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FACILITATION OF TRANSPORT AND TRADE IN LATIN AMERICA AND THE CARIBBEAN

Shipping supply and demand, biennium 2008-2009

This edition of the FAL Bulletin analyses the performance of the shipping industry during the biennium 2008-2009 in its three main markets: containers, dry-bulk cargoes and liquid bulk (oil and its derivatives). The author of this issue is Maricel Ulloa S. of the Infrastructure Services Unit.

For further information, please contact Maricel.Ulloa@cepal.org.

1. Maritime freight rates

a) Container transport

Container shipping is carried out mainly by shipping companies offering regular services on pre-established routes. Figure 1 is based on information published in the Maritime Profile of the Infrastructure Services Unit and in previous issues of the FAL Bulletin. It illustrates trends in freight rates between 2001 and 2009 for the world's three main trade routes connecting Asia, Europe and North America, and the three main routes that run through Latin America.

The fluctuations in container freight rates clearly illustrate the effect of the economic crisis on the shipping industry. The troughs of the 2001-2009 periods were the second quarter of 2002 and the second quarter of 2009, which corresponded to strong economic contractions. Conversely, rates peaked in the fourth quarter of 2004 and the second quarter of 2008, although for some routes they also soared during the fourth quarter of 2007. In view of this, we found three periods of upturn and two periods of downturn during the period under consideration (2001-2009):

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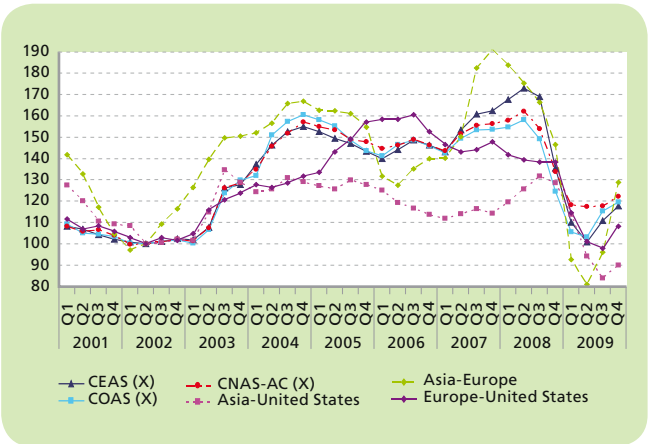
Natural Resources and Infrastructure Division, UNECLAC

Figure 1
CONTAINER FREIGHT RATES INDEX, 2001-2009
(Base second quarter 2002=100)



Source: *Ricardo J. Sánchez and Maricel Ulloa S., ECLAC, on the basis of information from Containerisation International, for routes between Asia, United States and Europe and authors' own calculations for the freight rates applying to container exports from Latin America. This is a Laspeyres-type index. For further details see FAL Bulletin 246 or 265, which explain how the data were collected and how they are represented.*

Upturns:

- Between the third quarter of 2002 and the fourth quarter of 2004. Freight rates rose at rates that ranged from 29% for the Asia-United States route to as much as 66% for the Asia-Europe route.

- Between the second quarter of 2007 and the second quarter of 2008, when rates rises ranged from 5% for the Europe-United States route to 50% for the Asia-Europe route.

- From the third quarter of 2009 onwards freight rates increased by 5% for the Latin America route (Northern coast of South America-Central America) and by 48% for the Asia-Europe route, showing a recovery from the economic crisis which characterized the biennium 2008-2009.

Downturns:

- The first quarter of 2001 through to the second quarter of 2002 saw prices falling by as much as 40% for the Asia-Europe route.

- Between the third quarter of 2008 and the second quarter of 2009, rates dropped by as much as 90% for the Asia-Europe route. However in the case of the Europe-America and Asia-Europe route, the drop in rates occurred in the first quarter of 2008.

