per cent by the third quarter. Actual cargo flows were much less. As table 37 indicates, the 3 per cent increase in the eastbound direction was balanced by zero growth in the opposite direction. Other indicators point to the same lacklustre result. Estimates of net slot utilization in the eastbound direction went down from 83.7 per cent in 1999 to 79.9 per cent in 2000 and 78.4 in the first half of 2001. A similar trend was apparent westbound: net slot utilization went from 57.8 per cent in 1999 to 53.1 in 2000 and 51.6 per cent by mid-2001. Anecdotal evidence from K Line supports this view: according to this information, eastbound slot utilization fell 1 per cent to 92 per cent during the second and third quarters of 2001, while westbound slot utilization decreased 7 per cent to 62 per cent. Deteriorating slot utilization was expected to continue in 2002. Excess supply across the Pacific led to reductions in capacity by major operators as indicated in table 38.

Table 37

#### Estimated cargo flows in major trade routes (millions of TEU)

Year	Trans-Pacific		Asia-Europe		Transatlantic	
	Asia-USA	USA-Asia	Asia-Europe	Europe-Asia	USA-Europe	Europe-USA
2000	5.59	3.25	4.53	3.59	2.19	2.94
2001	5.76	3.25	4.61	3.63	2.20	3.02
% change	3.0	0.0	1.7	1.1	0.4	2.7

Source: Compiled by the UNCTAD secretariat based on data from *Containerisation International*, various issues.

Table 38

#### Capacity share for trans-Pacific trade (percentages)

Operator	mid-2001	mid-2000
New World Alliance	17.4	19.9
Grand Alliance	15.3	14.4
Cosco/K Line/Yanming	14.2	14.7
United Alliance (Hanjin, Senator Lines, Cho Yang)	12.4	12.5
Maersk Sealand	11.5	11.5
Hanjin/Yangming (U.S. east coast all-water service)	2.0	2.3
Total	72.9	75.3

Source: Compiled by the UNCTAD secretariat.

On the transatlantic route, the dominant westward leg grew by 2.7 per cent while the eastward leg grew only marginally by 0.4 per cent. Nevertheless, anecdotal evidence for the fourth quarter of the year indicates that trade for the whole year was static if not worse: CP Ships reported a 7 per cent drop in volume, while ACL believed that volume slumped by 10 to 15 per cent and called for capacity reduction. As slot capacity is believed to have increased by 2.8 per cent in 2000 and by 5.3 per cent during 2001, excess supply has developed. For 2002 another 2 per cent growth in slot capacity is expected.

On the Asia–Europe trade routes, the modest increases in both directions indicated in table 37 need to be taken together with statements from the Far Eastern Freight Conference (FEFC), which is responsible for about 65 per cent of volume moving on these routes. Optimistic projections of 7 to 8 per cent growth in volume proved unrealistic, and by the end of 2001 FEFC expected westbound volume to grow by 0.25 per cent and eastbound volume to decrease by the same percentage. In North-South trade, the situation was similar.

#### 4. Liner freight index

Table 39 shows movements in liner freight rates for cargoes loaded or discharged by liners at ports in the Antwerp/Hamburg range for the period 1999–2001. The overall index for 2001 went down by 3 points from the 2000 level to 114 points (1995 = 100), reflecting weak growth in both homebound and outbound trade. In homebound trade, the average level decreased by 9 points to 106 points in 2001. The decline was evident during the last four months of the year, when the index went below the 100 mark. This downward trend occurred despite repeated calls for implementing rate restoration programmes. The outbound index was steady at 121 points – only one point up from the average level of the previous year, and easing

only from September onwards. All three indices went down during the first semester of 2002.

