



BULLETIN

FACILITATION OF TRANSPORT AND TRADE IN LATIN AMERICA AND THE CARIBBEAN

Changes in maritime transport supply and demand

Background

This issue of the *FAL Bulletin* looks at shifting patterns in the supply of and demand for water transport in three markets —containers, dry bulk and liquid cargo (dirty and clean)— over the past several years. It is, accordingly, divided into three sections, the first of which examines trends in the supply of water transport. The second section presents a comparative analysis of supply and demand in the three markets (containers, dry bulk and liquid cargo) over the past several years. And the third section describes and analyses changes in maritime freight rates during global downturns and boom periods.

I. Trends in water transport supply

This section analyses shifts in supply (fleet changes) for the three markets. Table 1 presents information on the global container shipping fleet in operation as of 31 December 2011. It includes only cellular vessels: 4,930 units with a static transport capacity of 15.4 million TEUs. The fleet is expected to grow to 5,033 vessels and 16.6 million TEUs by the end of this year.

The supply of maritime container transport, measured by total available capacity, has grown notably in the last several years, as can be seen in figure 1.

The future fleet will continue to grow quickly, both in number of vessels and in transport capacity. Figures 2 and 3 show anticipated changes in the container ship fleet through 2014, according to current shipbuilding orders as of 31 December 2011 and assuming that no ships are scrapped.

These figures clearly illustrate the large influx of new vessels to the global fleet that is expected in the coming years. At year-end 2011, the global fleet was 21.3% larger than in the first year of the crisis (2008) and 104% larger than at the beginning of the previous upturn (2003). In other words, the fleet grew at an annual average rate of 9.3% between 2003 and 2011.

This *FAL bulletin* reviews changes in water transport supply and demand in three markets: containers, dry bulk and liquid cargo (dirty and clean) over the past several years.

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The opinions expressed in this document are the exclusive responsibility of the author and do not necessarily reflect those of the Organization.



Background



I. Trends in water transport supply



II. Supply and demand in maritime transport services



III. Maritime freight rates



UNITED NATIONS

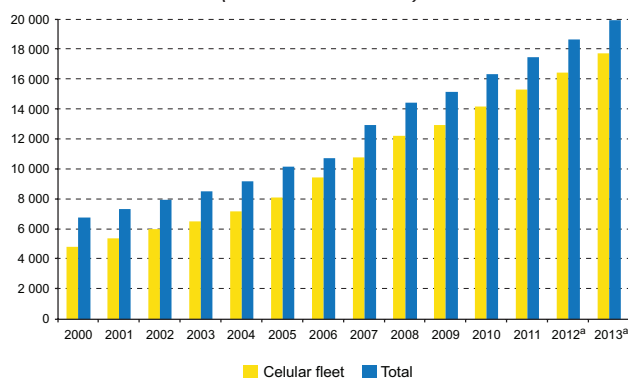
ECLAC

Table 1
GLOBAL FLEET IN OPERATION AS OF 31 DECEMBER 2011

Containers	Number of vessels	Percentage distribution (of total vessels)	Capacity (TEU)	Percentage distribution (of total capacity)	Projections					
					31/12/2012		31/12/2013		31/12/2014	
					Number of vessels	Capacity (TEU)	Number of vessels	Capacity (TEU)	Number of vessels	Capacity (TEU)
100-1 999	2 323	47,12	2 502 546	16,24	2 318	2 508 687	2 366	2 580 915	2 375	2 592 663
2 000-2 999	712	14,44	1 811 511	11,76	681	1 735 090	704	1 795 300	711	1 811 248
3 000-3 999	323	6,55	1 101 941	7,15	317	1 086 127	341	1 174 195	343	1 181 795
4 000-5 099	701	14,22	3 167 294	20,56	745	3 366 018	804	3 638 191	818	3 707 156
5 100-7 499	463	9,39	2 840 841	18,44	480	2 946 749	500	3 079 198	504	6 105 598
7 500-10 499	290	5,88	2 555 320	16,59	325	2 856 255	375	3 299 721	411	3 622 831
10 500-15 500	118	2,39	1 425 640	9,25	170	2 092 746	222	2 790 736	258	3 301 164
Total	4 930		15 405 093		5 036	16 591 672	5 312	18 358 256	5 420	19 322 455

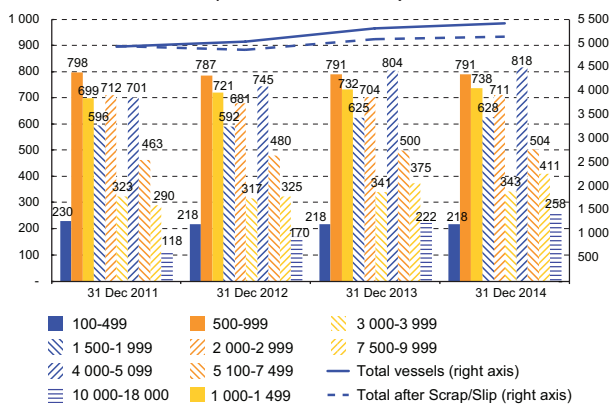
Source: Ricardo J. Sánchez and Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from Alphaliner, various issues. Updated October 2012.

Figure 1
CHANGES IN CONTAINER SHIP FLEET CAPACITY, 2000-2013
(Thousands of TEUs)



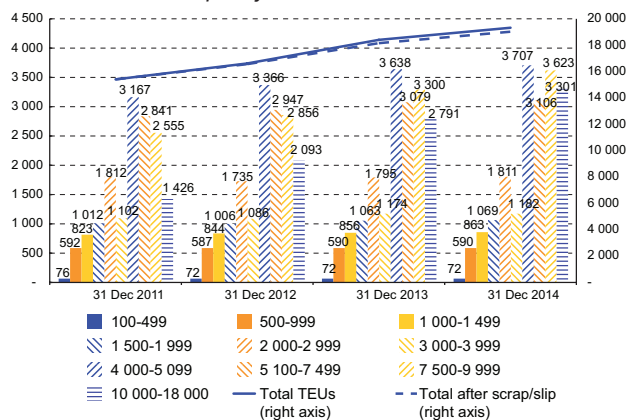
Source: Ricardo J. Sánchez and Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from Clarkson Research Services, various issues.
^a Projected.

Figure 2
PROJECTED CONTAINER SHIP FLEET AT THE END OF EACH PERIOD
(Number of vessels)



Source: Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from Alphaliner, various issues. Updated October 2012.

