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As in 2015, the shipping industry faced continued challenges in most segments in 2016, owing to the persistent mismatch between supply capacity and demand. With global demand for seaborne trade remaining uncertain, freight rates continued to be determined by the way supply capacity management was being handled.

This chapter covers the development of freight rates and transport costs in 2016 and early 2017, describing relevant developments in maritime markets, namely supply and demand in container ships, dry bulk carriers and tankers. It highlights significant events leading to major freight rate fluctuations, discusses recent industry trends and gives a selective outlook on future developments of freight markets. In particular, the chapter explores the recent trend towards consolidation that developed in the container ship market, both in the form of new mergers and acquisitions, as well as through the emergence of mega liner shipping alliances and their implication on the market.

Container freight rates have been very low, and competition on various trade routes has intensified. Market fundamentals in container shipping improved for the first time since 2011, mainly as a result of a contraction in supply growth. The dry bulk sector continued to struggle with existing overcapacity and weak growth in demand, which led to sharp declines in freight rates. Freight rates in all tanker segments went down from the high level of 2015, but were not far from the five-year average across most segments.

With regard to total international transport costs, UNCTAD estimates that in 2016 a country spent on average about 15 per cent of the value of its imports on international transport and insurance. Smaller and structurally vulnerable economies pay significantly more, reaching an average of 22 per cent for small island developing States, 19 per cent for landlocked developing countries, and 21 per cent average for the least developed countries. Lower efficiency in ports, inadequate infrastructure, diseconomies of scale and less competitive transport markets are some of the key factors that underpin the persistent transport cost burden in many developing countries.

FREIGHT RATES AND MARITIME TRANSPORT COSTS

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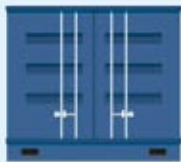
2016 and early 2017

SUPPLY CAPACITY

GLOBAL DEMAND FOR SEABORNE TRADE



CONTAINER freight rates



DRY BULK freight rates



TANKER freight rates



Container spot freight rates weak and unstable throughout 2016

► Record lows in the first part of the year and more positive trends in the second half of the year



Dry bulk freight rates struggled with overcapacity and weak demand

► Rates sharp declines in freight



Tanker freight rates went down from the high level of 2015

► But were not far from the five-year average across most segments

TRANSPORT COSTS

Developing countries, in particular small island developing States and the least developed countries, face relatively higher transport costs



A. CONTAINER FREIGHT RATES

1. Major trends

2016 was a challenging year for the container ship sector, although market fundamentals balance improved for the first time since 2011, with growth in demand outpacing that of supply. As illustrated in figure 3.1, the overall market demand growth rate for containers shipping grew by 3 per cent in 2016, slightly better than the 2 per cent annual growth in 2015. In contrast, container supply capacity went up by 1 percent, compared with 8 percent in 2015. This improvement was mainly prompted by a substantial slowdown in fleet growth and a more positive trend in demand, namely in the second half of the year.

The supply–demand balance was supported by a deep contraction in supply capacity, which was principally driven by a drop in deliveries totaling less than 904,000 TEUs – almost half, compared with the 1.7 million deliveries in 2015, and a high level of container ship demolition activities – especially of Panamax ships – that more than tripled in 2016, compared with 2015, reaching a high record of about 0.7 million TEUs. Idle capacity was also high, at 7 per cent at the end of 2016 (Clarksons Research, 2017a).

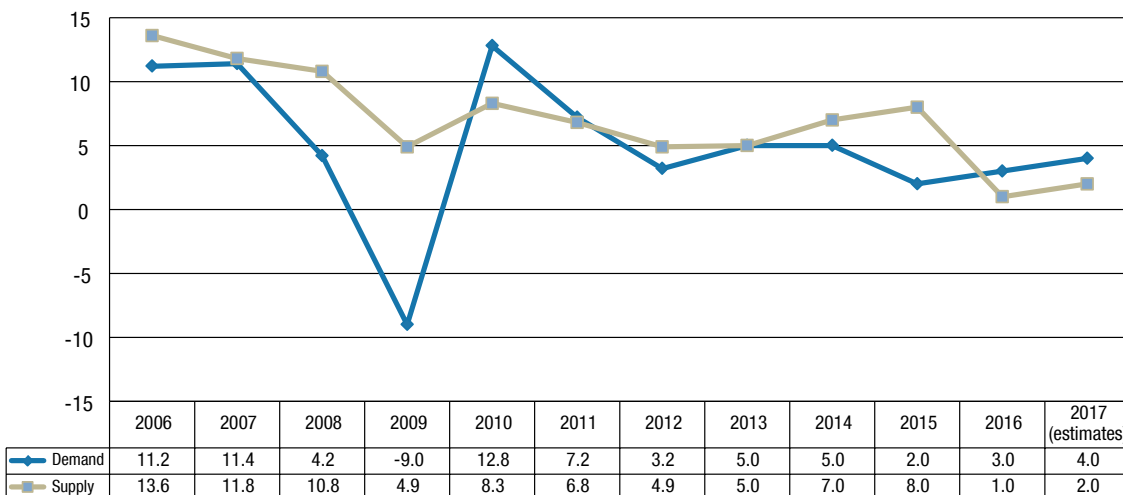
On the other hand, increase in demand was mainly steered by improvements in mainlane trade routes, mainly the Far East–Europe trade route (about 1 per cent), which had experienced low levels in 2015, and a good expansion on intra-Asian trade routes (about 5 per cent), which was boosted by positive trends in the Chinese economy. However, the improvement

in the supply and demand fundamentals was not sufficient to generate better market conditions and improve freight rates. Overall, growth in demand was limited by a continuous slowdown in world economic growth and a weak commodity price environment, and the level of surplus capacity remained high from excess built up over recent years.

The freight rates market remained under pressure, and carriers struggled to recover operating costs on certain trade routes. Container spot freight rates were generally low and unstable throughout 2016, witnessing record declines in the first part of the year and more positive trends in the second half. The momentum gained in the second half of 2016 was mainly driven by measures taken by shipping lines to manage supply side through network optimization, scrapping and more careful vessels deployment around the peak season (Baltic and International Maritime Council, 2017a).

As shown in table 3.1, average spot freight rates on most trade routes were negative, with some exceptions. Freight rates for Far East–Northern Europe trade routes improved slightly, with an annual average increase of about 8 percent in 2016 (\$683 per TEU, compared with \$629 per TEU in 2015), yet still below \$1,000 per TEU. Annual average spot freight rates from the Far East to Mediterranean ports in Europe declined by 8 percent (\$676 per TEU in 2016, compared with \$739 per TEU in 2015), plunging as low as \$200 per TEU in March 2016. The overly supplied market, combined with slow demand growth, namely slow exports from China, contributed to these low levels.

