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# CHINA'S CARGO GROWTH how long will it last?

A paper for the 10<sup>th</sup>  
Global Liner Shipping Conference  
by  
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# 1. Paper will consider:

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- Evidence of trade growth over last decade
- Interpretation through commodities carried
- The specific role of China
- Prospects for the next 5 years
- Demand compared with fleet development
- Rate development
- Lessons for the industry

## 2. Growth in demand

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- Spectacular growth since 2000

	Global port TEU (m)	International loaded TEU (m)	p.a. growth over period
1996	163	41	
2001	252	62	9%
2006	452	106	11%
2007	approx 500	115	8%

- Globally medium term growth rates being sustained

### 3. Growth by route: international loaded TEU

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m TEU

	1996	2007 (est)	Change
Asia to Europe	3.9	16.9	+ 333%
Asia to N.America	4.8	14.4	+ 200%
All other	<u>32.8</u>	<u>83.2</u>	<u>+ 154%</u>
	41.5	114.5	+ 176%

- Global growth: +176%
- GDP growth (real)
  - US: + 39%
  - EU inland: + 34%
- TEU growth cannot be explained by GDP growth alone!

## 4. Estimated loaded TEU and Real GDP USA & Europe

2000 = 100

	Real USA GDP	N. America imported TEU	Real EU (27) GDP	Europe imported TEU
2000	100.0	100.0	100.0	100.0
2001	100.7	99.6	102.0	104.6
2002	102.4	106.9	103.2	112.1
2003	104.9	118.5	104.6	123.8
2004	108.7	128.7	107.2	137.9
2005	112.1	140.7	109.2	149.6
2006	115.3	152.0	112.6	163.8
2007	117.8	155.2	115.9	183.9

(consistent basket of goods)

Sources: MDST, Eurostat, Bureau of Economic Analysis

- Much slower growth to N. America evident throughout decade
  - despite higher GDP growth

# 5. GDP and trade growth: the case of USA – 1970 to 2007

Real GDP	+ 207%
Personal expenditure	+ 238%
Imports (all goods)	+ 838%

## Annual real rate of change by decade

	1970s	1980s	1990s	2000-6	2006 -7
GDP	3.2%	3.3%	3.3%	2.4%	2.2%
Personal spend	3.2%	3.5%	3.5%	3.0%	2.9%
- durable	-	-	6.7%	5.4%	4.7%
- non durable	-	-	2.8%	3.1%	2.1%
Imports	3.9%	7.0%	9.3%	4.5%	2.1%
- of which goods	-	-	10.2%	4.9%	2.8%
Private investment					
- non residential	-	-	7.4%	1.1%	4.6%
- residential	-	-	4.6%	3.3%	(17.5)%

- Only the residential sector has changed drastically but effect profound

## 6. US Real GDP by sector

		GDP	Personal spend on durable goods	Imported goods	Residential investment
2006	Q1	103.3	104.7	106.3	104.8
	Q2	103.2	102.1	106.4	98.5
	Q3	102.4	101.9	107.2	91.5
	Q4	102.6	106.6	103.7	87.2
2007	Q1	104.9	109.6	109.5	87.5
	Q2	105.2	107.2	108.5	82.3
	Q3	105.3	106.7	109.1	76.4
	Q4	105.1	111.0	104.7	71.0

2005 quarters = 100.0

(Indices compare quarter to quarter change)

Source: Bureau of Economic Analysis

- the warning was there in 2006 despite imported TEU growing by 8%!

# 7. Interpreting growth through commodity & trade barriers

Container growth depends upon:

- growth in disposable income
- propensity to spend income on goods
- reduction in prices which increase goods affordable per \$ spent

But most important

- changes in relative production costs between countries

<b>USA experience:</b>		<b>1996</b>	<b>2007</b>	<b>Growth</b>
GDP (\$ of 2000)	trillion \$	8.3	11.6	+ 39%
Personal spend on goods				
- non durable	trillion \$	1.7	2.4	+ 42%
- durable	trillion \$	0.6	1.2	+ 108%
Import of goods	trillion \$	0.8	1.7	+ 119%
Imported containerised goods	m TEU	8.2	24.6	+ 200%

Source: US Bureau of economic analysis

- Container imports have tripled while the value of imports only doubled – prices have fallen – explaining much of the growth!