Figure 3
PROJECTED CONTAINER SHIP FLEET AT THE END OF EACH PERIOD
(Capacity, thousands of TEUs)



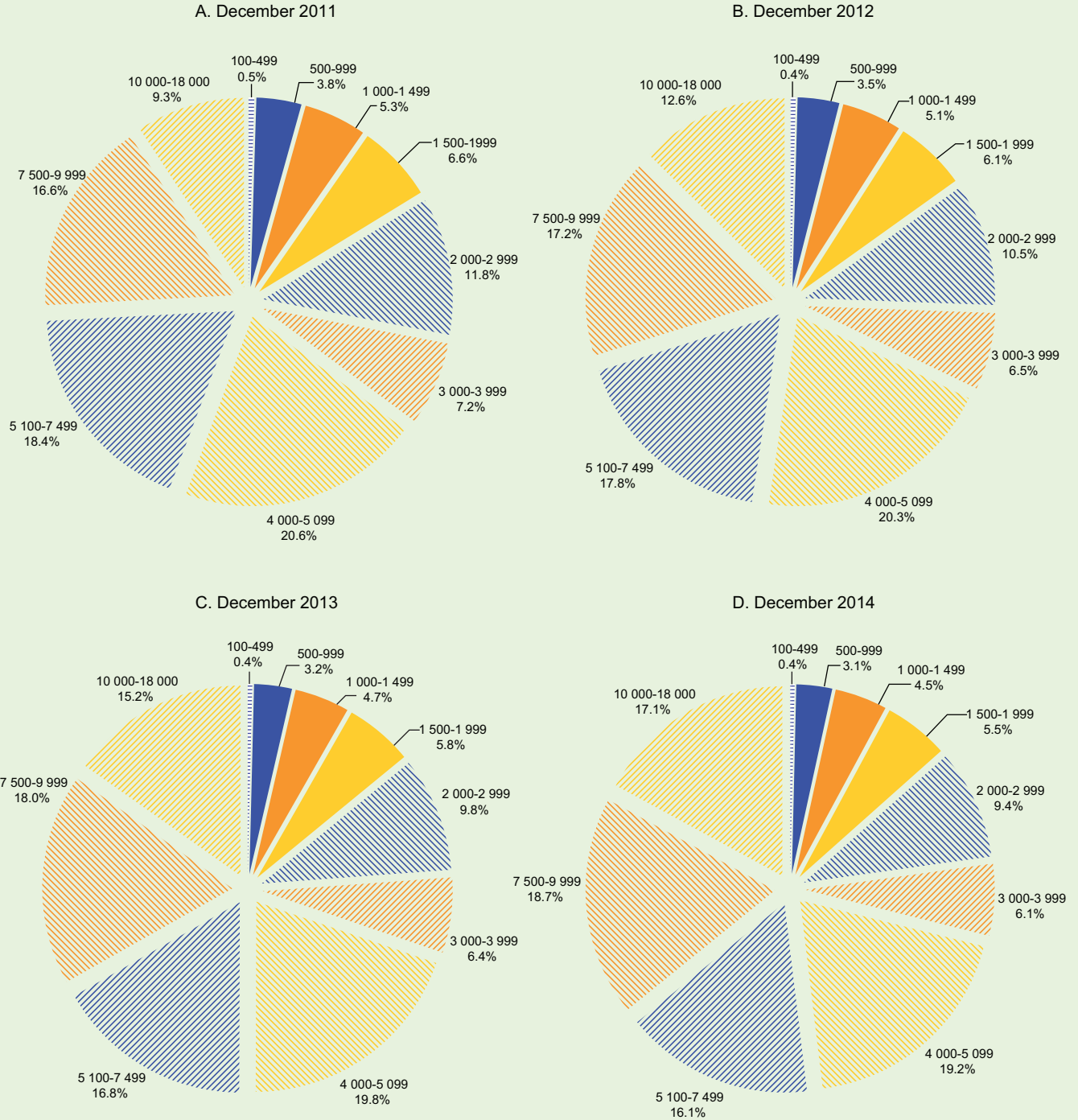
Source: Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from Alphaliner, various issues. Updated October 2012.

By December 2013, the fleet is expected to have grown to 5,453 vessels, compared with 5,055 as of December 2011. Capacity is forecast to increase from 15.6 million TEUs to 18.4 million TEUs in the same timeframe.

Figure 2 shows that the fleet has a high proportion of larger vessels. Of the total 4,930 vessels as of 31 December 2011, 3,558 units were in the Panamax size range. Only 71 more are expected by December 2014, which represents growth of 2.1% in three years. The 4,000-to-7,499-TEU bracket will stand at 158 vessels, growing by 13.6% between December 2011 and December 2014. The number of ships at or above 7,500 TEUs will jump from 408 at the end of 2011 to 669 by the end of 2014, an increase of 64%.

As can be seen in the figure, such a high pace of growth in the number of larger vessels is driving transport capacity up substantially.

Figure 4
PROJECTED CHANGES IN THE GLOBAL FLEET
(TEUs)



Source: Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from Alphaliner, various issues. Updated October 2012.

II. Supply and demand in maritime transport services

Both the supply of maritime transport and the demand for these services show distinctive behaviour in each of the three segments of interest (containers, dry bulk and liquid cargo). The analysis that follows tracks the year-on-year variation of supply and demand—in other words, how supply and demand have grown (in operating capacity and in transport services) and/or diminished (in operating capacity as vessels are scrapped or international trade slows) from one year to the next. This pattern reflects a supply/demand imbalance that triggers a response from

one side or the other (sometimes from both) in an attempt to rebalance. This search for balance eventually sets off a cyclical pattern that ends up affecting supply as well as demand as both are pushed to respond.

A. Supply and demand in regular container shipping

Container shipping is a regular market where supply is determined by the regular routes and services available. Demand depends on the requirements laid out by shipping companies, with their regularly scheduled, fixed itineraries. See table 2 for tracks changes in supply and demand.