Figure 3.1. Growth of demand and supply in container shipping, 2006–2017 (Percentage)



Source: UNCTAD secretariat calculations, based on data from Clarksons Research, Container Intelligence Monthly, various issues.
 Notes: Supply data refer to total capacity of the container-carrying fleet, including multipurpose and other vessels with some container-carrying capacity. Demand growth is based on million TEU lifts. Data for 2017 are projected figures.

Table 3.1. Container freight market and rates, 2009–2016

Freight markets	2009	2010	2011	2012	2013	2014	2015	2016
Trans-Pacific	(Dollars per 40-foot equivalent unit)							
Shanghai–United States West Coast	1 372	2 308	1 667	2 287	2 033	1 970	1 506	1 279
Percentage change		68.2	-27.8	37.2	-11.1	-3.1	-23.6	-15.1
Shanghai–United States East Coast	2 367	3 499	3 008	3 416	3 290	3 720	3 182	2 102
Percentage change		47.8	-14.0	13.56	-3.7	13.07	-14.5	-33.9
Far East–Europe	(Dollars per 20-foot equivalent unit)							
Shanghai–Northern Europe	1 395	1 789	881	1 353	1 084	1 161	629	683
Percentage change		28.2	-50.8	53.6	-19.9	7.10	-45.8	8.6
Shanghai–Mediterranean	1 397	1 739	973	1 336	1 151	1 253	739	676
Percentage change		24.5	-44.1	37.3	-13.9	8.9	-41.0	-8.6
North–South	(Dollars per 20-foot equivalent unit)							
Shanghai–South America (Santos)	2 429	2 236	1 483	1 771	1 380	1 103	455	1 644
Percentage change		-8.0	-33.7	19.4	-22.1	-20.1	-58.7	261.3
Shanghai–Australia/New Zealand (Melbourne)	1 500	1 189	772	925	818	678	492	533
Percentage change		-20.7	-35.1	19.8	-11.6	-17.1	-27.4	8.3
Shanghai–West Africa (Lagos)	2 247	2 305	1 908	2 092	1 927	1 838	1 449	1 181
Percentage change		2.6	-17.2	9.64	-7.9	-4.6	-21.2	-18.5
Shanghai–South Africa (Durban)	1 495	1 481	991	1 047	805	760	693	584
Percentage change		-0.96	-33.1	5.7	-23.1	-5.6	-8.8	-15.7
Intra-Asian	(Dollars per 20-foot equivalent unit)							
Shanghai–South-East Asia (Singapore)		318	210	256	231	233	187	70
Percentage change			-34.0	21.8	-9.7	0.9	-19.7	-62.6
Shanghai–East Japan		316	337	345	346	273	146	185
Percentage change			6.7	2.4	0.3	-21.1	-46.5	26.7
Shanghai–Republic of Korea		193	198	183	197	187	160	104
Percentage change			2.6	-7.6	7.7	-5.1	-14.4	-35.0
Shanghai–Hong Kong (China)		116	155	131	85	65	56	55
Percentage change			33.6	-15.5	-35.1	-23.5	-13.8	-1.8
Shanghai–Persian Gulf (Dubai)	639	922	838	981	771	820	525	399
Percentage change		44.33	-9.1	17.1	-21.4	6.4	-36.0	-24.0

Source: Clarksons Research, Container Intelligence Monthly, various issues.

Note: Data based on yearly averages.

Transpacific freight rates remained weak, for instance, the Shanghai–United States East Coast annual rates averaged at \$2,102 per 40-foot equivalent unit (FEU) in 2016, 34 per cent below the full year 2015 average (\$3,182 per FEU), and the Shanghai–United States West Coast annual rate was estimated at an average of \$1,279 per FEU in 2016, 15 per cent less than in 2015. This decline was mainly due to poor supply side management by operators in face of weak volume growth (Baltic and International Maritime Council, 2017b).

Freight rates from Shanghai to Singapore and the Republic of Korea fell further from the low levels of 2015. They fell to an annual average of \$70 per TEU for the Shanghai-to-Singapore leg, compared with \$187 per TEU in 2015, a decrease of 63 per cent. Rates for transporting freight from Shanghai to the Republic of Korea slid to \$104 per TEU, a decrease of 35 per cent, compared with 2015.

North–South freight rates were also disadvantaged due to imbalanced oversupply of capacity and weak trade volumes into sub-Saharan Africa and South America driven by low commodity prices and their impact on commodity-exporting developing economies (Clarksons Research, 2016). However, freight rates on

the Shanghai–South America (Santos, Brazil) trade route rose considerably, with an average annual increase of 261 per cent. The drive up in rates was mainly prompted by carriers' dramatically cutting capacity on the route in line with the reduction in demand (JOC.com, 2016a).

In their effort to manage supply-side capacity, carriers continued implementing strategies such as scrapping, idling of vessels and slow steaming. The cascading of container capacity also remained a key characteristic of the sector, though on some routes, opportunities to cascade vessels were limited due to lack of demand, as in the case of North–South trade. Meanwhile, opportunities to deploy large ships of a capacity of 8,000–12,000 TEUs on the Trans-Pacific route increased, due to the cascading of these units from the Far East–Europe route replaced by mega ships, and the new opportunities of deploying larger vessels on Asia–United States East Coast routes via the new Panama Canal locks (Clarksons Research, 2017b). In the future, cascading of larger ships into the Far East–United States East Coast route, including ships of 14,000 TEUs and above, will be possible with the ongoing enhancements of United States East Coast ports to handle the larger New Panamax vessels.

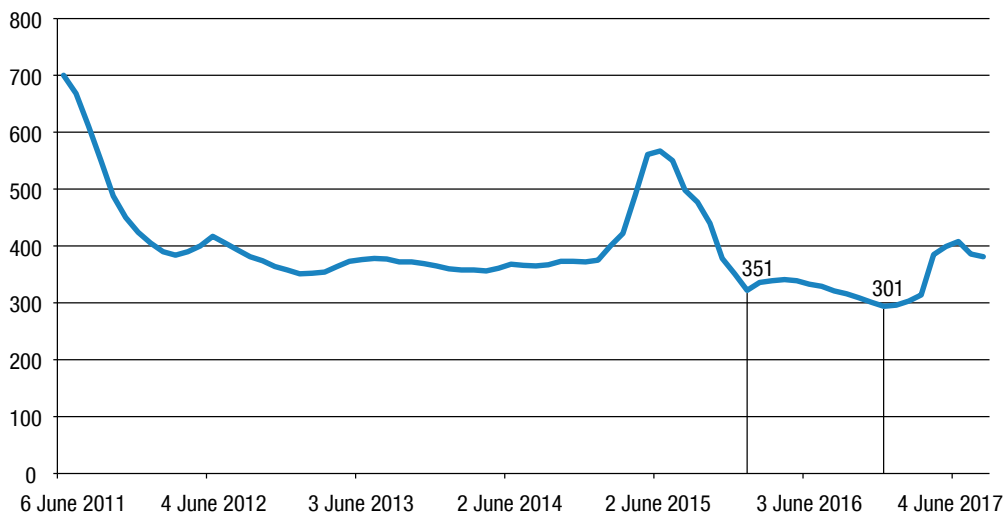
Charter market vessel earnings remained low throughout 2016, affected by the low market demand and overcapacity of ships for charter. As illustrated in figure 3.2, charter rates dropped to an average of 325 points in 2016, compared with 360 in 2015, evidence of the total mismatch between demand and supply. Charter rates across all vessel sizes continued to be affected, particularly in the former Panamax segment (4,000–5,000 TEUs), which was squeezed out by the flow of large vessels (8,000–10,000 TEUs) into the Asia–United States trade route, following the expansion of the Panama Canal. Moreover, the effect of cascading created some disorder throughout the year among the smaller sizes (3,000 TEUs and above).