## 8. Illustration by a mature commodity group: clothing

	2000	2006	2007	2000-'07
<b>International imports by N.W.European countries</b>				
Estimated '000s TEU	960	1113	1126	+ 17%
of which from:				
Other N.W.European countries	31%	15%	14%	
Mediterranean countries	28%	22%	19%	
Far East	25%	43%	47%	
Indian Sub Continent	13%	19%	19%	
Other deep sea	2%	1%	1%	
<b>Far East exports ('000s TEU)</b>				
to EU (15) N.W.Europe	244	474	528	+ 116%
to EU (15) Mediterranean	54	160	160	+ 196%
to North America	598	1030	1120	+ 87%

- Far East remorselessly expands market share (almost half NW Europe imports)
- Modest market growth through falling prices
- N.American demand sustained in 2007

## 9. Illustration by growth commodity group: furniture

- More sensitive to falling prices (elastic demand)

	2000	2006	2007	2000-'07
<b>International imports by N.W.European countries</b>				
Estimated '000s TEU	1774	2577	2827	+ 59%
of which from:				
Other N.W.European countries	59%	51%	51%	
Mediterranean countries	22%	20%	17%	
Far East	14%	26%	29%	
Other deep sea	5%	3%	3%	
<b>Far East exports ('000s TEU)</b>				
to EU (15) N.W.Europe	256	663	820	+ 220%
to EU (15) Mediterranean	36	145	186	+ 417%
to North America	547	1432	1506	+ 175%

- Far East expands market share (but still only 29% of N.W. Europe)
- Strong market growth through falling prices
- North American market falls in 2007
- Far East growth in production switched to N.W.Europe in 2007

# 10. Which markets are saturated?

Total international imports to North West Europe

		'000s TEU		Growth	Proportion		Change in proportion
					deep sea		
		2000	2007		2000	2007	
1.	Furniture	1774	2577	+ 59%	19%	32%	+13%
2.	Beverages* & tobacco	2348	3365	+ 43%	8%	8%	-
3.	Sanitary/plumbing etc.	509	712	+ 40%	17%	28%	+11%
4.	Footwear	177	238	+ 34%	52%	74%	+22%
5.	Meat, dairy, fish	1411	1850	+ 31%	11%	14%	+3%
6.	Machinery & metal man.	10727	13103	+ 22%	18%	25%	+7%
7.	Clothing	960	1126	+ 17%	40%	67%	+27%
8.	Textile fibres	262	226	- 14%	34%	35%	+1%

\* inc water

- Deep sea penetration lowest in food & beverages
- Already high penetration in footwear and clothing
- Despite low growth in machinery etc. offers high penetration opportunities

# 11. Leading Chinese non food unitised exports to Europe & USA

	2006 estimated unitised tonnes (m)		Growth 2000 – 2006	
	EU (15)	USA	EU (15)	USA
Mineral manufactures	4.6	4.6	+ 493%	+ 497%
Metal manufactures	3.3	5.0	+ 205%	+ 273%
Electrical machinery	2.2	3.3	+ 174%	+ 49%
Furniture	2.1	4.6	+ 364%	+ 272%
Clothing	1.7	1.9	+ 216%	+ 312%
General Ind. Machinery	1.4	2.3	+ 317%	+ 95%
Office machinery	1.4	2.8	+ 155%	+ 128%
Textiles	1.1	1.3	+ 199%	+ 454%
Wood manufacturers	0.8	1.7	+ 373%	+ 497%
Sanitary/plumbing etc.	<u>0.7</u>	<u>0.7</u>	<u>+ 160%</u>	<u>+ 103%</u>
<b>Total above goods</b>	<b>19.3</b>	<b>28.2</b>	<b>+ 263%</b>	<b>+ 193%</b>

- Spectacular growth rates
- USA markets more highly penetrated
- Comparison pre USA slow down 2007 – growth to Europe was already higher
  - growth to Europe further accelerated in 2007

## 12. Forecasts to 2012

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- Projections based upon trend analysis country x country x commodity (3000)
- Approach implicitly takes account of GDP impact on each flow
- Results describe longer run trends modified by short run fluctuations (e.g. current credit 'crunch' on US 2007 imports)
- Forecasts assume gradual expansion in containerisation
- Forecasts do not take into account impact of excess capacity attracting bulk cargoes to containers as 'make weight'

# 13. Projection to 2012

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m loaded TEU

	<b>2006</b>	<b>2007</b>	<b>2012</b>
Asia to Europe	14.1	16.9	22.7
Asia to N.America	13.6	14.4	19.2
All other international	<u>79.7</u>	<u>83.2</u>	<u>114.8</u>
Total	107.4	114.5	156.7