Table 2
GLOBAL SUPPLY AND DEMAND IN CONTAINERS
(Millions of TEU and annual average variation)

Trade/Transport demand (millions of TEUs)	2005	2006	2007	2008	2009	2010	2011	A.A.V.
Trans-Pacific route	18.4	20.2	21.1	20.5	18.4	20.3	20.7	1.98%
Far East-Europe	12.2	14.5	16.9	16.8	17.3	19.5	20.4	8.95%
Trans-Atlantic route	5.9	6.1	6.5	6.3	5.3	5.9	6.2	0.83%
North America/Europe/Far East and Middle East/ISC	9.7	10.5	12.8	14.3	14.6	16.9	18.4	11.26%
North-South routes	17.6	18.7	20.6	22.0	20.3	23.5	25.6	6.44%
Other routes	41.9	47.5	53.1	56.7	48.7	54.5	59.3	5.96%
Total	106	118	131	137	125	141	151	6.07%
% year-on-year variation	10.6%	11.2%	11.4%	4.2%	-9.0%	12.8%	7.9%	
Capacity/Transport supply (millions of TEUs)	2005	2006	2007	2008	2009	2010	2011	A.A.V.
Container ships	8.1	9.4	10.8	12.2	12.9	14.2	15.3	11.15%
Multipurpose	1.0	1.1	1.6	1.2	1.2	1.3	1.4	4.68%
RO-RO	0.4	0.4	0.4	0.4	0.3	0.3	0.3	-3.18%
Liner	0.06	0.06	0.06	0.05	0.04	0.03	0.02	-17.84%
Other	0.6	0.6	0.6	0.5	0.5	0.5	0.4	-3.85%
Total	10.1	11.6	12.9	14.4	15.1	16.4	17.4	9.43%
% year-on-year variation	8.0%	13.6%	11.8%	10.8%	4.8%	8.1%	6.7%	

Source: Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from Clarkson Research Services, various issues.

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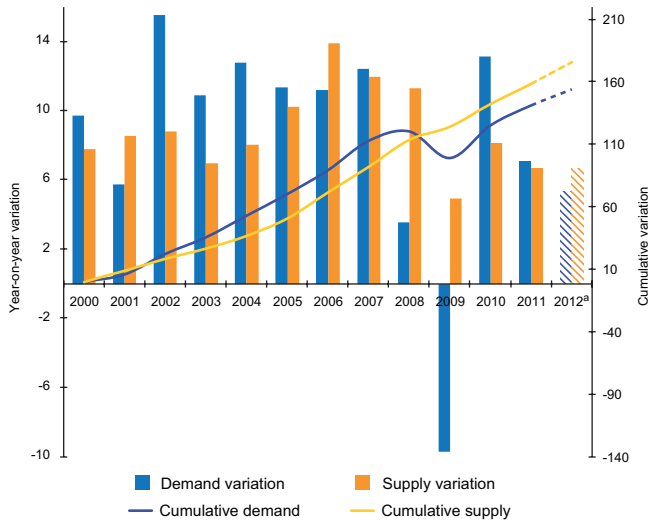
Figure 5 shows percentage year-on-year changes in supply and demand in container shipping between 2000 and 2010, as well as cumulative changes in both variables since 2000. Cumulative supply outpaced demand until 2003; cumulative growth in demand for transport over the ensuing five years led both curves to converge in 2008. Supply starts to exceed demand in 2009, marking the beginning of an oversupply of container shipping.

The cumulative supply and demand curves show which of the two exerts upwards pressure on transport prices. In this case, the curves show clearly defined patterns in the sample period. After following diverging paths for a time, the

two eventually converge (in 2002 and 2008). After 2000, both cumulative supply and cumulative demand grew at a steady pace, with an average annual variation of 9.9% and 10.4%, respectively. After plummeting nearly 10% in 2009 in response to the macroeconomic and trade crisis of that year, demand recovered the following year and continued to trend up through 2012. The data also show, especially for 2009, how supply continued to expand, albeit at a slower pace with a more gradual slope. In the following years, however, the previous trend resumes. In periods in which cumulative demand exceeds cumulative supply, supply tends to lag behind changes in demand. In contrast, when supply exceeds demand there is oversupply.



Figure 5
CONTAINERS: SUPPLY AND DEMAND, 2000-2012
(Percentages)



Source: Ricardo J. Sánchez and Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from Clarkson Research Services, various issues.

^a Projection. Supply and demand variations are cumulative since 2000. In year one, the values for cumulative supply and cumulative demand are equal. However, this does not mean that there is equilibrium that year, but simply that that year was chosen as the baseline for the index in order to show changes in the gap between the two variables. Under no circumstances does the gap represent absolute values.

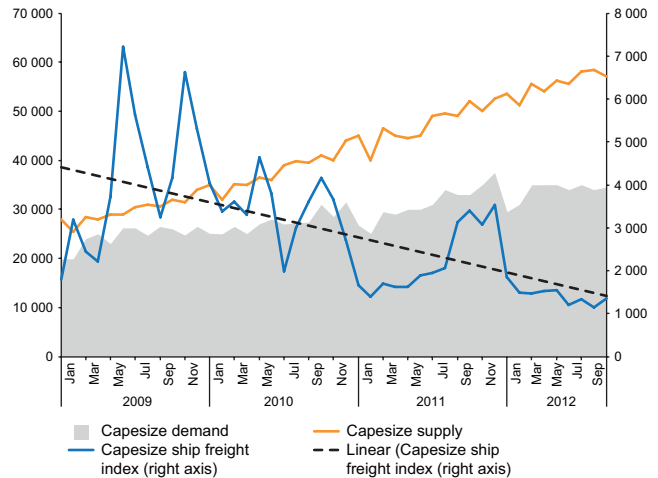
B. Non-regular transport of dry bulk cargo

Figure 6 analyses the patterns of supply and demand in dry bulk transport alongside trends in Capesize freight rates using the Alphaliner methodology, which measures supply and demand in number of days (see figure 6 note). There is an upward trend on the supply side (line) and a more stable trend on the demand side. It is easy to see that the downward trend in freight rates is due to a steady increase in supply in excess of demand (oversupply).

Figure 7, in which Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC) methodology is applied to the data from figure 5 above, shows variations in supply and demand in dry bulk transport between 2000 and 2010.

There are similarities between the methodologies used in figures 6 and 7, the first of which represents the Capesize sector and the second of which represents the total dry bulk fleet.