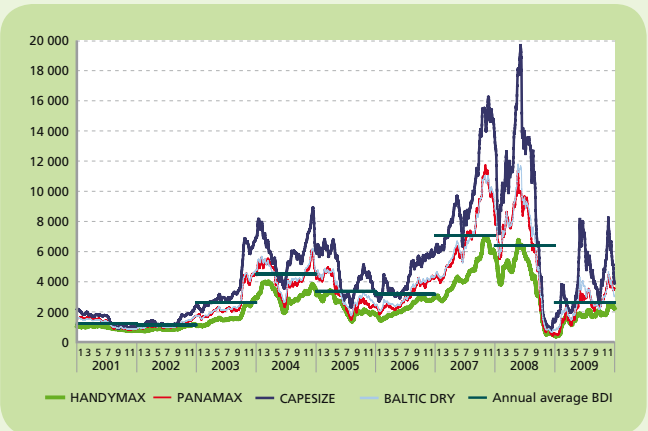
These price variations are due to factors such as changes in fuel prices, the excess supply of transport capacity and economic crises, among others.

Freight rates for the Latin American routes generally follow a similar pattern of rise and fall. The only divergent behaviour occurred in 2008 when freight rates for the east coast route shot up faster than those in the rest of South America, and at the beginning of 2009 when the route extending from the Northern coast of South America to Central America experienced the smallest decline in freight rates. The Asia-Europe route seems to follow a similar pattern to the Latin American routes on the figure, with the exception of its delayed upturn at the end of 2006 and its earlier downturn in 2008. Interestingly, the Asia-Europe route displays the steepest rise and fall in freight rates for the container market in each of the periods identified, making it the route most susceptible to the fluctuations in the global economy. Following a jump in 2003, the freight rates for the Asia-United States route have trended downwards, with a slight upturn in the third quarter of 2008 before s further sharp fall. Lastly, the Europe-United States route shows largely different behaviour to the other routes studied, given that its freight rate climbed moderately until mid-2006, then fell gradually back up to the end of 2008. The decline in rates on this route until mid-2009 was much sharper than previous downturns, as is the case for the other routes too. Nonetheless, rates began to climb again on all routes in the last quarter of 2009.

b) Dry-bulk shipping

Dry-bulk shipping typically works on the basis of a lease agreement known as the voyage and time charter. To study the changes in the freight rates for this market, four major indexes were drawn up by The Baltic Exchange (http://www.balticexchange.com). The Capesize Index, The Panamax Index, The Handy Max Index and The Baltic Dry Index all reflect the general behaviour of the market. The Baltic Dry Index was created on the basis of the first three indexes mentioned (for further details see *FAL Bulletin* 246 and 265). The figure below shows how these indexes fluctuated between 2001 and 2009.

Figure 2
DRY-BULK FREIGHT RATES INDEX, 2001-2009



Source: *Ricardo J. Sánchez and Maricel Ulloa S., ECLAC, on the basis of information from The Baltic Exchange collected by Bloomberg, international financial portal (http://www.bloomberg.com).*

At first glance, the behaviour of freight rates for dry-bulk and container shipping seem similar. However, they are completely different markets with different factors causing their fluctuations in price.

Figure 2 shows that the largest upturns occurred at the end of 2004, mid-2008 and during 2009. The greatest downturns can be seen in mid-2002, mid-2005 and, more sharply, in late 2008, this time slightly before the fall in container shipping freight rates.

Consequently, we found three periods of upturn and downturn in the period studied.

Upturns:

- At the end of 2002 and of 2004, with freight rates rising by 7,400 points for the Capesize bulk carriers and by 2,927 for the Handymax bulk carriers.
- At the start of 2007 until mid-2008 prices rose by 16,605 points for the Capesize bulk carriers, and by 5,232 for the Handymax variety.
- From the beginning of 2009, increasing by 6,922 points for the Capesize bulk carriers and 1,830 in the case of the Handymax variety.

Downturns:

- From the beginning of 2001 to mid-2002, declining by up to 1,784 points in the case of the Capesize bulk carriers.
- Between early 2005 and early 2006, dropping by up to 5,689 points in the case of Capesize bulk carriers.
- In the second quarter of 2008, with the freight rate for Capesize bulk carriers dropping by as much as 18,309 points.

Overall, the four indices of dry-bulk shopping show quite similar behaviours over the period 2001-2009, with higher rates corresponding to the larger vessels (Capesize) and the lower rates to the smaller vessels (Handymax).

Below, changes in the annual average, the annual standard deviation and year-on-year variations for each of the four indexes are illustrated.