- mean global forecast growth rate 2007 – 2012: 6.5%

# 14. Projected demand versus fleet supply

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<b>FLEET CAPACITY</b>	<b>m TEU</b>	<b>Index</b>
Fleet capacity March 2008:	11.10	100.0
plus committed newbuilds to end 2010:	16.02	144.2
Adjustment for increased voyage length (+ 0.2% p.a.):	15.95	143.7
Adjustment for slow steaming (+ 10%):	14.36	129.3
<b>Projected Global Demand</b>		
	2010:	121.9
	2011:	129.4
	2012:	136.9

- Implication is despite current short-run slowdown, fleet supply matches demand by 2011
  - without a radical extension of commodities containerised

# 15. Rate projections

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- Rates function at:
  - long run cost of delivering services in a competitive environment
  - short run relationship of supply and demand by route
  - short run bunker cost fluctuation
  - market structure for supply of ships AND port capacity

# 16. But are rates dictated by supply of ships?

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**Change from end 2006 to end 2007**

**Panamax charter rates + 36%**

- but unallocated container ship capacity grew 57K to 293K TEU (now 409K)

**Freight rates net of bunker costs (our estimates)**

- + 18% Asia – Europe
- 10% Asia – N.America

Explanation more likely to lie in **supply of very large vessels, bunker costs and port capacity**

- note 12% increase in revenue/TEU '06 to '07 (see in DPW results)
- credit crunch threat to building new ships

# 17. Rates: larger and more efficient ships

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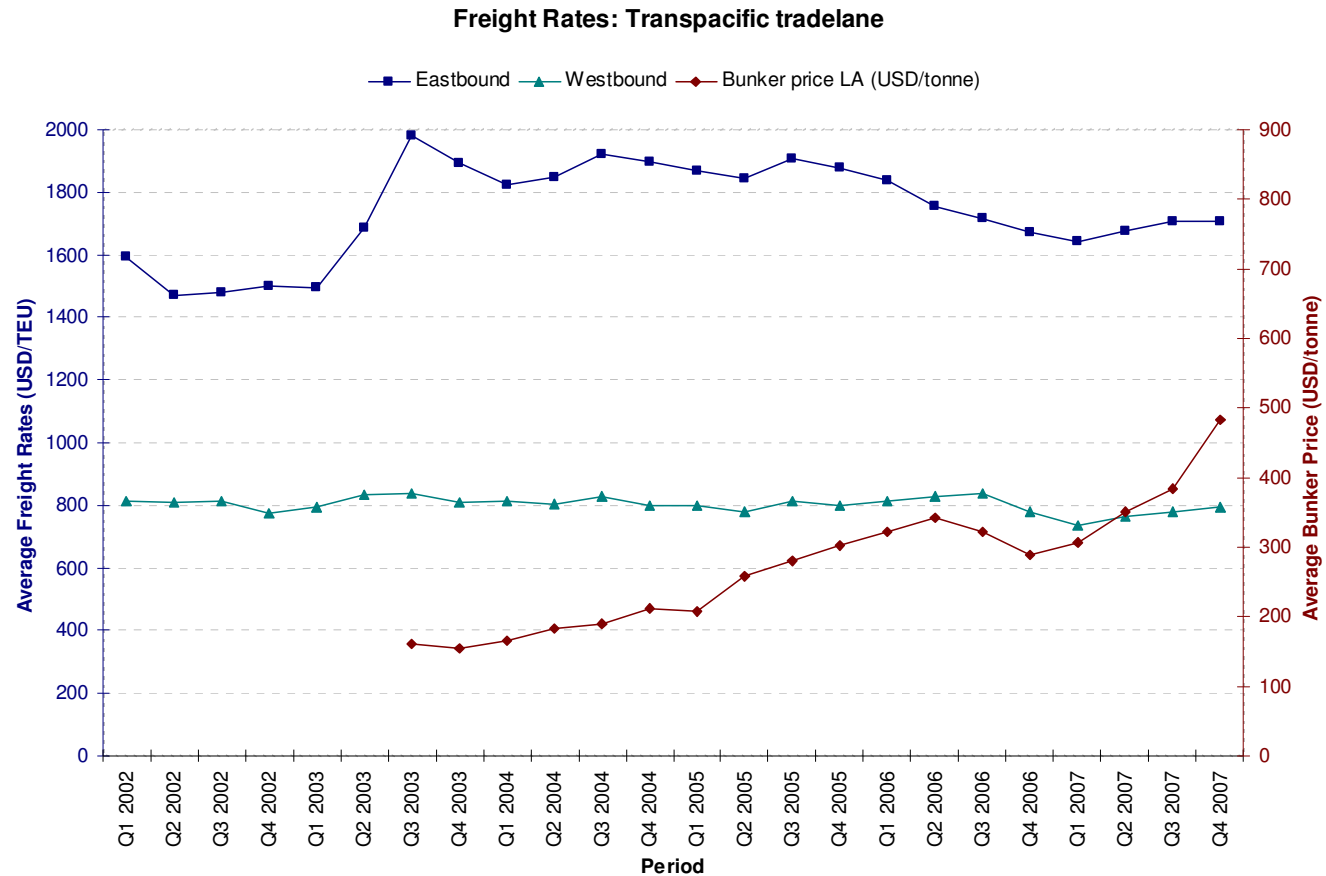
- New larger ships reduce bunker costs