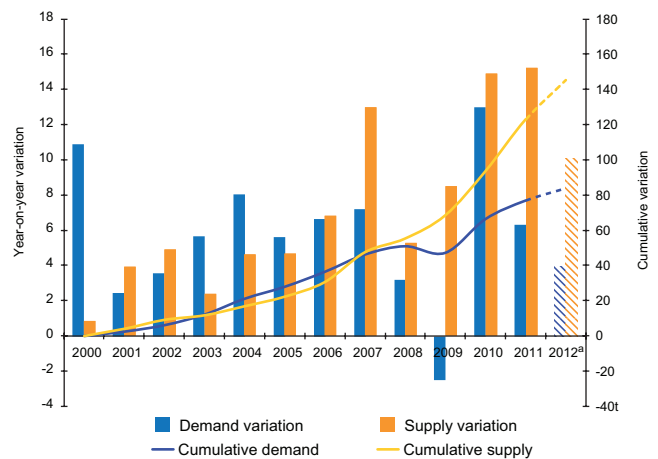
Figure 6
SUPPLY AND DEMAND IN DRY BULK TRANSPORT
IN CAPESIZE VESSELS COMPARED WITH
FREIGHT INDEX, 2000-2012



Source: Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from Alphaliner Monthly Monitor and Bloomberg, various issues.

Note: A Capesize vessel equates to 172 mDWT. Supply of Capesize ship transport is represented in number of days of availability of Capesize ships. Demand is represented in number of days required for transport in Capesize ships.

Figure 7
SUPPLY AND DEMAND IN DRY BULK TRANSPORT, 2000-2012
(Percentages)



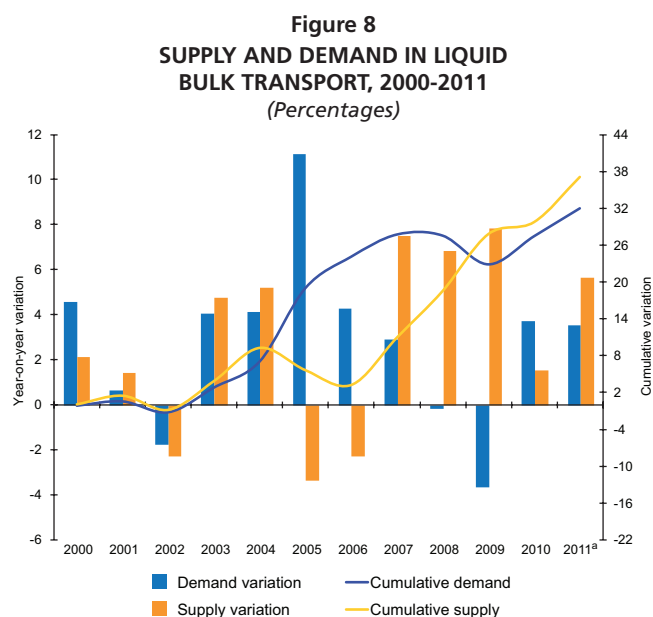
Source: Ricardo J. Sánchez and Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from Clarkson Research Services, various issues.

^a Projection. Supply and demand variations are cumulative since 2000. In year one, the values for cumulative supply and cumulative demand are equal. However, this does not mean that there is equilibrium that year, but simply that that year was chosen as the baseline for the index in order to show changes in the gap between the two variables. Under no circumstances does the gap represent absolute values.

As in the container transport sector, there are points of convergence after periods of cumulative supply/demand imbalance. In the case of dry bulk transport, these points occurred in 2003 and between 2006 and 2007. After 2000, both supply and demand saw sustained increases. There was a 3% drop in cumulative demand in 2009, with an expected uptick the next year. However, supply continued to increase but is forecast to ease off by 2010. In general terms, the lags between supply and demand are slightly larger in this sector.

C. Non-regular transport of liquid cargo

Figure 8 shows supply and demand variations in liquid bulks between 2000 and 2011.



Source: Ricardo J. Sánchez and Maricel Ulloa S., data from Clarkson Research Services, various issues.

^a Estimated. Supply and demand variations are cumulative since 2000.

The transport of liquid bulk is volatile, which means that it is much more difficult to find points of convergence between supply and demand. Indeed, there was only one (2008-2009) in the entire period under review. The historical analysis in figure 6 shows that the first years of the decade were marked by drops in both supply and demand, which were particularly sharp in 2002. This period was followed by a strong recovery that lasted through 2004. In 2005, cumulative supply posted a steep decline that continued through 2006. The behavior of the variables started to change in 2007, with a marked downtrend in demand that steepened in 2009 while supply began to surge. The result was a significant

oversupply in late 2009, when supply exceeded demand for the first and only time in the period reviewed.

III. Maritime freight rates

A. Regular container shipping

The intercrisis period (2002-2008) saw increases in water transport prices. However, the situation changed considerably in the third quarter of 2008, as shown in the following figures for maritime container transport price trends and as summarized in table 3.

Figure 9 shows changes in container freight rates from 2001 to 2012. Prices dropped slightly in the third quarter of 2008, except for the Asia-United States route, where they continued to trend up.

However, rates for routes out of Latin America, including Central America and the east, west, and north coasts of South America, declined slightly (between 4% and 6%) for the first time in five quarters. Still, these rates were between 50% and 70% higher than at the low point of the series in the first quarter of 2002. Prices plummeted in the three quarters that followed; with the exception of the North America/Europe and Asia/Europe routes, all prices remained below their low point of the cycle (the first quarter of 2002).

Figure 10 shows the same information during the crisis period, from 2008 onward. As can be seen in both figures (9 and 10), freight rates began an upward trend in 2009 and allowed for an average recovery of 20% in the main global routes. The recovery remained strong throughout 2010 and peaked between the third and fourth quarter, after which it began to slow.

Despite the challenges in estimating a general average, rates would likely have been at an index value of 100 in mid-2009 and of 169 at the beginning of the fourth quarter of 2010 (see figure 10).

In Latin America, the pattern was similar, with increases of 45% to 60% in the same timeframe.

International sea transport prices were driven up by a sizeable recovery in international trade and, to a considerable degree, by a fleet that was very well prepared to absorb this rate of growth and more. However, it is possible that these encouraging signs that the crisis was ending and a trade recovery was on the way raised expectations that led to overshooting. Import freight rates started to rebound in late 2010, while export freight rates fell. These same bright expectations drove the increase in shipbuilding orders beginning in June 2010 after 18 months in which few or no new orders were placed.