Although larger container ships have been deployed on the intraregional trade routes, this trend appears to have slowed significantly due to constraints of infrastructure, volume and other factors that limited redeployment (Clarksons Research, 2017a). The idling of container ships remained high at an average

1.27 million TEUs in 2016, a substantial increase over 0.55 million TEUs in 2015 (Barry Rogliano Salles, 2017). Rates improved during the first quarter of 2017, especially those of the Old Panamax segment. This increase was partly due to strong container demand since the fourth quarter of 2016 and the advent of new alliances, which forced carriers to charter vessels to help fill gaps as their networks took shape (JOC.com, 2017). Whether this revival of the charter market reflects a fundamentally stronger demand for vessels or a temporary effect caused by the reshuffle of alliance networks remained to be seen (Danish Ship Finance, 2017).

The first quarter of 2017 saw some improvement in the container ship market. Both the freight and charter markets showed positive trends, partly supported by improved demand trends and limited fleet growth. The container ship charter market also started to see some improvement in March 2017, having remained at historically low levels throughout 2016 and early 2017 (Clarksons Research, 2017c.)

Figure 3.2. New ConTex index, 2011–2016



Source: UNCTAD secretariat, based on data from the New ConTex index produced by the Hamburg Shipbrokers Association. See <http://www.vhss.de> (accessed 20 September 2017).

Note: The New ConTex is based on assessments of the current day charter rates of six selected container ship types, which are representative of their size categories: Type 1, 100 TEUs and Type 1,700 TEUs with a charter period of one year, and Types 2,500, 2,700, 3,500 and 4,250 TEUs with a charter period of two years.

2. Global container shipping carriers in financial distress

The year 2016 was one of the most challenging for carriers as they struggled to cope with persistent financial pressure caused by extensive overcapacity and poor market conditions. Despite the implementation of organizational and cost-adjustment measures by industry players aimed at mitigating risks and reducing expenses, global container shipping carriers continued to experience financial distress and rising operating

losses, estimated collectively at \$3.5 billion in 2016 (Drewry, 2017). A few carriers reported positive operating results, namely Hapag-Lloyd, with operating profits of \$140 million, compared with \$407 million in 2015 (Hapag-Lloyd, 2016). CMA CGM also reported operating profits of about \$29 million in 2016, a sharp decrease from the \$911 million earned by the company in 2015.¹ Maersk Line, on the other hand, reported operating losses of \$376 million in 2016. (Maersk, 2016). Hong Kong (China) carrier Orient Overseas Container Line also reported operating losses of \$185 million in 2016² (box 3.1).

Box 3.1 Operating profits and losses of selected shipping lines, 2015 and 2016**China Ocean Shipping (Group) Company**

Net losses of the company amounted to RMB 9.9 billion (\$1.45 billion) in 2016, its weakest annual performance since 2005, owing to persistently low freight rates and restructuring costs. Revenue growth generated from the container shipping business segment of the company was lower than growth in container shipping volumes, and the increase in revenue was less than the increase in costs.

In 2015, the company made net profits of RMB 283 million (\$41.7 million).

In the last quarter of 2016, the company expects to realize operating profits (earnings before interest and taxes) of about RMB 700 million (\$10.3 million), not including losses from the disposal of vessels.

CMA CGM

The company's net losses amounted to \$325 million in 2016, compared with \$567 million in profits in 2015. The loss rose to \$452 million, including the contribution of Singapore-based Neptune Orient Lines, the parent of American President Lines, which it acquired in June 2016.

Operating profits (earnings before interest and taxes) fell from \$911 million in 2015 to \$29 million in 2016.

Transport volumes showed 20.4 per cent growth to 15.6 million TEUs, driven by the acquisition of Neptune Orient Lines, which consolidated the ranking of CMA CGM as the world's third largest carrier after Maersk Line and Mediterranean Shipping Company.

The average freight rate per TEU increased by 13.6 per cent for the full year, over 2015.

Revenue grew 1.9 per cent to \$16 billion; excluding the share of Neptune Orient Lines, it fell 14.7 per cent from \$15.7 billion to \$13.4 billion.

Average unit cost: The group deployed its global operating efficiency plan named "Agility" that had led to a 5 per cent reduction of average unit costs in 2016, compared with 2015, excluding the effect of fuel price fluctuation. The company maintains its target to cut costs by \$1 billion through December 2017.

Hapag-Lloyd

Operating profits (earnings before interest and taxes) of the company amounted to \$140 million in 2016 (2015 financial year: \$407 million).

Transport volume increased by 2.7 per cent to 7.6 million TEUs, driven primarily by growth on intra-Asian and Europe–Mediterranean–Africa–Oceania trade routes.

The average freight rate was \$1,036 per TEU for the 2016 financial year, a decline of 15 per cent, compared with the prior year period.

Revenue decreased by \$1.3 billion (less 13 per cent) in 2016 to \$8,546 million.

Transport expenses per unit decreased by 15 per cent to \$925 per TEU, mainly due to the implementation of cost-saving and synergy programmes, as well as lower bunker consumption and prices.

Maersk Line

Operating losses (earnings before interest and taxes) of the company amounted to \$376 million in 2016.

Revenue was \$20.7 billion, 13 per cent lower than in 2015 (\$23.7 billion).

The average freight rate was at \$1,795 per FEU, a decline of 19 per cent, compared with 2015.

Volumes grew by 9.4 per cent to 10.42 million FEUs. Volumes increased across all trade routes; the biggest contributors were the backhaul of the East–West trade route and the headhaul of the North–South trade route.

Transport unit costs decreased by 13 per cent. The unit cost benefited from improved fleet utilization, lower bunker prices and cost efficiencies.