Table 1
ANNUAL AVERAGE, STANDARD DEVIATION AND YEAR-ON-YEAR VARIATIONS OF DRY-BULK FREIGHT RATE INDEXES 2002-2009

	Handy			Panamax			Capesize			BalticDry		
Year	Average	Standard deviation	Year-on-year variation	Average	Standard deviation	Year-on-year variation	Average	Standard deviation	Year-on-year variation	Average	Standard deviation	Year-on-year variation
2002	895.0	121.7	-4.4%	1 130.4	198.2	-9.4%	1 395.4	347.4	-5.0%	1 138.0	218.1	-6.3%
2003	1 661.4	522.4	85.6%	2 544.0	974.7	125.0%	3 662.6	1 567.6	162.5%	2 617.4	1 012.7	130.0%
2004	3 162.6	535.8	90.4%	4 382.7	888.1	72.3%	6 011.2	1 272.6	64.1%	4 510.0	842.4	72.3%
2005	2 389.5	587.3	-24.4%	3 128.1	1 006.4	-28.6%	4 602.9	1 320.8	-23.4%	3 371.5	936.9	-25.2%
2006	2 248.5	498.1	-5.9%	3 020.8	784.9	-3.4%	4 288.8	1 074.8	-6.8%	3 179.7	767.6	-5.7%
2007	4 537.8	1274.9	101.8%	7 031.6	2 273.2	132.8%	9 924.3	3 231.3	131.4%	7 070.2	2 170.6	122.4%
2008	3 973.5	1966.5	-12.4%	6 089.8	3 261.5	-13.4%	9 363.4	5 257.0	-5.7%	6 390.3	3 379.0	-9.6%
2009	1 658.1	514.9	-58.3%	2 405.4	978.9	-60.5%	4 171.5	1 788.2	-55.4%	2 616.5	941.3	-59.1%

Source: *Ricardo J. Sánchez and Maricel Ulloa S., ECLAC, on the basis of information from The Baltic Exchange collected by Bloomberg, international financial portal (http://www.bloomberg.com).*

The annual average figures show that steepest increases occurred in 2007, with the annual average of the Baltic Dry Index (BDI) reaching 7,070 points, and the smallest falls in 2002 with BDI dropping to an average of 1138 points.

The table also shows that freight rates have been highly volatile since 2002, with very high standard deviation in 2008, although it starts to fall in 2009.

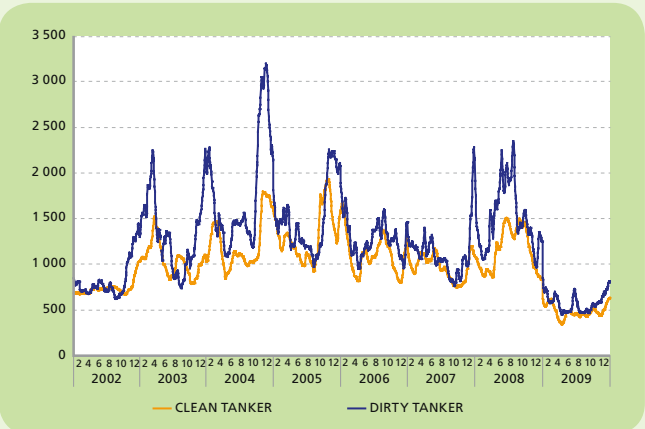
c) Oil tanker shipping (oil and its derivatives)

Similarly to dry-bulk shipping, the liquid-bulk market works on the basis of lease contracts. Changes in its freight rates are reflected in the indexes prepared by The Baltic Exchange (http://www.balticexchange.com). For further details see *FAL Bulletin* 246 or 265. The indexes for this sector of the shipping industry are as follows: The Dirty Tanker Index (oil shipping) and The Clean Tanker Index (shipping of oil derivatives). Below, figure 3 illustrates price behaviour for both indexes for 2002-2009.

The freight rate trend for this sector is also different from those studied previously. It is highly volatile, which makes it difficult to identify periods of rise and fall within the studied time frame. However, two clear periods of decline may be distinguished in 2002 and 2009 when volatility is also low. Likewise, liquid bulk freight rates peaked at the end of 2004 and in mid-2008, coinciding with the other freight rates studied in this issue.