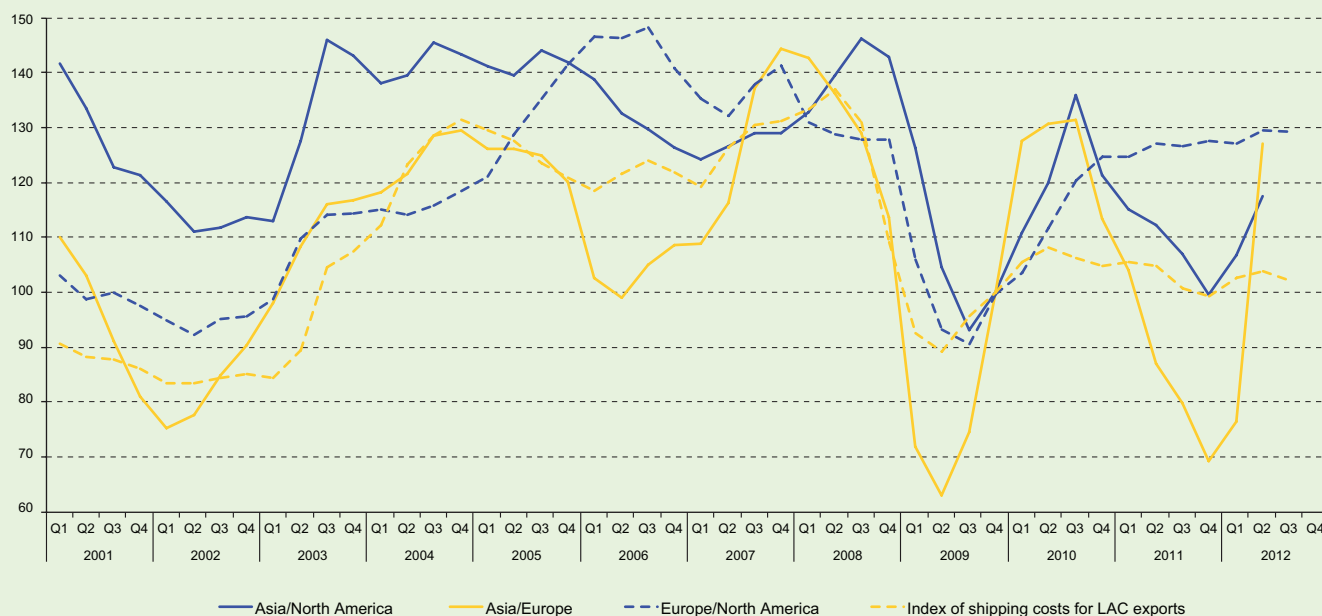
Table 3
PERIODS OF INCREASES AND DECREASES IN CONTAINER FREIGHT RATES^a

Periods of increases
<ul style="list-style-type: none"> • Most routes began to see increases between the second and third quarters of 2002. The Asia-Europe route and the freight rate index for LAC exports posted increases of 72% and 58%, respectively, through the fourth quarter of 2005. For the Europe-North America route, the uptrend lasted through the third quarter of 2006 and came to 60%. However, rates for the Asia-North America route rose by only 31% through the third quarter of 2003 and then turned unstable through the third quarter of 2005. • Between the second quarter of 2006 and the end of 2007, the Asia-Europe route saw a 46% increase. Rates for the Asia-North America routes and exports from Latin America and the Caribbean (LAC) began their upswing in the second quarter of 2007, ending in mid-2008, with increases of 18% and 15%. The Europe-Asia route experienced a very short upswing in the last half of 2007, with rates increasing by only 7%. • In the third quarter of 2009, rates for the Asia-Europe routes and the LAC import and export indices began to climb. For the Asia-North America and Europe-North America routes the increases began in the fourth quarter of 2009. For Asia-North America and Asia-Europe routes and the LAC imports freight rates index, the increases lasted through the third quarter of 2010 and came to 46%, 109% and 47%, respectively. The LAC exports freight rate index rose 13% through the second quarter of 2010. The Europe-North America route posted a sustained rise of 38% through the fourth quarter of 2010. It has remained stable since then, with a positive variation of 4% to date. • At the beginning of 2012, routes experienced a slight but insufficient recovery.
Periods of decreases
<ul style="list-style-type: none"> • First quarter of 2001 to first and second quarters of 2002: Rates for the Asia-Europe route dropped by 32% through the first quarter of 2002. The Asia-North America and Europe-North America routes and the LAC exports index fell by 22%, 10% and 8%, respectively, through the second quarter of 2002. • The ensuing downswing began at different times. In early 2005, the Asia-Europe routes and LAC export freight rate indices saw drops of 24% and 10%, respectively, which ended in late 2006. In mid-2005, the Asia-North America route showed a drop of 14% that ended in early 2007, while rates for the Europe-North America route fell by 4% between mid-2006 and mid-2007. • Between the first quarter of 2008 and mid-2009, the Asia-Europe route and the Europe-North America route saw increases of 56% and 36%, respectively. LAC export freight rate indices and rates for the Asia-North America route fell by 36% and 35%, respectively, beginning in mid-2008 and ending in mid-2009. In the fourth quarter of 2008, LAC import freight rate data became available; between then and the second quarter of 2009 rates fell by 31%. • Between the end of 2010 and the end of 2011, the Asia-North America and Asia-Europe routes, as well as LAC import and export freight rate indices, saw drops of 27%, 47%, 8% and 11%.

Source: Ricardo J. Sánchez and Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC).

^a Refers to the main routes for Asia-North America, Asia-Europe, Europe-North America.

Figure 9
CONTAINER SHIPPING FREIGHT RATES FOR MAIN ROUTES AND EXPORTS FROM LATIN AMERICA AND THE CARIBBEAN
(Index: 4Q2009=100)

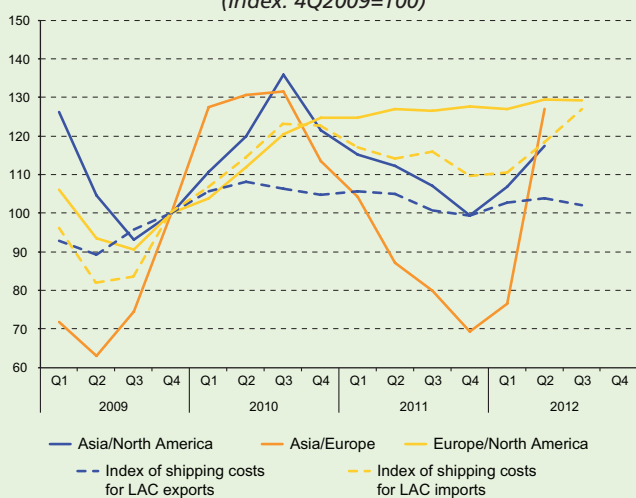


Source: Ricardo J. Sánchez, Maricel Ulloa S. and Ruth Vagle, Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from Containerisation International, Container Trades Statistics and from the organization's own research.