Source: Annual reports and website of various companies, 2016; Reuters, 2017.

3. Container shipping: Focusing on consolidation in 2016

With a persistent overly supplied market and low freight market rates that placed carriers in prolonged financial distress, a major development that shaped the container shipping industry in 2016 was greater consolidation. Following the emergence of mega vessels, the industry witnessed the advent of mega alliances and new mergers and acquisitions in 2016.

Mergers and acquisitions

In 2016, a wave of consolidations was prompted by large mergers and acquisitions in the shipping industry. The industry, which comprised 20 large-scale

international carriers, only numbered 17 by the end of 2016. This was the result of the acquisition of American President Lines by CMA CGM and the merger of China Shipping Container Lines and China Ocean Shipping (Group) Company, as well as the exit of Hanjin Shipping in September 2016 (Danish Ship Finance, 2016).

As of January 2017, these 17 carriers collectively controlled 81.2 per cent of the global liner capacity, compared with 83.7 per cent controlled by the 20 main carriers a year earlier.³ The number will go down further with a new series of acquisitions concluded in 2017: the Maersk–Hamburg Süd sale and purchase agreement;⁴ the Hapag-Lloyd and United Arab Shipping Company merger; and a new joint venture, Ocean Network Express, launched by

the three largest Japanese lines – Nippon Yusen Kabushiki Kaisha, Mitsui Osaka Shosen Kaisha Lines and Kawasaki Kisen Kaisha (K-Line). Operations of the new company are scheduled to begin in 2018.⁵

Mega alliances

In addition to mergers and acquisitions, shipping lines have undergone a transformation by reshuffling existing alliances and creating new ones. The top 10 carriers joined forces in three global alliances, down from four at the beginning of the year. Two new alliances, the Ocean Alliance and “The” Alliance were formed, in addition to the 2M Alliance.

The three alliances, which include the top 10 container shipping lines plus K-Line – the fourteenth largest container shipping line in the world – collectively control 77 percent of global container ship capacity (Baltic and International Maritime Council, 2017c), leaving a 23 percent market share for the world’s other container shipping lines. The three alliances also control as much as 92 percent of all East–West trade. The Ocean Alliance will be the dominant player on the East–West routes, with about 34 per cent of total capacity deployed on these trade routes, followed by the 2M Alliance, with a share of 33 per cent, and “The” Alliance, 26 per cent (MDS Transmodal, 2017).

Box 3.2. Shipping alliances

2M Alliance	Ocean Alliance	“The” Alliance
Maersk (with Hamburg Süd) and Mediterranean Shipping Company	CMA CGM, Evergreen, China Ocean Shipping (Group) Company, and Orient Overseas Container Line	Hapag-Lloyd (with United Arab Shipping Company), Ocean Network Express (K-Line, Nippon Yusen Kabushiki Kaisha, Mitsui Osaka Soshen Kaisha Lines) and Yang Ming
Controls 37 per cent of the global shipping market	Controls 33 per cent of the global shipping market	Controls 21 per cent of the global shipping market
<i>Source:</i> JOC.com, 2016b.		

Such alliances have become increasingly important in the global shipping industry, as carriers are seeking to improve utilization of capacity associated with larger vessels and to reduce operational costs by sharing vessels and capacity, for example.

Increasing consolidation among carriers may bring some order in a market that would benefit from a better management of supply and improved efficiency and synergies among carriers. This in turn would improve industry growth through the pooling of cargo, improved economies of scale, reduced operating costs and larger margins. Carriers could also see the benefit of such cooperation by sharing resources, including port calls and networks and developing new services. For example, sharing vessels would allow member carriers to operate without having to increase the number of ships. The advantage is that these shipping lines can also offer more services together than what they can generally offer alone, as a single shipping loop can tie up a vessel for weeks.⁶ However, ports, including transshipment ports where competition is high and market shares are volatile, may be negatively affected in cases where deployment strategies by the alliances and the stringent requirements of ultralarge container ships result in increased preference for more direct connections. Some ports could be left out, while others may lose their market share.

Shippers could also derive some benefits in this consolidation that would lead to a more stable and healthier industry and result in less fluctuation in freight rates, better pricing because of economies

of scale, and more efficient and extensive services offered by carriers including hinterland transport operations. (McKinsey and Company, 2017) Stronger partnerships among shipping lines could also provide for further prevention measures to protect the industry and shippers. That was the case for instance with “The” Alliance that set up an emergency fund for its members to tap into in the event of bankruptcy. The money from this fund will be used to provide a smooth operational flow and prevent supply chain disruption should a member be in financial distress. More specifically, it protects customers’ cargo and ensures that goods reach their port of destination without having to confront similar problems experienced by Hanjin when it filed for bankruptcy. At that time, Hanjin had ordered its container-loaded vessels not to dock for fear of vessel seizure; at the same time, ports decided not to allow Hanjin vessels to dock for fear that the company would not pay the corresponding fees, leaving thousands of TEUs in cargo at sea.⁷

However, such a degree of consolidation may bring certain risks. For example, shipping lines may exert market power, limit supply and raise prices in the long run and once the industry reaches stability. As noted in the *Review of Maritime Transport 2016*, the growing concentration of the market has increased the risk that fair competition may become distorted and result in an oligopolistic market structure with potential impacts on the market, freight rates and shippers. Therefore, regulators will need to be watching closely future development of these alliances to ensure fair

competition and prevent anticompetitive behaviour in the liner markets.

In the meantime, consolidation will probably continue and the industry will focus on reducing costs through optimized and efficient networks, better fleet utilization and rationalization of activities, which in turn can bring supply and demand back into balance (McKinsey and Company, 2017).

In 2017, sector fundamentals are expected to continue to improve, following the challenging conditions of 2016. UNCTAD estimates that world GDP will expand by 2.6 per cent in 2017, up from 2.2 per cent in 2016 and that world seaborne trade volumes will reach 10.6 billion tons, reflecting an increase by 2.8 per cent, up from 2.6 per cent in 2016. Based on these projections, world shipping demand can be expected to improve in 2017 and therefore support freight rates. However, for such improvements to materialize, management of the supply side, including through a reduced order book, increased scrapping and cost-reduction strategies by sharing capacity among alliances, for example, is essential.

The new mergers and acquisitions and mega alliances that took place in 2016 and 2017 should lead to better handling of supply and better utilization of fleet, and in turn to better market conditions, improved earnings for the container shipping sector and better services for shippers. However, regulators need to keep a close watch on anticompetitive behaviour in the liner markets, as growing concentration may lead to market abuse, supply constraints and higher prices.