#### 5. Liner freight rates as percentage of prices for selected commodities

Table 40 provides data on the freight rates of liner services as a percentage of market prices for selected commodities and trade routes on certain years between 1970 and 2001. For rubber sheet, the average f.o.b price decreased less than the freight rates and BAF surcharges and resulted in a decreased freight ratio of 13.9 per cent for 2001. The f.o.b price for jute rose 18.3 per cent, while freight rates fell 50.3 per cent. This explains the drop in freight ratio to 15.5 per cent for 2001. The freight ratio for cocoa beans shipped from Ghana decreased slightly from 4.8 per cent to 4.1 per cent in 2001, mainly because of a 22.7 per cent increase in prices. 2001 was the second year in which no cocoa beans were shipped from Brazil. The c.i.f. price of coconut oil, lowest among the commodities listed in table 40, decreased in 2001 by around 30 per cent, while the freight rate decreased substantially to 57.7 per cent, resulting in a freight ratio of 15.5 per cent for 2001, much less than the 25.9 per cent reached the previous year. The ratio of liner freight rate to f.o.b. price for tea decreased from 5.9 to 5.3 per cent as a result of a 27.5 per cent decrease in freight rates and a 20 per cent reduction in price during 2001. The price for coffee shipped from Brazil to Europe decreased dramatically in one year by 36.7 per cent, while the freight rate decreased moderately by 1.4 per cent. The result was an increase of the freight ratio from 4.4 to 6.9 per cent in 2001. Coffee exports from Colombia to Europe suffered a substantial drop in prices, about 30 per cent during 2001, while freight rates rose by 25 per cent. These changes resulted in substantial increases of the freight ratio to 5.9 per cent for coffee shipped from Atlantic ports and 6.2 per cent for shipments from Pacific ones.

Table 39

**Liner freight indices, 1999-2002***(monthly figures: 1995 = 100)*

Month	Overall index				Homebound index				Outbound index			
	1999	2000	2001	2002	1999	2000	2001	2002	1999	2000	2001	2002
January	77	104	119	93	86	106	113	81	69	101	125	104
February	79	103	121	93	88	102	115	81	70	104	126	103
March	80	105	121	95	90	104	116	80	71	105	127	109
April	83	113	122	95	91	110	118	82	74	116	126	108
May	83	119	121	94	92	114	116	82	74	125	126	106
June	84	116	119	94	94	110	112	81	76	121	125	106
July	86	115	117		94	111	111		78	118	123	
August	87	122	112		98	122	107		77	122	117	
September	90	127	105		99	125	97		82	128	113	
October	92	130	103		99	128	91		86	133	115	
November	96	130	104		102	126	92		89	133	116	
December	98	125	102		105	122	89		92	129	114	
Annual average	86	117	114		95	115	106		78	120	121	

Source: Compiled by the UNCTAD secretariat on the basis of the Liner Index of the German Ministry of Transport. Monthly weighted assessments of freight rates on cargoes loaded or discharged by liners of all flags at ports of the Antwerp/Hamburg range.

Table 40

**Ratio of liner freight rates to prices of selected commodities**

Commodity	Route	Freight rate as percentage of price <sup>a</sup>						
		1970	1975	1980	1985	1990	2000	2001
Rubber	Singapore/Malaysia–Europe	10.5	18.5	8.9	n.a.	15.5	15	13.9
Jute	Bangladesh–Europe	12.1	19.5	19.8	6.4	21.2	37	15.5
Cocoa beans	Ghana–Europe	2.4	3.4	2.7	1.9	6.7	4.8	4.1
Cocoa beans	Brazil–Europe	7.4	8.2	8.6	6.9	11.0	n.a.	n.a.
Coconut oil	Sri Lanka–Europe	8.9	9.1	12.6	12.6	n.a.	25.9	15.5
Tea	Sri Lanka–Europe	9.5	10.4	9.9	6.9	10.0	5.9	5.3
Coffee	Brazil–Europe	5.2	9.7	6.0	5.0	10.0	4.4	6.9
Coffee	Columbia (Atlantic)–Europe	4.2	4.7	3.3	6.7	6.8	3.3	5.9
Coffee	Columbia (Pacific)–Europe	4.5	6.3	4.4	6.1	7.4	3.5	6.2

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by the Royal Netherlands Shipowners' Association (data for 1970–1989) and conferences engaged in the respective trades (data for 1990–2001).

<sup>a</sup> C.i.f (cost, insurance and freight) prices are quoted for coffee (Brazil-Europe and Colombia-Europe) and coconut oil. For cocoa beans (Ghana-Europe and Brazil-Europe) the average daily price in London is quoted. For tea, the Kenya auction prices are quoted. The prices of the remaining commodities are quoted in f.o.b terms. The freight rates include, where applicable, bunker surcharges and currency adjustment factors, and a tank cleaning surcharge (for coconut oil only). Conversion of rates to other currencies is based on parities given in the *Monthly Commodity Price Bulletin*, published by UNCTAD. Annual freight rates were calculated by taking a weighted average of various freight quotes during the year, weighted by their period of duration. For the period 1990–2001, the prices of the commodities were taken from the January 2002 issue of the *Monthly Commodity Price Bulletin*.