Note: Containerisation International ceased its regular publication of shipping cost surveys at the end of 2009.



Figure 10
CONTAINER SHIPPING FREIGHT RATES FOR MAJOR SHIPPING ROUTES AND EXPORTS AND IMPORTS IN LATIN AMERICA AND THE CARIBBEAN
(Index: 4Q2009=100)



Source: Ricardo J. Sánchez, Maricel Ulloa S. and Ruth Vagle, Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from Containerisation International, Container Trades Statistics and from the organization's own research.

Note: Containerisation International ceased its regular publication of shipping cost surveys at the end of 2009.

B. Non-regular dry bulk transport

Table 4 presents information on changes in the bulk ship fleet between 2005 and 2012, the volumes transported by each type of service and variations in the fleet.

Maritime transport of dry bulks is usually performed under different types of lease contracts, known as "voyage" and "time charter" leases. Four major indices produced by The Baltic Exchange (www.balticexchange.com) have been used to track freight rates in this market. Figure 11 shows changes in these indices from 2001 to 2012.

Time charter services are currently in wide use. According to a prestigious expert in international maritime transport, they are more accurately referred to as "tramp" services. The rates for these services are used to build the indices that are most widely accepted internationally.

The first of these indices is the BDI (Baltic Dry Index), which is constructed with data from tramp fleet freight rate contracts for three sizes of bulk cargo ships (Capesize, Panamax and Handysize¹). The process consists of calculating an index for each of the three types of ships, using a weighted average of freight rates for the major routes for each. To determine the BDI, these indices are then combined. As a result, the BDI, along with each of the three indices it draws on, is regarded as a satisfactory representation of international bulk cargo transport prices.

Table 4
BULK FLEET
(mDWT and percentages of supply)

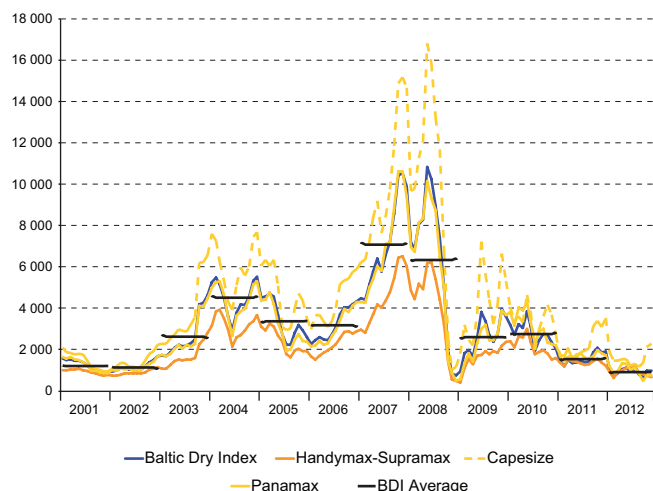
		2005	2006	2007	2008	2009	2010	2011	2012
Supply (end of period)									
Fleet	mDWT	331.5	354.1	400.1	421.2	457.0	525.0	604.8	667.6
Inactive fleet	mDWT	1.5	1.9	2.2	4.5	4.8	3.8	5.8	5.6
Combis	mDWT	6.3	5.9	7.1	6.2	6.6	8.1	5.0	4.8
Portfolio	mDWT	64.5	80.1	216.5	294.9	278.0	278.7	212.7	154.5
Portfolio	% of supply	18.60%	21.80%	55.20%	70.40%	60.80%	53.10%	35.20%	23.10%
Cargo volumes (total)									
Voyage	mDWT	92 495	87 623	73 876	108 892	171 482	142 545	182 069	132 491
Trip	mDWT	271 935	315 557	281 118	279 479	303 945	295 343	278 488	155 118
Period	mDWT	53 881	113 778	146 782	88 757	73 067	86 474	58 975	30 576

Source: Drewry, *Shipping Insight*, various issues.

Note: 2012 data are through September 2012.

¹ Capesize: these ships, which are used mainly for the transport of minerals, cannot pass through the Panama Canal due to their size. Instead, they travel around the Cape of Good Hope (South Africa) or follow other routes. Some Capesize ships are used for bulk cargo, but to a lesser extent. Panamax: currently, these are the largest ships that can pass through the Panama Canal. The ships are approximately 275 meters long; their displacement exceeds 70,000 tons. Handysize: these are the group's smallest ships, with displacements of 25,000 to 50,000 tons; they are normally used for the transport of grains and grain products.

Figure 11
DRY BULK FREIGHT RATE INDEX, 2001-NOVEMBER 2012
(Monthly)



Source: Ricardo J. Sánchez and Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from The Baltic Exchange database via Bloomberg, an international financial data portal (www.bloomberg.com).

All three indices are widely used in Latin American non-oil bulk cargo maritime trade. The index of Capesize freight rates is calculated with up-to-date freight rate information for ten different global routes, using a typical ship size of 172 DWT (deadweight tons). Three of the routes used in the construction of this index originate in Latin America; they make up 30% of the total. The Panamax index is currently based on seven international routes for 74,000-DWT vessels. Handysize ships average about 40,000 DWT; 37.5% of their routes include Latin America.

As can be seen in figure 11, the peaks occurred at the end of 2004, from early 2007 to mid-2008 and during 2009. The sharpest drops were in mid-2002 and mid-2005, along with a steeper decline at the end of 2008 that was somewhat earlier than the drop seen in the same year in the sector analysed above. Periods of rising and falling freight rates are shown in table 5.

Behaviour of the subject indices in dry bulk transport is very consistent throughout 2002-2009, where higher values are associated with larger ships (Capesize) and lower values with smaller ships (Handymax), as can be seen in figure 12.