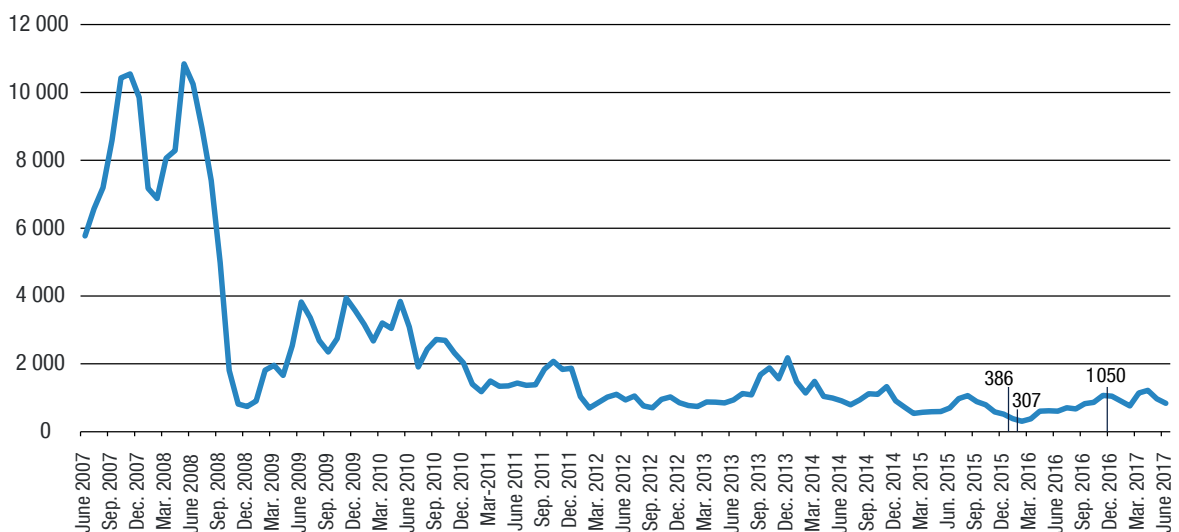
B. DRY BULK FREIGHT RATES

2016 was another difficult year for the dry bulk sector, which continued to face overcapacity and weak growth in demand. The year started with historically low freight rates as demand remained weak and the inflow of new vessels continued.

The Baltic Exchange dry index experienced record lows in 2016. It reached its lowest average – 307 – in February (figure 3.3). Dry bulk demand, especially for iron ore, improved towards year's end, when Chinese imports expanded in response to a new round of fiscal and financial stimuli launched by the Government to boost economic growth (Clarksons Research, 2017d). This mainly benefited the Capesize bulk carriers as they transported the key commodity of iron ore into China. The industry continued taking steps to limit fleet supply growth through increased scrapping and postponing or reducing deliveries of new vessels during 2016. As previously noted, the fleet capacity of bulk carriers grew by 2.22 per cent, one of its lowest rates of growth since 1999 (Clarksons Research, 2017d). As such, the management of supply growth and the boost in demand supported freight rates as they increased in the second half of the year, with the Baltic Exchange dry index reaching 1,050 in December 2016. Nevertheless, freight rates remained relatively low compared with historical data.

As a result of market imbalance in the dry bulk market, average earnings fell in all fleet segments, with figures dropping below \$4,000 per day (Clarksons Research, 2017d).

Figure 3.3. Baltic Exchange dry index, 2007–2017



Source: UNCTAD secretariat calculations, based on data from the Baltic Exchange.

Notes: The index is made up of 20 key dry bulk routes measured on a time charter basis and covers Handysize, Supramax, Panamax and Capesize dry bulk carriers, which carry commodities such as coal, iron ore and grain. Index base: 1985 = 1,000 points.

1. Capesize

Capesize spot and charter rates continued to be volatile and highly depressed during much of 2016, affected by supply overcapacity and weak demand stemming from weak commodity markets and macroeconomic conditions. Rates dropped to their lowest level in the first half of the year, reaching an unprecedented point, as noted by the Baltic Exchange Capesize four timecharter average, which recorded an all-time low of \$696 per day in March 2016 (figure 3.4). This resulted in many owners laying their ships up.

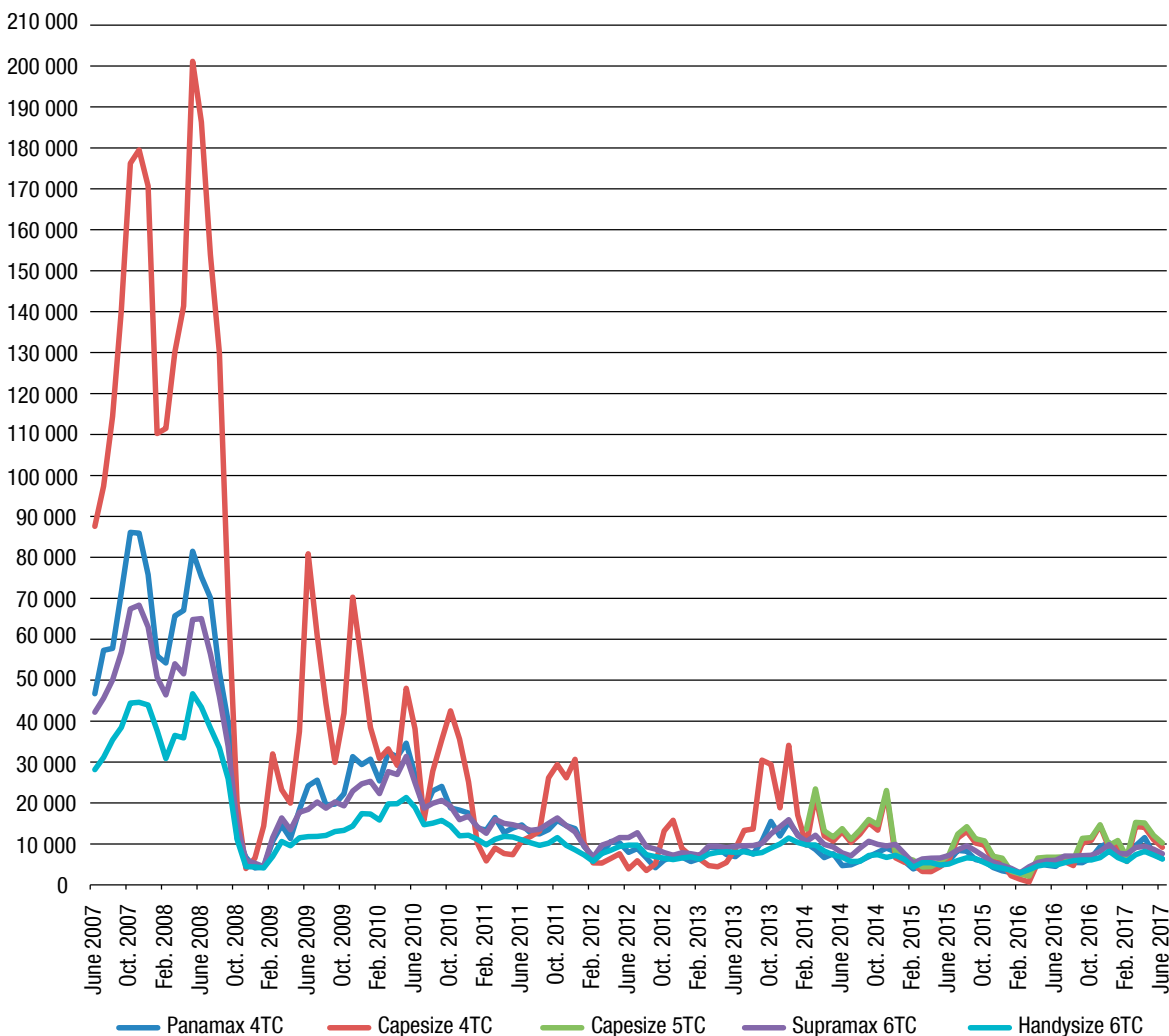
Yet Capesize earnings did improve in the second half of 2016 and into early 2017, supported partly by more positive trends in demand, in particular strong growth in iron ore trade. Furthermore, cheap voyage rates encouraged new long-haul trade, such as coal from Colombia to India and the Republic of Korea (Barry Rogliano Salles, 2017). Nonetheless, the market remained disturbed by oversupply, despite relatively

