BIMCO 2008 : Speaker : Prof. Dr. Manfred Zachcial, Institute of Shipping Economics and Logistics (ISL), Bremen

Topic: New Buildings, Market Trends and Development

Content

1. **World Economy, Trade and Shipping**
2. **Container Shipping Markets**
3. **Tanker Markets**
4. **Dry Bulk Markets**

1. World Economy, Trade and Shipping

World transport and shipping are a derived demand of world economic development. After a phase of moderate growth during the late 90ies and early 2000, world economy accelerated since 2003 especially based upon the China boom that has been continued until today. It may be expected that the world economic growth rate of about 4.7 % in 2007 will slightly slow down but will remain on a quite high level of around 4.3 % in 2008 and the next years to come.

This means that world shipping as a whole with an elasticity of demand related to world output of at least 1.0 will also grow with an annual rate of about 4.5 %, weighted over all commodity groups and loading categories. There is no doubt that container shipping will show comparably highest growth rates during the next decade, reaching up to 12 % annual growth rates in the short and medium run and then somewhat smaller rates in the long run.

The demand for oil shipments by sea will probably continue to increase by a moderate growth rate of about 3 % p.a. Somewhat higher might be the growth in the dry bulk sector, but definitely not more than 5 % p.a. Leading forces of the strong expansion of imports from worldwide destinations, trade and shipping will remain China, more and more accompanied by India and several other emerging countries.

The main shipping markets being containers, oil, and dry bulk show quite different origin/destination relationships. Large shipments of coal and iron ore are generated in Australia, Brazil, South Africa and are destined mainly for China and India. Also former coal exporting countries are ready to import more and more definitely cheaper coal over long distances mainly from Australia, Indonesia and the United States.

New industrial concepts in several oil producing countries such as Saudi Arabia, the United Arabian Emirates, Iran, Venezuela, and maybe Russia will be in favour of exporting more mineral oil products and petrochemicals instead of crude oil in order to increase the value added of their resources.

Before going into individual shipping markets it seems to be meaningful to give a brief overview on the whole world shipping market. According to our estimates being in line with other leading market observers such as Global Insight, Drewry, Ocean Shipping, and Clarkson total shipments in 2007 will be about 8.1 billion tons. Given an average distance of about 5,000 km per ton, this leads to a transport performance of more than 40,000 billion ton-kilometres.

Assuming a future growth rate of at least 4 % p.a. over all loading categories during the next decade, there would be a total of up to 13 billion tons or 70.000 billion ton-kilometers. This growth will heavily be contributed by shipments of containers, but also by dry bulk and to a lower extend by liquid cargo.

Fig. 1-1 : World Seaborne Trade by Main Loading Categories (2007: 8.1 Billion Tons)