The annual average, annual standard deviation and the year-on-year variations for both indexes are shown in the figure below.

Figure 3
OIL TANKER FREIGHT RATES INDEX, 2002-2009



Source: *Ricardo J. Sánchez and Maricel Ulloa S., ECLAC, on the basis of information from The Baltic Exchange collected by Bloomberg, international financial portal (http://www.bloomberg.com).*

Table 2
ANNUAL AVERAGE, STANDARD DEVIATION AND YEAR-ON-YEAR VARIATIONS OF DRY-BULK FREIGHT RATE INDEXES, 2002-2009

	DirtyTanker			CleanTanker		
Year	Average	Standard deviation	Year-on-year variation	Average	Standard deviation	Year-on-year variation
2002	830.7	206.3		737.6	76.6	
2003	1 335.3	388.3	60.7%	1 043.2	172.3	41.4%
2004	1 782.6	612.0	33.5%	1 228.9	276.6	17.8%
2005	1 497.3	373.4	-16.0%	1 318.3	274.4	7.3%
2006	1 286.4	194.7	-14.1%	1 112.0	210.3	-15.7%
2007	1 124.3	268.5	-12.6%	973.6	132.9	-12.4%
2008	1 510.2	341.4	34.3%	1 155.0	229.1	18.6%
2009	581.2	96.9	-61.5%	484.6	69.0	-58.0%

Source: *Ricardo J. Sánchez and Maricel Ulloa S., ECLAC, on the basis of information from The Baltic Exchange collected by Bloomberg, international financial portal (http://www.bloomberg.com).*

The data in the table indicate that the largest increases occurred in 2003 and the greatest declines in 2009, although the standard deviation was smaller in the latter year since rates were less volatile. The highest averages occurred in 2004 for the Dirty Tanker Index, with 1,782 points, and in 2005 for the Clean Tanker Index, with 1,318 points. The Clean Tanker Index shows some volatility, but not to the extreme degree of the Dirty Tanker Index.

2. Supply and Demand

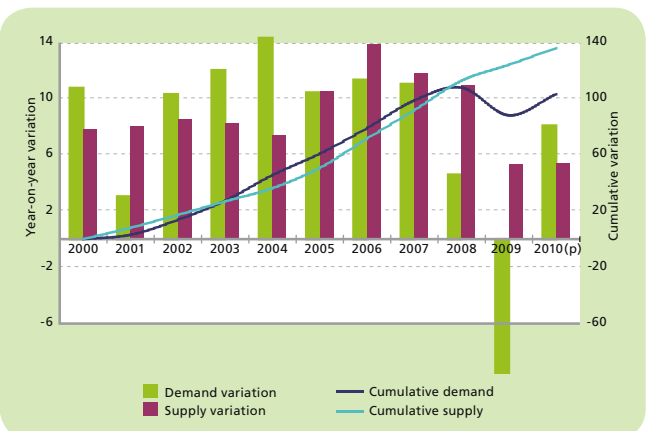
Both supply and demand for the shipping services have a characteristic behaviour. The analysis below is based on year-on-year variation in supply and demand, i.e., how supply and demand change from one year to the next in terms of actual operating capacity and of the volume of transport services required by international trade. The endless quest for equilibrium between supply and demand leads to procyclical behaviour known as the maritime cycle, which has been extensively analysed in previous bulletins.

The figures below are constructed to show cumulative supply and demand of equal value in the starting year. This does not imply that supply and demand were balanced that year, simply that this was the base year for the index being used to show the evolution of the gap between the two variables. This gap does not represent absolute values in any case. The cumulative supply and demand curves show which puts upward or downward pressure on the shipping freight rates.

a) Container transport

Figure 4 illustrates the variations in supply and demand for container transport between 2000 and 2010.