slow fleet expansion (1.9 per cent in dwt) (Clarksons Research, 2017d). Postponement of newbuilding deliveries, along with a high level of scrapping and improved trade towards the end of the year, had a positive impact on earnings. As a result, the Capesize four timecharter average for the fourth quarter was at \$11,447 per day, compared with an annual average of \$6,360.

2. Panamax

In 2016, the Panamax sector also remained under pressure, reflecting an imbalance in fundamentals, with declining coal trade for the second year in a row and continued oversupply, which was curbed to a certain extent by substantial demolition activity. The average of the four timecharter routes for the Baltic Exchange Panamax index was about \$5,615 per day, close to the previous year average of \$5,507 per day.

Figure 3.4. Daily earnings of bulk carrier vessels, 2007–2017 (Dollars per day)



Source: UNCTAD secretariat calculations, based on data from Clarksons Research Shipping and the Baltic Exchange.
 Abbreviations: Panamax 4TC and Capesize 4TC, average rates of the four time charter routes; Capesize 5TC, average rates of the five time charter routes; Supramax 6TC and Handysize 6TC, average rates of the six time charter routes.

However, in late 2016 and early 2017, Panamax earnings improved slightly, supported by seasonally strong grain shipments from South America and firmer coal trade, as well as tighter expansion in fleet capacity. Overall, Panamax fleet capacity expanded by 0.6 per cent in 2016, the slowest pace of growth recorded since 1992 (Clarksons Research, 2017d). The average of the four timecharter routes for the Baltic Panamax index reached \$10,298 per day in December 2016, compared with \$3,031 per day in January 2016.

3. Handysize and Supramax

Market conditions in smaller bulk carrier sectors were poor in 2016, with high levels of supply growth impaired by relatively slow demand growth in minor bulk trade and coal. As in other segments, the first half of the year was challenging; as a result, rates decreased and owners were compelled to lay up ships, delay newbuilding deliveries and cancel orders. Adjustments in supply, combined with renewed demand for raw materials (coal, iron ore and grain), led to market recovery and better freight rates in the second half of the year. The final quarter average was at \$6,988 per day, whereas, the annual average of the six time charter routes for the Baltic Handysize index was traded at \$5,244 per day in 2016, compared with \$5,355 per day in 2015.

The annual average of the six time charter routes for the Baltic Supramax index was traded at \$6,270 per day in 2016, compared with \$6,922 per day in 2015. The final quarter average stood at \$8,418 per day.

Sustained growth in demand and low contracting supply capacity will be necessary to produce a shift in fundamentals and raise freight rates.

Although the vessels order book was reduced significantly in 2016 through scrapping, delayed deliveries, low contracting activity and order cancellations, it is still too large, given current oversupply and future demand expectations (Clarksons Research, 2017d). As previously noted, prospects reflect a firming up in demand in the dry bulk trade sector, with the five major bulk commodities projected to expand in 2017. Therefore, it is essential that shipowners manage the supply side of the market carefully and limit its expansion. Charter rates are also expected to improve for most of the dry bulk segments in 2017, with the steepest recovery expected to take place in the Capesize segment.

C. TANKER FREIGHT RATES

In 2016, freight rates in all tanker segments went down from the high level of 2015, but were not far from the five-year average across most segments. Market conditions were altered with the arrival of new vessels and a slowdown in oil demand growth.

As shown in table 3.2, the average dirty tanker index declined to 726 in 2016, compared with 821 in 2015. This represents a decrease of 12 per cent. The average Baltic Exchange clean tanker index reached a low of 487 points in 2016, compared with 638 in 2015, 24 per cent less than the annual average in 2015.

Market fundamentals worsened in the crude tanker segment in 2016, as the fleet expanded rapidly, surpassing demand. This led to steep declines in freight rates. As previously highlighted, global seaborne tanker trade expanded by 4.2 per cent in 2016 over the previous year. Contributing factors included a sharp rise in oil imports into China, India and the United States, as well as the lifting of oil sanctions on the Islamic Republic of Iran, which increased export shipments from the Middle East. At the same time, global tanker deliveries also increased. Carriers of liquefied natural gas and other types of gas continued their high growth (+9.7 percent); oil tankers grew at 5.8 per cent and chemical tankers, at 4.7 per cent, following several years of low growth.

Freight rates for product tankers also fell in 2016 as market fundamentals deteriorated. The market observed about 4.6 per cent growth in the demand for seaborne products trade, together with fast growth of about 6.1 per cent in the product tanker fleet (Clarksons Research, 2017b).

These imbalances in markets fundamentals had a repercussion on earnings which came under further pressure, particularly in the last six months of the year. Overall, tanker earnings averaged about \$17,917 per day in 2016, a 42 per cent decline, compared with 2015. This decline was affected by the rise in crude oil prices, which also had an impact on bunker costs. (Clarksons Research, 2017b). As noted in table 3.3, most Worldscale figures were below 2015 levels. Most annual average Worldscale spot rates for very large and ultralarge crude carriers declined in 2017. For instance, Worldscale values for the Persian Gulf–North–West

Table 3.2. Baltic Exchange tanker indices, 2007–2017

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Percentage change (2015–2016)	2017 (first half year)
Dirty Tanker index	1 124	1 510	581	896	782	719	642	777	821	726	-12	838
Clean Tanker index	974	1 155	485	732	720	641	605	601	638	487	-24	631

Source: Clarksons Research, Shipping Intelligence Network – Timeseries, 2017e.