\$m per annum

	Charter	Port	Bunkers	Total
2.5 x 4000 TEU	32	5	36	73
1.0 x 10000 TEU	20	3	24	47
Saving	12	2	12	26

- in direct competition worth (daily charter) of 4000 TEU ship reduced from \$35,000 to \$7,000 per day to match larger vessels' operating costs per TEU
- this rate less than operating cost
- Rates on major routes will therefore be informed by supply of large ships
- Already evident through falling real freight rates

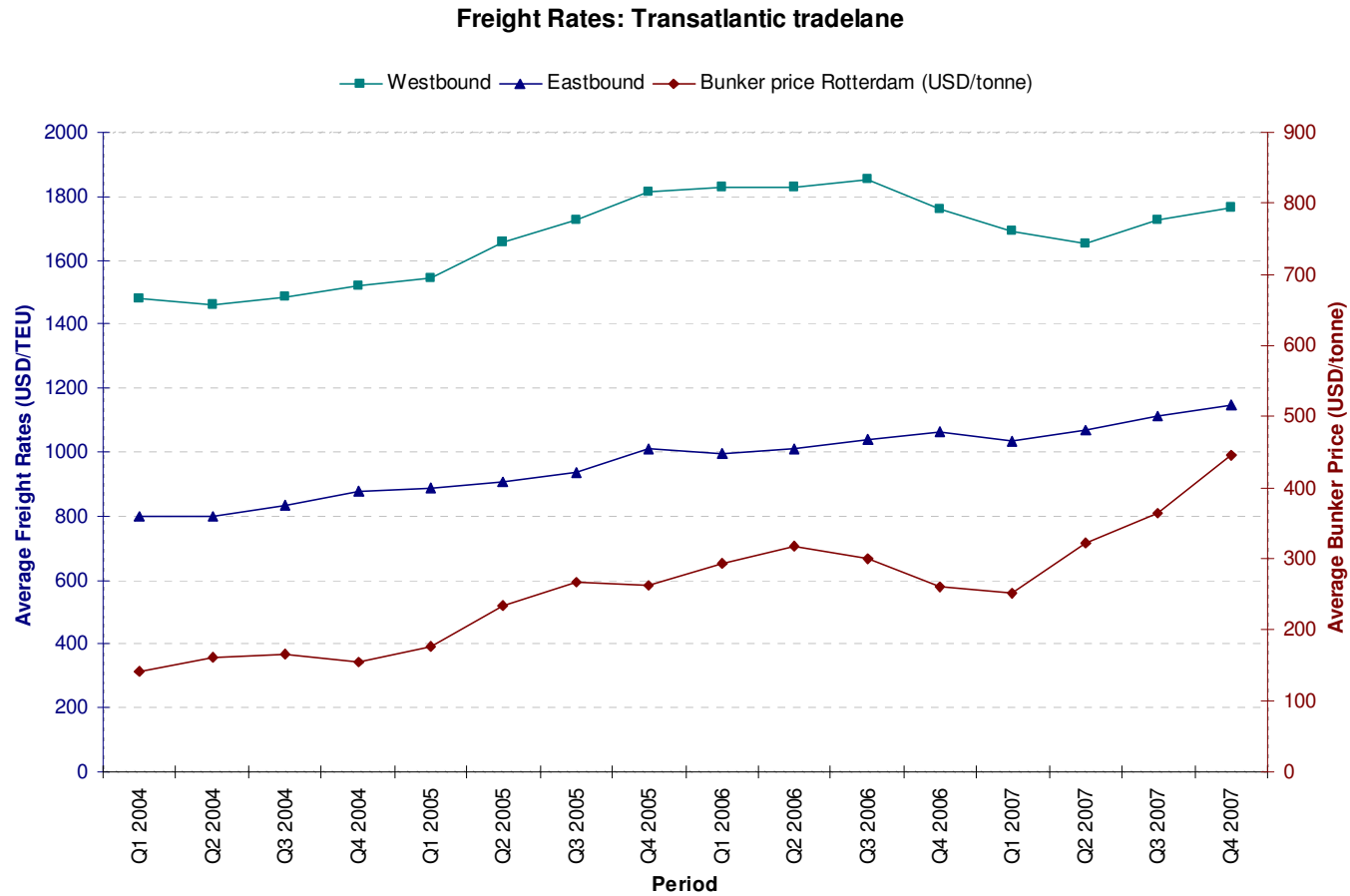
# 18. Freight Rates: Transpacific tradelane