## D. ESTIMATES OF TOTAL FREIGHT COSTS IN WORLD TRADE

### 1. Trends in global import value and freight costs

International trade involves various services such as sourcing, production, marketing, transaction and transport and the related flow of information thereof. For the transport sector, table 41 provides estimates of total freight payments for imports and the percentage of total import value by country groups. In 2000 the world total value of import (c.i.f) increased by 13 per cent, while total freight paid for transport services increased by an impressive 27.1 per cent, reflecting the high level of freight rates that prevailed during the year (see also figure 8) The share of global freight payments in import value increased to 6.2 per cent from 5.5 per cent in 1999. In 1980 the share of freight costs in import value stood at 6.6 per cent, nearly 30 per cent higher than the average ratio in the 1990s. The regional comparison indicates that the share of freight costs in the imports of developed market-economy countries continues to be lower than that for developing countries, with the difference between the two groups fluctuating slightly. For 2000 the total value of imports by developed market-economy countries increased by 10.7 per cent while total freight costs increased by 27.4 per cent; thus freight cost as a percentage of import value stood at 5.2 per cent (4.5 per cent in 1999) as compared to 8.8 per cent (8.4 per cent in 1999) for developing countries. This difference is mainly attributable to global trade structures, regional infrastructure facilities, logistics systems, and the more influential distribution strategies of shippers in developed market-economy countries.

### 2. Regional trends

The total freight costs of developing countries increased from 8.4 per cent in 1999 to 8.8 per cent in 2000. Within this group, freight costs for African developing countries rose slowly but steadily from 12.1 per cent in 1999 to 13 per cent in 2000. This trend mainly reflects insufficient infrastructure facilities and inadequate management practices, specifically for transit transport, as well as the low productivity of inland transport and terminal equipment.

The subregional breakdown shows that the freight costs of West Africa increased slightly from 1999 to almost 14 per cent in 2000, while those of East and Southern Africa, including the Indian Ocean region, rose to 15.2 per

cent from 14.1 per cent in 1999. The ratio of North Africa rose to 11.6 per cent, reflecting a relatively more efficient transport system compared to those of other African subregions. Imports to African landlocked countries continued to suffer from high freight costs, between 16.2 and 27.6 per cent in 2000, which primarily reflect inefficient transport organization and facilities, poor utilization of assets and weak managerial, procedural, regulatory and institutional systems, apart from overall inadequate infrastructure conditions.

Developing countries in Asia accounted for 68 per cent of import value and 65.5 per cent of freight payments among all developing countries in 2000 as compared to 61.3 and 58.2 per cent respectively for 1999. The freight factor of this region fluctuated above 8 per cent between 1990 and 2000, from 8.2 in 1990 to 8.5 per cent in 2000. The freight factor in the Middle East remained constant at 9.7 per cent in 2000 (9.67 per cent in 1999). The remainder of Asia saw its ratio increase from 7.9 per cent in 1999 to 8.3 per cent in 2000.

For developing countries in America, the freight cost ratio increased to 8.6 per cent in 2000 from 7.7 per cent in 1999.

Within this region, Central America and Mexico had the lowest freight factor – 7.8 per cent – in 2000. This low freight ratio is largely attributable to Mexico, the biggest trading nation in the region, which had a freight factor of 7.3 per cent in 2000. Mexico accounted for 87 per cent of the total c.i.f. value of imports of the subregion (48 per cent of American developing countries). The countries of South America's western seaboard paid relatively high freight costs of 9.2 per cent in 2000 as compared to 10.2 per cent in 1999. The countries of South America's eastern seaboard registered a rate of 8.5 per cent. Developing countries in the Caribbean recorded high freight costs with a ratio of 11.9 per cent in 2000, compared to 10.5 per cent in 1999. Among landlocked countries in the Americas, Paraguay continued to pay high freight rates of 11.3 per cent while Bolivia's rate was 12.8 per cent.

Freight rates for developing countries in Europe decreased slightly in 2000 to 8.9 per cent, down from 9.2 per cent in 1999. Small island developing countries in Oceania also had reduced freight rates of 11.9 per cent, less than the previous year's 12.1 per cent. For island developing countries, long distances from major trading partners, low cargo volumes and high trans-shipment and feeder costs contribute to high freight costs.