Notes: The Baltic Exchange dirty tanker index is an index of charter rates for crude oil tankers on selected routes published by the Baltic Exchange. The Baltic Exchange clean tanker index is an index of charter rates for product tankers on selected routes published by the Baltic Exchange. Dirty tankers generally carry heavier oils – heavy fuel oils or crude oil – than clean tankers. The latter generally carry refined petroleum products such as gasoline, kerosene or jet fuels, or chemicals.

Table 3.3. Tanker market summary: Clean and dirty spot rates, 2010–2016
(Worldscale 100)

Vessel type	Routes	2010	2011	2012	2013	2014	2015	2016												Dec. 2015–Dec. 2016 (Percentage change)
		Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Very large/ultralarge crude carriers (200 000 dwt+)	Persian Gulf–Japan	61	59	48	64	77	90	76	62	62	81	66	53	43	37	37	55	64	80	-11.1%
	Persian Gulf–North–West Europe	57	59	26	..	32	59	43	36	38	44	36	29	25	28	30	30	43	53	-10.2%
	Persian Gulf–Singapore					71	83	63	63	62	67	64	53	43	34	33	52	73	83	0.0%
	Persian Gulf–United States Gulf	36	37	28	37	34	49	38	34	37	38	37	31	25	24	23	33	39	48	-2.0%
	West Africa–China	..	58	47	61	63	77	72	76	71	63	59	59	50	41	41	60	66	78	1.3%
Suezmax (120 000–200 000 dwt)	West Africa–United States Gulf	..	..	..	..	68	90	87	63	65	57	53	49	49	49	53	53	53	53	-41.1%
	Caribbean/East Coast of North America	103	83	65	97	79	81	81	76	74	77	68	74	61	36	71	68	65	80	-1.2%
	West Africa–North–West Europe	118	86	70	102	76	80	83	82	80	84	81	79	60	39	72	80	95	106	32.5%
	Mediterranean–Mediterranean	113	86	67	99	84	97	109	86	79	78	76	80	70	64	66	72	117	112	15.5%
Aframax (70 000–120 000 dwt)	Caribbean–Caribbean/East Coast of North America	146	112	91	155	108	130	118	133	120	120	106	95	76	76	91	98	114	115	-11.5%
	Indonesia–Far East	111	104	90	99	116	126	136	115	165	119	90	96	90	76	63	80	85	118	-6.3%
	Mediterranean–Mediterranean	138	130	85	100	106	97	107	93	108	88	108	109	84	66	86	70	128	130	34.0%
	Mediterranean–North–West Europe	133	118	80	107	108	115	107	89	96	83	103	111	80	63	81	76	143	106	-7.8%
	North–West Europe–North–West Europe	162	122	93	135	113	113	112	99	113	111	103	107	90	79	93	93	101	112	-0.9%

Europe route stood at 36 points, compared with 63 in 2015. The West Africa–United States Gulf route (TD4) average for December 2015 experienced a 40 per cent drop from December 2015 levels. Worldscale yearly average rates for most Baltic Exchange Suezmax tanker routes were also lower than 2015 levels. The Worldscale average for the West Africa–Caribbean–East Coast of North America route (TD5) was 69 points, compared with 82 in 2015. Worldscale values for the West Africa–North–West Europe route (TD20) stood at 78 points, compared with 80 in 2015. Average clean tanker freight rates were also significantly lower than in 2015.

In 2016, the oil tanker segment experienced a difficult year, spilling over to 2017 as freight rates for all crude oil and product tankers continued their decline, following a brief improvement at the end of 2016. The outlook appears challenging in the short term, given expectations for continued strong supply growth and numerous risks to the demand side.

However, one important regulatory development may reduce fleet supply and support freight rates in the future. New IMO ballast water management standards, which became effective in September 2017, require ships using ballast water in international trade to be retrofitted with a ballast water treatment system. This would come at an estimated cost ranging between \$1 million and \$5 million (Barry Rogliano Salles, 2017) that may push shipowners to increase scrapping of their old tonnage with low earnings potential, instead

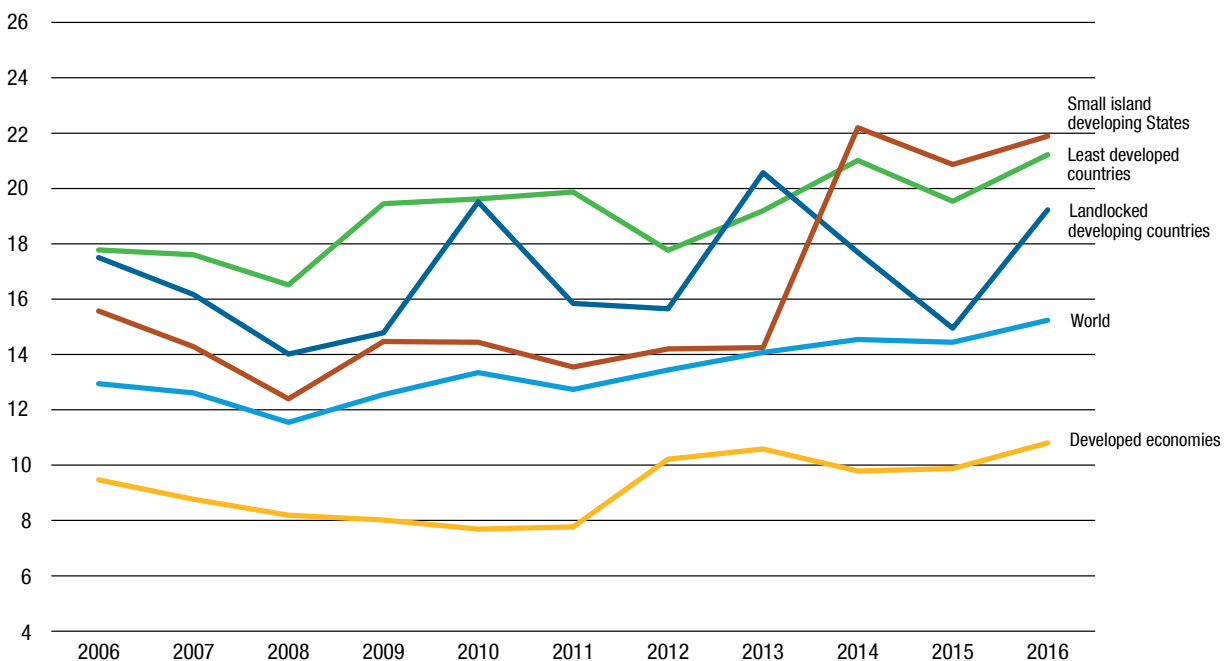
of incurring the additional cost. This may also lead to better balanced market fundamentals as supply may contract considerably, in particular in the very large ore carrier segment, which constitutes a big fraction of today's older tonnage (Danish Ship Finance 2016).