Figure 4
SUPPLY AND DEMAND FOR CONTAINER TRANSPORT, 2000-2010



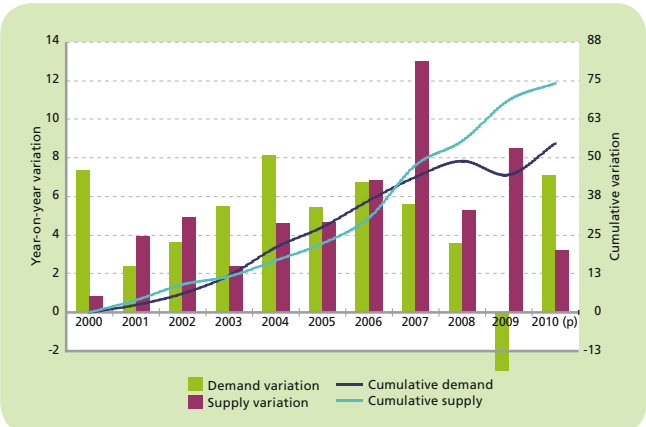
Source: *Ricardo J. Sánchez and Maricel Ulloa S., ECLAC.*
Note: *(p) projections. The variations in supply and demand were calculated on a cumulative basis with respect to the year 2000.*

The cumulative variation in supply and demand emerges quite clearly in the sample period, with the two curves converging in 2003 and 2008. Cumulative supply and demand both increased from 2001 up until 2009, when demand began to fall steeply (by 10%), before recovering again in 2010. The figure also shows supply continuing to increase, particularly in 2009, although at a slower rate, with the gradient easing somewhat. During periods when cumulative demand rises above cumulative supply, the supply shows a slightly lagged response to changes in demand.

b) Dry-bulk transport

Figure 5 shows the variations in supply and demand for dry-bulk transport between 2000 and 2010.

Figure 5
SUPPLY AND DEMAND FOR DRY-BULK TRANSPORT, 2000-2010



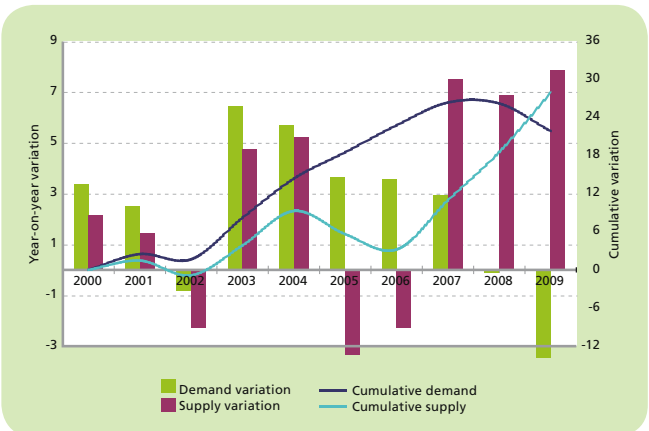
Source: *Ricardo J. Sánchez and Maricel Ulloa S., ECLAC.*
Note: *(p) projections. The variations in supply and demand were calculated on a cumulative basis with respect to the year 2000.*

As in the container transport sector, cumulative supply and demand values converge after periods of imbalance between the two variables. In the case of dry-bulk transport, these points of convergence occur in 2003, and between 2006 and 2007. Since 2000, both supply and demand have risen steadily, though this transport segment also shows a sharp fall in cumulative demand (3%) in 2009, albeit with an upturn expected in 2010. Supply will continue to grow but with an smaller gradient.

c) Oil tanker transport (oil and derivatives)

Figure 6 shows the variations in supply and demand for the transportation of bulk liquids between 2000 and 2010.

Figure 6
SUPPLY AND DEMAND FOR LIQUID-BULK TRANSPORT, 2000-2010



Source: *Ricardo J. Sánchez and Maricel Ulloa S., ECLAC.*
Note: *(p) projections. The variations in supply and demand were calculated on a cumulative basis with respect to the year 2000.*

Tanker transport is typically volatile, making it much more difficult to identify points of convergence between supply and demand in the period analysed. The only point at which the two variables reached equilibrium was during the biennium 2008-2009. Historical analysis of figure 6 shows that the beginning of the decade was characterized by some decline in both supply and demand. A particularly sharp contraction was seen in 2002, followed by an upturn which lasted until 2006. From 2007, the variables showed a change in behaviour. Demand fell heavily, particularly in 2009, while supply began to rise strongly, finally outstripping demand towards late 2009 and generating a substantial excess supply.