The freight rates shown are all-in, ie including CAFs and BAFs etc, plus THCs where gate/gate rates have been agreed, and inland haulage where CY/CY rates have been agreed. All rates are average rates of all commodities carried by major ocean carriers.

Source: CI Freight Rate Indicators (selection of about ten ocean carriers)  
Cockett Marine Oil

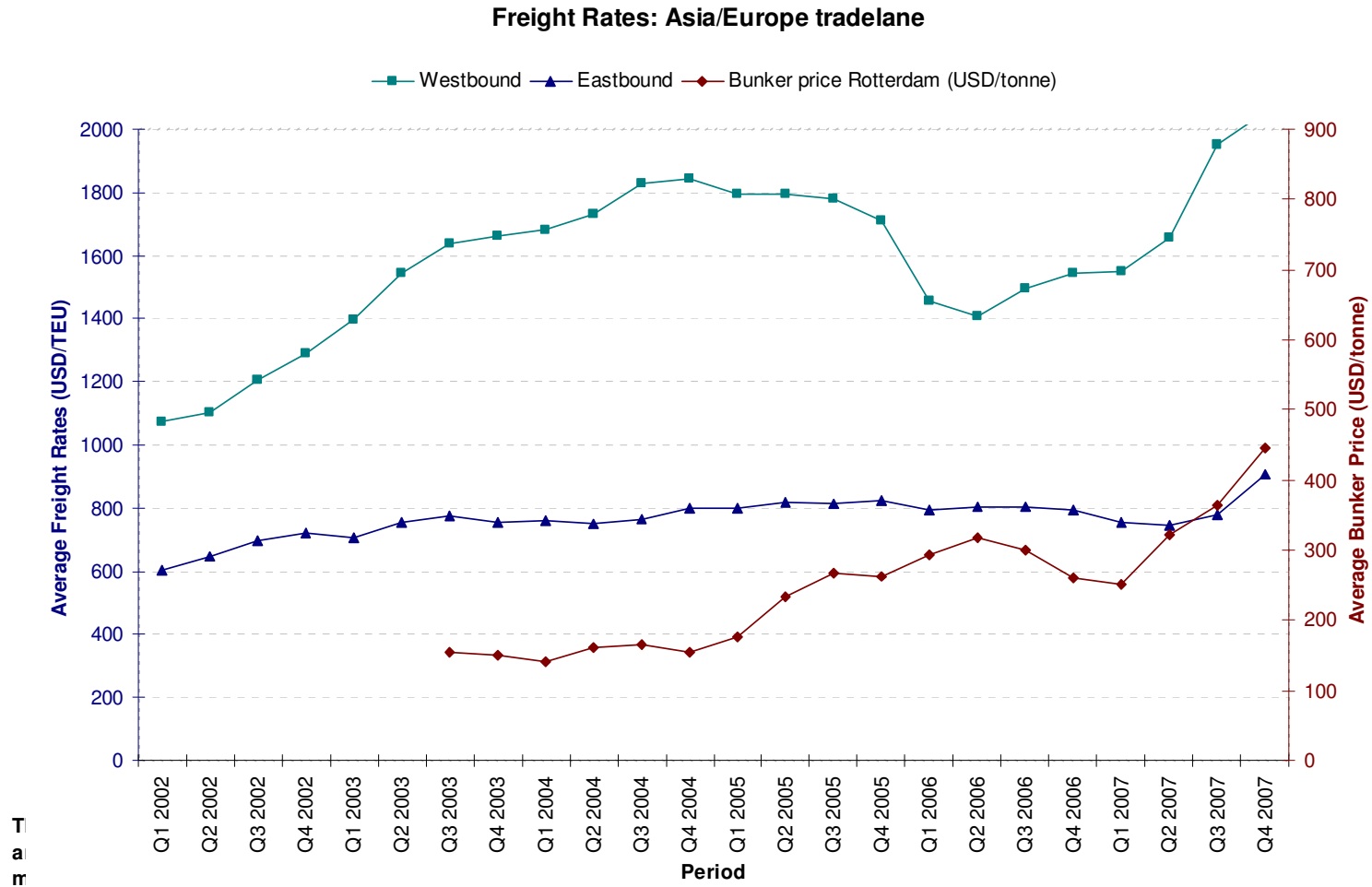
# 19. Freight Rates: Transatlantic tradelane