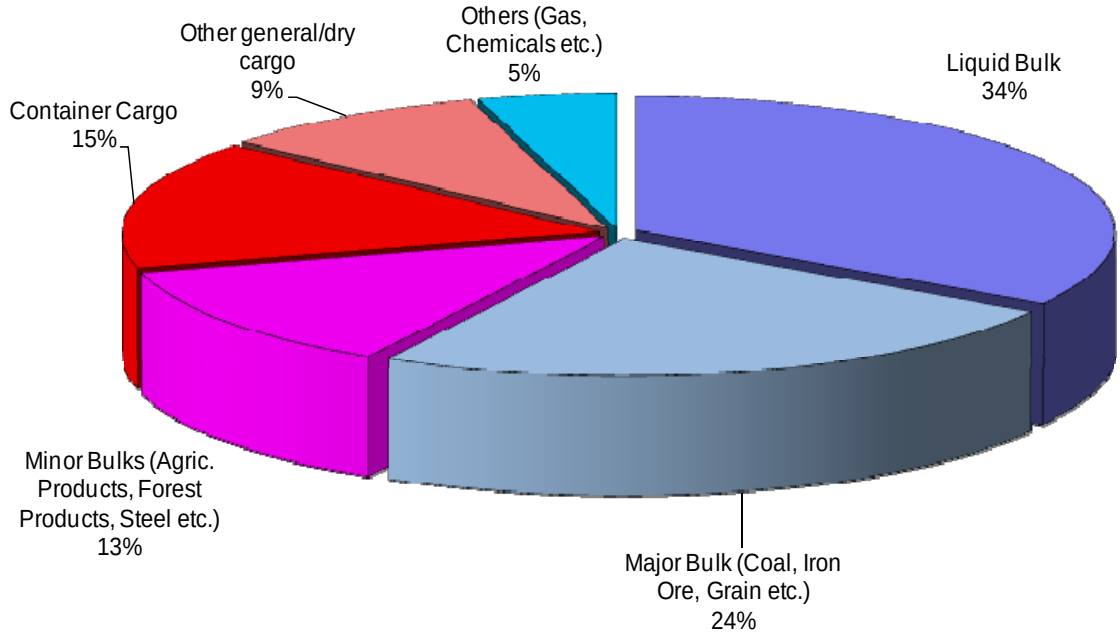
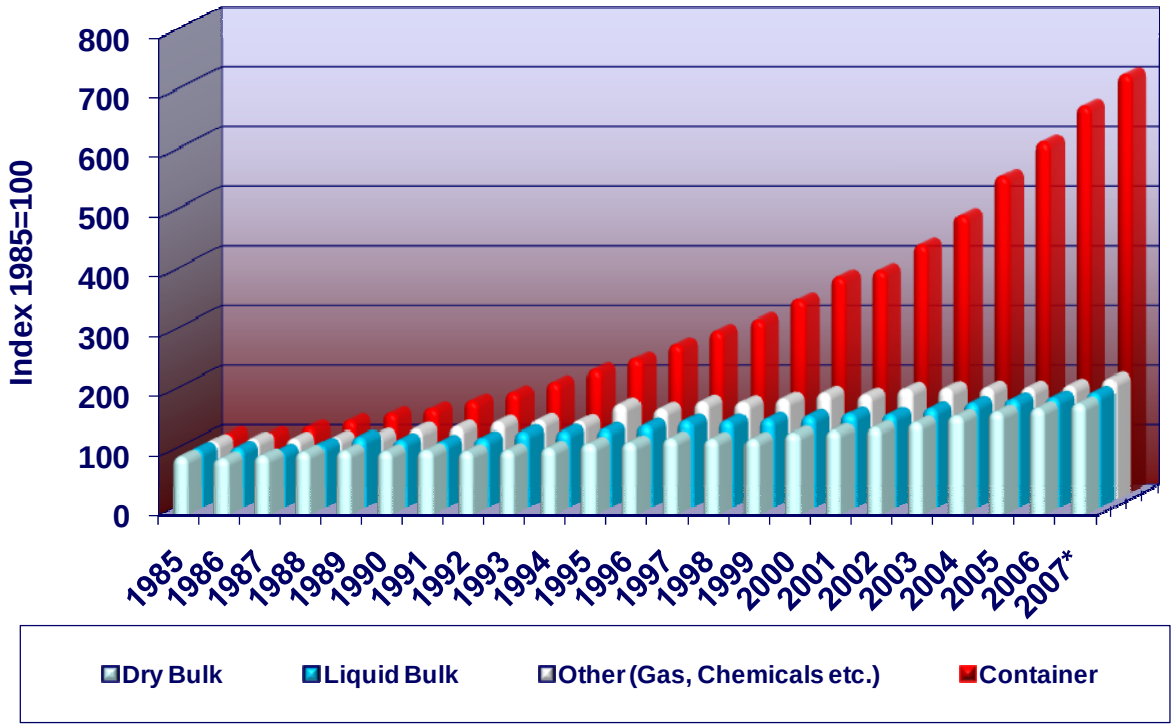


Fig. 1-2 : Growth Trends in Shipping by Major Loading Categories



2. Container Shipping

2.1. Demand

The world container shipping markets are the most dynamic ones with an average annual growth rate of about 10 % p.a. during the period 1985 to 2007. Most recent growth rates since 2004 are even higher and may have reached about 12 % per year.

The throughput in world container terminals amounted to 484 million TEU in 2007 and will probably reach 532 million TEU in 2008. The growth in container shipping will be mainly generated from Far East/China and South Asia. According to our forecasts – similar to those of other market analysts such as Drewry, Ocean Shipping Consultants, and Clarkson – there is no doubt that the 1 billion TEU limit of throughput worldwide will be overcome during the period 2015 – 2020.