Table 41

Estimates of total freight costs for imports in world trade<sup>a</sup> by country groups

(millions of dollars)

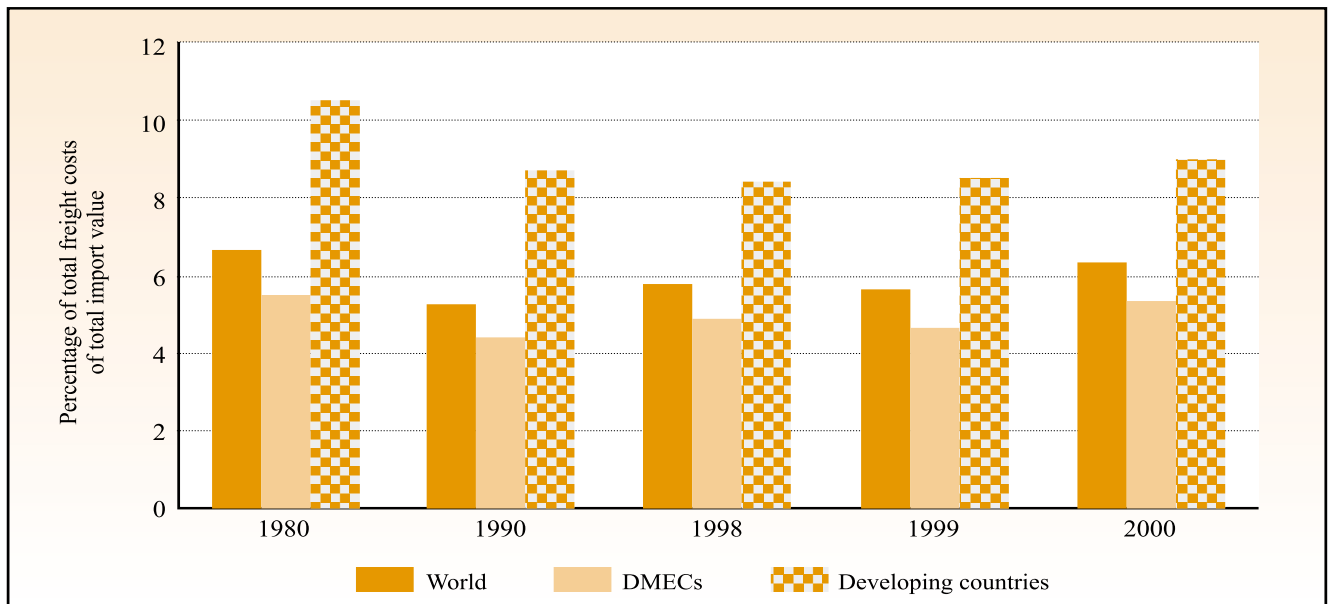
Year	Country group	Estimate of total freight costs of imports	Value of imports (c.i.f)	Freight costs as % of import value
1980	World total	123 264	1 856 834	6.64
	Developed market-economy countries	78 286	1 425 979	5.49
	Developing countries–total	44 978	430 855	10.44
	<i>of which:</i>			
	Africa	10 432	77 757	13.42
	America	10 929	123 495	8.85
	Asia	21 979	211 089	10.41
	Europe	1 320	16 037	8.23
Oceania	318	2 477	12.84	
1990	World total	173 102	3 314 298	5.22
	Developed market-economy countries	117 004	2 661 650	4.40
	Developing countries–total	56 098	652 648	8.60
	<i>of which:</i>			
	Africa	9 048	81 890	11.05
	America	9 626	117 769	8.17
	Asia	35 054	427 926	8.19
	Europe	1 909	21 303	8.96
Oceania	461	3 760	12.26	
1999	World total	302 160	5 472 985	5.52
	Developed market-economy countries	183 482	4 052 534	4.53
	Developing countries–total	118 677	1 415 200	8.39
	<i>of which:</i>			
	Africa	12 354	102 254	12.08
	America	26 658	348 200	7.66
	Asia	76 925	941 910	8.17
	Europe	2 103	22 836	9.21
Oceania	638	5 251	12.14	
2000	World total	384 013	6 187 292	6.21
	Developed market-economy countries	233 784	4 486 628	5.21
	Developing countries–total	150 229	1 700 664	8.83
	<i>of which:</i>			
	Africa	14 447	111 360	12.97
	America	34 624	403 428	8.58
	Asia	98 364	1 156 291	8.51
	Europe	2 182	24 454	8.92
Oceania	612	5 130	11.94	

Source: UNCTAD secretariat estimates based on data supplied by the International Monetary Fund.

<sup>a</sup> The estimate for the world total is not complete, since data for countries that are not members of the IMF, for the countries of Central and Eastern Europe and republics of the former Soviet Union, and for socialist countries in Asia are not included because of lack of information or for other reasons.

Figure 8

Estimates of total freight costs for imports in world trade, by country groups and for selected years



Source: Table 41 of this publication.