major ocean carriers.

Source: CI Freight Rate Indicators (selection of about ten ocean carriers)  
Cockett Marine Oil

# 20. Freight Rates: Asia/Europe tradelane



Source: CI Freight Rate Indicators (selection of about ten ocean carriers)  
Cockett Marine Oil

## 21. Rate structure analysis, ex Far East: N. America and Europe

<b>Far East – N.America, per ship p.a.</b>	<b>2003</b>	<b>2006</b>	<b>2007</b>
Ship size growing	<b>4000 teu</b>	<b>5000 teu</b>	
<b>Rate per TEU (2 way weighted) \$</b>	<b>1531</b>	<b>1373</b>	<b>1403</b>
<b>Cost/ship p.a. (6 ships/string)</b>			
Charter (bare boat) \$m	8.5	7.4	11.1
Operating \$m	2.7	3.1	3.2
Port entry \$m	1.8	2.3	2.4
Bunkers (8RT//ship/annum) \$m	4.6	10.0	16.7
Annual ship cost	17.6	22.8	33.4
Annual revenue per ship	58.8	65.9	67.3
Feederling, equipment hire and handling	\$530	\$580	\$600
<b>Margin for inland &amp; overheads/TEU</b>	<b>\$544</b>	<b>\$317</b>	<b>\$108</b>
<b>Far East – Europe, cost/ship p.a.</b>	<b>5300 teu</b>	<b>6600 teu</b>	
<b>Rate per TEU (2 way weighted) \$</b>	<b>1299</b>	<b>1244</b>	<b>1594</b>
Margin for inland & overheads/TEU	\$347	\$214	\$293
End year daily charter rate for 3500 TEU vessel	\$28650	\$23500	\$32700

## 22. Rate structure analysis: lessons

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- Bareboat costs/TEU only 15% of freight rate (bunkers 23%)
  - fluctuation in rates not a function of supply of vessels
  - in 2007, charter rates rose and rates fell!
- Clear evidence of global ability to expand fleet to meet medium term demand
  - supply/demand for all ship capacity not principal determinate
  - main longer term determinant will be supply/demand balance for large cost efficient ships
- Deep sea vessel costs account for only half the rate
- Fact rates fall in Pacific, rise via Suez demonstrates rate fluctuations result of short run 'mis-deployment' of capacity
- Observation
  - producer country strong interest in providing adequate port loading capacity
  - potential constraint on capacity at discharging ports in the west
- Implication
  - long term rates may reflect some leverage through port capacity constraints in receiving countries (note recent improvement in DPW profits)
  - port container assets reflected in high prices for port terminals paid in 2006 & 2007
- Margins falling over time as market becomes more competitive – and the end of conferences

## 23. Lessons to learn

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- Forecasting should be by commodity AND industrial sector because
  - trades react differently
  - level of market penetration (and scope for growth) varies by commodity
- Demand likely to grow by 6-7% p.a. in medium term (+ any conversions from bulk sector) – growth will continue to reflect long term decisions on industrial location and investments
- Mitigating against rate instability depends upon
  - optimising fleet deployment to use all available ships to minimise energy costs
  - monitoring demand conditions more carefully
  - maintaining fleet deployment flexibility to avoid oversupply by route
  - a consensus view by shippers?
- Long term rates likely to fall in real terms through economies of scale of larger ships and a more competitive framework
  - unless port capacity emerges as the key constraint on growth!