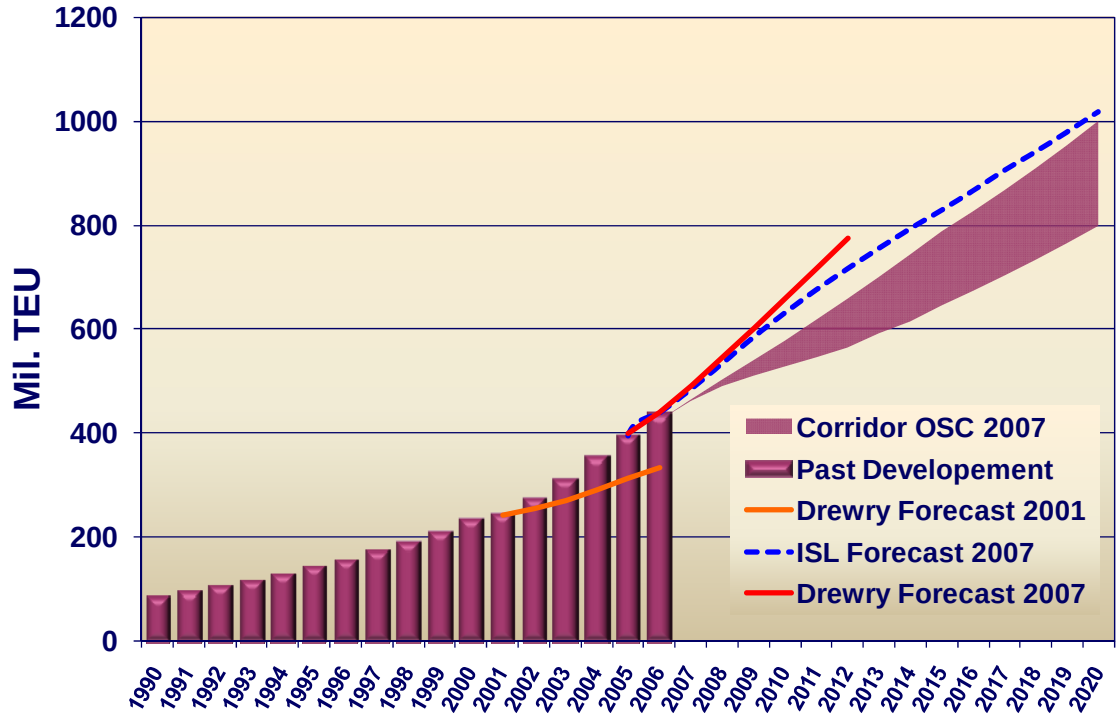
Fig. 2-1 : TOP 20 World Container Ports

Rank 2007	Port	2007*	2006	2005	Growth 2006-2007	Growth 2005-2006
			1,000 TEU			
1	Singapore	27,935	24,764	23,192	12.8%	6.8%
2	Shanghai	26,109	21,864	18,084	19.4%	20.9%
3	Hong Kong	23,995	23,405	22,602	2.5%	3.6%
4	Shenzen	20,889	18,468	15,898	13.1%	16.2%
5	Pusan	13,259	12,021	11,663	10.3%	3.1%
6	Rotterdam	10,791	9,638	9,287	12.0%	3.8%
7	Dubai	10,697	8,783	7,619	21.8%	15.3%
8	Kaohsiung	10,257	9,764	9,471	5.0%	3.1%
9	Hamburg	9,890	8,863	8,088	11.6%	9.6%
10	Qingdao	9,469	7,732	6,307	22.5%	22.6%
11	Ningbo	9,336	7,143	5,181	30.7%	37.9%
12	Guangzhou	9,177	6,553	4,603	40.0%	42.4%
13	Los Angeles	8,355	8,462	7,485	-1.3%	13.1%
14	Antwerpen	8,269	7,035	6,464	17.5%	8.8%
15	Long Beach	7,313	7,332	6,710	-0.3%	9.3%
16	Tianjin	7,072	5,847	4,802	20.9%	21.8%
17	Port Klang	7,130	6,326	5,544	12.7%	14.1%
18	Tanjung Pelepas	5,500	4,770	4,169	15.3%	14.4%
19	New York / New Jersey	5,520	5,128	4,762	7.6%	7.7%
20	Bremen/Bremerhaven	4,932	4,450	3,736	10.9%	19.1%
Total Top 20		235,895	208,348	185,664	13.2%	12.2%

* partly preliminary estimates

Sources: Ports, ISL Port Database 2008

Fig. 2-2 : Synopsis of Recent Forecasts of World Container Port Throughput up-to 2020



2.2 Supply

Fig. 2-3 shows the present world container fleet as at April, 1 2008 as well as the world container order book. The present fleet amounts to nearly 4,400 vessels with a total capacity of 11.5 million TEU. So far the majority of ships belongs to the size classes of 1,000 to 2,000 TEU. As a tendency, larger ships are going to be built. However, all size classes will have their specific markets being dependent on the demand side and the logistic systems. Very large carriers in direct trades will require more and more flexible feeder vessels such as in the North Range of Europe in order to serve the Baltic Sea and Russia, but also Great Britain/Ireland, France, Spain and Portugal.