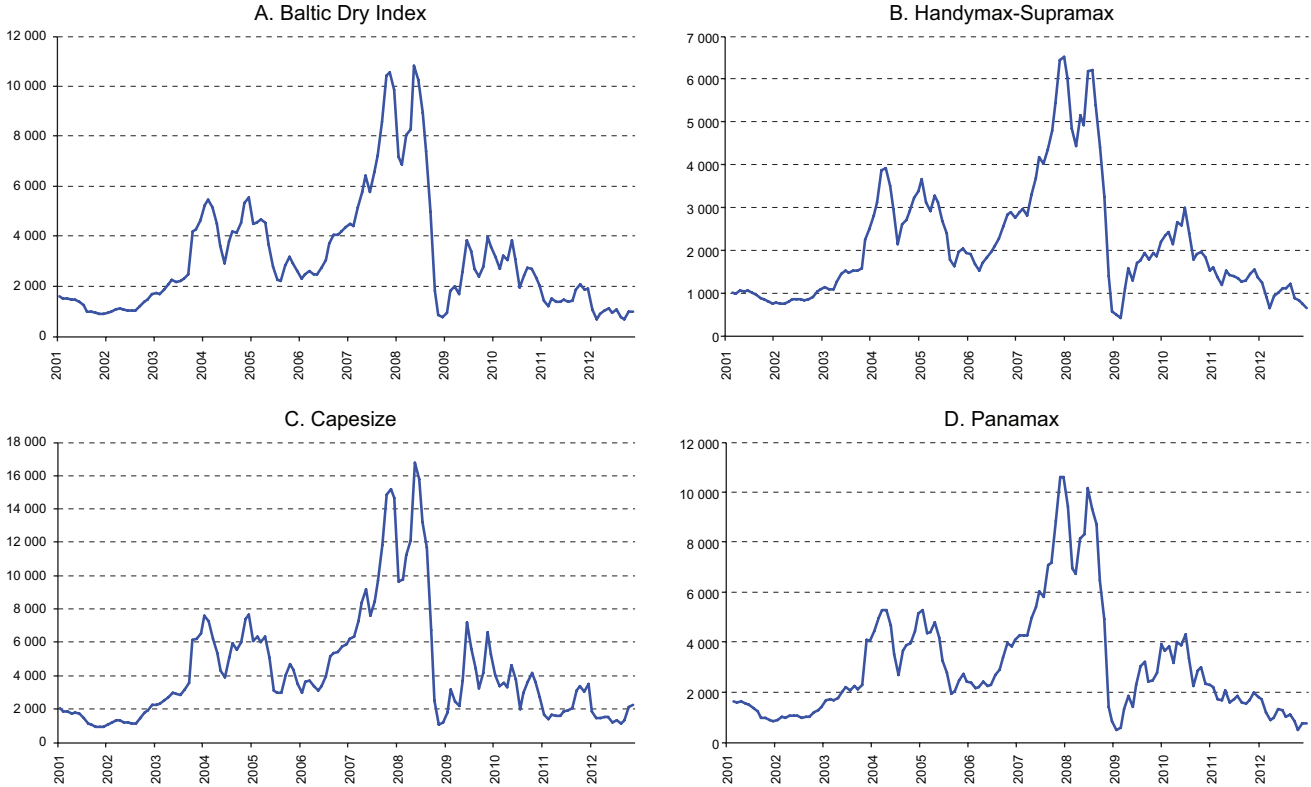
Figures 14 and 15 show freight rates for a group of major global routes, in two distinct phases: before and after the crisis.

Table 5
PERIODS OF INCREASES AND DECREASES IN DRY BULK FREIGHT RATES

Upswings
<ul style="list-style-type: none"> From the first quarter of 2002 until the first quarter of 2004, the four indices showed increases ranging from 427% for the Handymax-Supramax index to 623% for the Capesize index. Between June 2004 and December 2004, the four indices rose significantly. The Handymax-Supramax index, which rose the least, showed an increase of 71%. The Panamax index rose the most, by 98%. From mid-2005 until October 2005, the four indices showed significant, though unsustainable, rises ranging from 25% for the Handymax-Supramax index to 60% for the Capesize index. From the beginning of 2006 until the end of 2007, the indices rose considerably, with increases ranging from 329% (Handymax-Supramax) to 410% (Capesize). The first half of 2008 saw sharp increases, ranging from 40% for the Handymax-Supramax index to 74% for the Capesize index. There was an uptrend between early 2009 and October 2010. In this period, there were four peaks in three indices (Baltic Dry, Capesize and Panamax): in mid-2009, at the end of 2009, in mid-2010 and in October 2010. For the Handymax-Supramax index, this period, during which it rose by 493%, lasted only until May 2010. In late 2011, Baltic Dry, Capesize and Panamax saw increases of 37%, 119% and 26%, respectively. In late 2012, Baltic Dry, Capesize and Panamax saw increases of 38%, 97% and 45%.
Downturns
<ul style="list-style-type: none"> Between early 2001 and mid-2002, the four indices fluctuated but generally trended down. The decreases ranged from 17% for the Handymax-Supramax index to 46% for Capesize ships. The following downswing, from early 2004 to June 2004, was very short but steep for the four indices. The declines ranged from 45% to 49%. During the first half of 2005, the four indices experienced drops of between 51% (Handymax-Supramax) and 64% (Panamax). Between November 2005 and early 2006, the indices dropped, ranging from 21% for Panamax to 37% for Capesize. The period between late 2007 and early 2008, despite being short, saw a sharp drop seen in all of the indices, ranging from 32% for Handymax-Supramax to 36% for Panamax. During the last half of 2008, rates fell by about 95% across the board. Between November 2010 and mid-2011, the Baltic Dry, Capesize and Panamax indices fell by 49%, 62% and 48%, respectively. Between the end of 2011 and September 2012, the Baltic Dry, Capesize and Panamax indices fell by 62%, 67% and 73%, respectively. The most recent downturn in the Handymax-Supramax index, when it lost 66%, ran from September 2010 to November 2012.

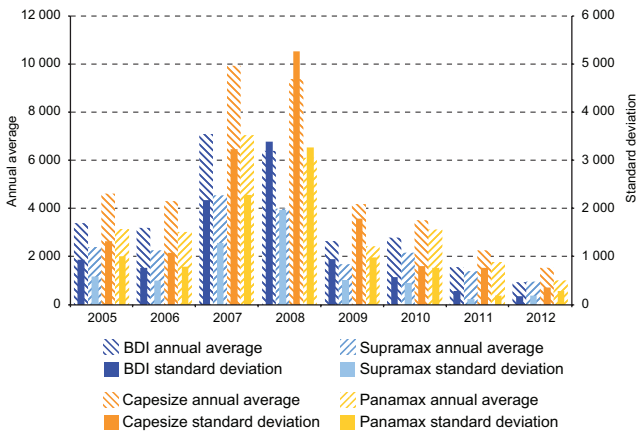
Source: Ricardo J. Sánchez and Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC).