D. INTERNATIONAL TRANSPORT COSTS

Figure 3.5 shows the transport costs across all modes of transport as a share of the value of imports. Figures are derived by calculating the c.i.f.–f.o.b. margins (costs of transport and insurance of international trade) from 2006 to 2016. On average, low-income economies and geographically disadvantaged countries, namely landlocked developing countries and small island developing States, face relatively higher transport costs than other economic groupings.

Given that average transport costs represent about 21 per cent of the value of imports for least developed countries, 19 per cent for landlocked developing countries and almost 22 per cent for small island developing States, compared with a world average of 15 per cent, it is a priority to deal with the factors that drive up transport expenditure in these countries. While other considerations can determine a country's level of participation in value chains – local production costs, policy framework, just-in-time production methods and geographical distance between trading partners, for example – the incidence of relatively more prohibitive

Figure 3.5. Transport and insurance costs of international trade, 2006–2016
(Percentage share of value of imports)



Source: UNCTAD secretariat calculations.

Note: All modes of transport; the least developed countries grouping includes 48 countries for all periods up to 2016.

transport costs in the least developed countries, landlocked developing countries and small island developing States may be an important factor in their marginalization from global and regional transport and trading networks.

Distance and connectivity may be relevant factors in the case of landlocked developing countries and small island developing States, as illustrated by estimates showing that intercontinental trade increases transport and insurance costs by 2–4 per cent, as compared with comparable intracontinental trade (OECD, 2016). Other estimates show that for imports of electrical machinery for example, c.i.f.–f.o.b. margins are significantly lower for Chinese imports from Viet Nam and Hong Kong (China) than from other Asian economies and from Brazil and South Africa. Similarly, United States imports from Mexico and Canada have much lower c.i.f.–f.o.b. margins than those from other trading partners, as do French imports from European partners (OECD, 2016). However, economic distance, which is captured by shipping connectivity and a country's position within global shipping networks, may contribute more to rising international transport costs than geographical distance, it may be that is of important factor for international transport costs.

Fuel costs are also a key cost-factor heading in overall transport costs. An increase at the global level of oil prices from \$25 to \$75 per barrel increases the estimated c.i.f.–f.o.b. margin by 1.4 percentage points, all other factors being equal (Miao and Fortanier, 2017). Likewise, a reduction in oil prices from, for example \$100 per barrel to \$50 per barrel reduces the c.i.f.–f.o.b. margin by nearly 1 percentage point. These findings were corroborated in an UNCTAD study estimating the elasticity of shipping freight rates to oil price and bunker fuel costs. The study concluded that container freight rates, as well as the rates for shipping iron ore and oil, were positively correlated with fuel costs (UNCTAD, 2010).

However, recent trends suggest that the relatively lower oil and fuel cost environment prevailing since mid-2014 had not been reflected in the c.i.f.–f.o.b. margins (figure 3.5). This is particularly evident in the case of the landlocked developing countries and small island developing States. This may suggest that other transport cost determinants, such as product and trade composition, size and economies of scale or their lack, remoteness, transport connectivity, insufficient or inadequate infrastructure, as well as trade imbalances may have had a larger impact. Furthermore, it is also possible that lower fuel costs may have produced a rebound effect through increased demand and expenditure for transport services.

It is generally recognized that the incidence of higher transport costs is more significant in developing countries that specialize in low value goods with little potential for differentiation. This trend is more prominent in rural areas where transport challenges are greater and where

access to market places is more difficult. For example, port cargo-handling charges in the Caribbean small island developing States are estimated to vary between \$200 and \$400 per container, compared for example, to \$150 per container charged in Argentina. Similarly, the cost of transport and insurance is reported to be some 30 per cent higher than the world average. Freight rates between Miami, Florida (United States) and the Caribbean are similar to those paid for the much longer distance between Miami and Buenos Aires, Argentina. A container shipped between the port of Shanghai and the port of Los Angeles over a distance of over 19,000 nautical miles attracts a freight rate of approximately \$700, while a box shipped from port of Kingston, Jamaica to Oranjestad, Aruba over 513 nautical miles attracts an average freight rate of \$2,800 (UNCTAD, 2014). Overall, these trends create an effective barrier to trade which undermines their growth and prospects for sustainable development. However, research shows that lowering transport costs and improving infrastructure can foster trade and reduce the impact of barriers such as remoteness and distance in the case of the small island developing States (Borgatti, 2008).

In landlocked developing countries, transport costs represent an average of 77 per cent of the value of exports. Poor road infrastructure is responsible for 40 per cent of the transport costs in coastal countries, compared with 60 per cent in landlocked countries (Limão and Venables, 2000). Reflecting the particular challenge of landlocked developing countries, revenue losses from inefficient border procedures may exceed 5 per cent of GDP (an increase by \$2.6 trillion) (Moisé and Le Bris, 2013). Together, these factors heighten the overall costs of transport, which account for a larger share of the value of imported goods. The cost burden in landlocked developing countries is a constraint not only to imports but to exports – so is the cost premium associated with exporting a container from landlocked developing countries versus neighbouring coastal countries, which can range from 8–250 per cent (Arvis et al., 2010).

E. OUTLOOK AND POLICY CONSIDERATIONS

The weak trade economy since the 2008 recession and the overcapacity of the shipping industry have continued to limit growth in shipping. This was still true in 2016, where low demand and high overcapacity brought down freight rates and led to low profitability and a depressed year for all market segments. Despite some encouraging signs in early 2017 for most segments, the market situation is still challenging. Rates and demand levels remain low, which is why it is important to effectively manage overcapacity.

In the container ship segment, new mergers and acquisitions and mega alliances established in 2016 and 2017 may lead to better handling of supply and fleet

utilization, which in turn could lead to improved markets and profitability for the container shipping sector and services for shippers. However, there might be a risk that shipping lines exert market power, constrain supply and raise prices in the long run. Therefore, regulators will need to be vigilant of future developments in these alliances to ensure fair competition. It is also important to assess the implications of recent trends in liner shipping, including for small countries, and to revisit the rules governing consortiums and alliances to determine whether these should be regulated differently, with a view to balancing the interests of shippers and carriers and prevent abuse of market power.

Well-functioning, efficient, resilient freight transport systems are a prerequisite for successful trade and economic integration. They are also necessary to attract investment, develop business and build productive capacities. Helping countries, in particular small island developing States and landlocked developing countries, to manage the factors behind the increases in transport costs is key. This can be done by implementing soft measures, such as providing support for enabling frameworks and training, and facilitating technology transport; as well as hard measures, such as upgrading infrastructure and improving equipment procurement.

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ENDNOTES

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