Figure 12
DRY BULK FREIGHT RATE INDEX, 2001-NOVEMBER 2012
(Monthly)



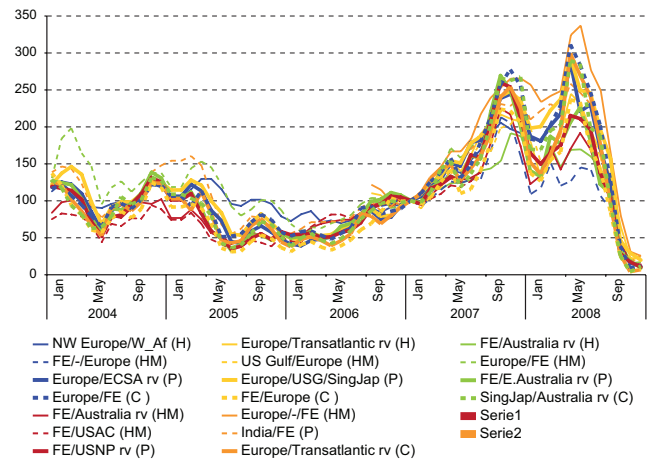
Source: Ricardo J. Sánchez and Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from The Baltic Exchange database via Bloomberg, an international financial data portal (www.bloomberg.com). Note: 2012 data are through November.

Figure 13
ANNUAL AVERAGE AND STANDARD DEVIATION OF DRY BULK FREIGHT RATE INDICES



Source: Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from The Baltic Exchange database via Bloomberg, an international financial data portal (www.bloomberg.com).

Figure 14
INDEX OF REPRESENTATIVE DAILY BULK CHARTER PRICES, PRE-CRISIS
(Index: January 2007=100)

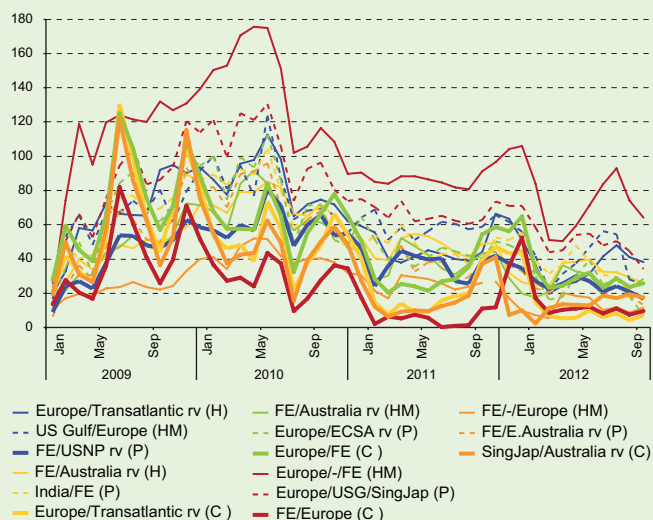


Source: Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from Drewry, *Shipping Insight*, various issues.

Patterns were different during the crisis and before, when there were periods of high and less volatile freight rates. In contrast, after the crisis, as prices fell, the rates for the routes in figures 14 and 15 were lower but more volatile.

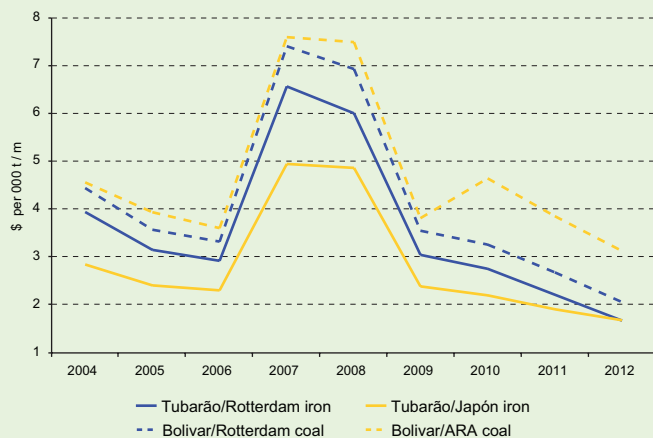
Figure 16 shows annual average freight rates for the transport of minerals (iron and coal) from the major South American ports.

Figure 15
INDEX OF REPRESENTATIVE DAILY BULK CHARTER PRICES, POST-CRISIS
 (Index: January 2007=100)



Source: Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from Drewry, *Shipping Insight*, various issues.

Figure 16
COSTS OF MINERAL BULK TRANSPORT FROM LATIN AMERICA, 2004-2012

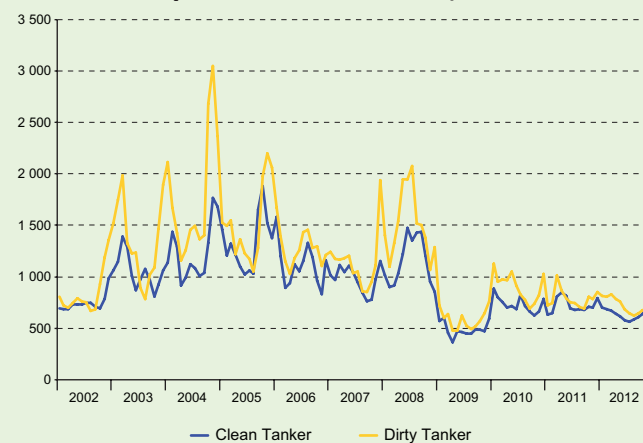


Source: Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from Clarkson Research Services, various issues.

C. Non-regular transport of liquid cargo

As with dry bulks, the liquid bulk market usually operates under lease contracts. Liquid bulk freight rates are tracked by indices produced by The Baltic Exchange (www.balticexchange.com).² The indices for this segment of the maritime industry are the Dirty Tanker Index (oil shipments) and the Clean Tanker Index (shipments of petroleum products). Figure 17 shows trends in both indices during 2002-2012.

Figure 17
INDEX OF LIQUID BULK FREIGHT RATES, 2002-JUNE 2012



Source: Ricardo J. Sánchez and Maricel Ulloa S., Infrastructure Services Unit (ISU)/Natural Resources and Infrastructure Division (NRID)/Economic Commission for Latin America and the Caribbean (ECLAC), data from The Baltic Exchange database via Bloomberg, an international financial data portal (www.bloomberg.com).

Freight rate patterns in this sector are different from other sectors examined in this article in that high volatility makes it more difficult to identify booms and downturns within the time period being analysed. However, there were two clear downswings that were also periods of low volatility: in 2002 and 2009. Similarly, the peaks in liquid bulk freight rates came in early 2004 and mid-2008, coinciding with the other freight rates studied in this issue.

² More details are available in FAL Bulletins 246 and 265.