A look on the present world order book shows the immense quantity of new large ships on order. Provided data are correct there is a number of about 300 container vessels of more than 8,000 TEU on order. This is equivalent to an annual average growth rate of 13.7 % during the period 2008 – 2011.

One might argue that this will lead to substantial overcapacities assume a growth rate of demand of about 12 % p.a. There are, however, some factors which will help to keep the container shipping markets in balance. These are:

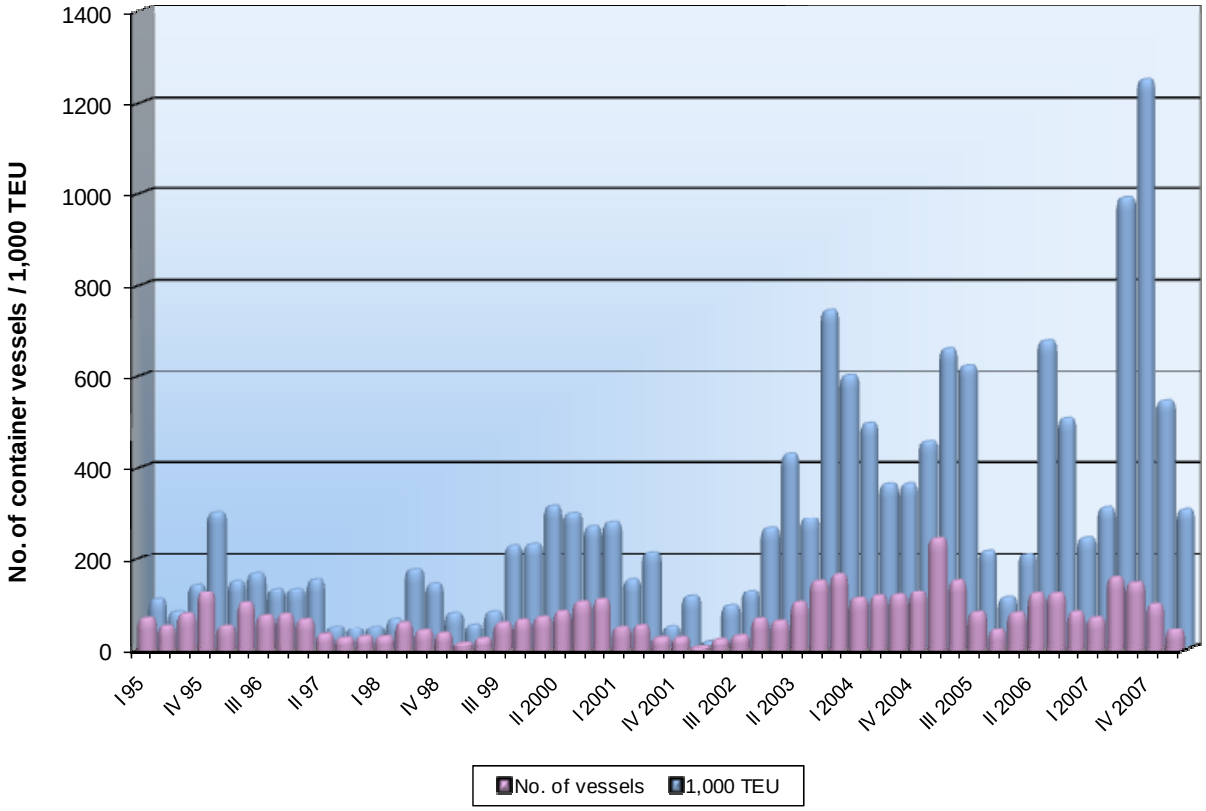
- **longer distances in worldwide shipping of large tonnage;**
- **waiting times at ports especially in China and FarEast;**
- **slow steaming because of very high fuel cost;**
- **beginning scrapping of old (but small) tonnage.**

Fig. 2-3 World Fleet and Order Book of Fully Cellular Container Vessels (April 2008)

	Fleet		Orderbook		Annual Growth until 2011	
Size Class (TEU)	Slots in 1,000 TEU	No. of Vessels	Slots in 1,000 TEU	No. of Vessels	based on slots	based on No. of Vessels
unkown	-	25	-	3	-	3.1%
-499	109	357	4	19	1.1%	1.4%
500 - 999	561	757	135	163	6.4%	5.3%
1000-1499	785	663	246	202	8.0%	7.3%
1500-1999	890	523	230	131	6.6%	6.0%
2000-2499	719	316	45	20	1.8%	1.6%
2500-2999	1052	386	320	121	7.8%	7.4%
3000-3499	612	190	134	41	5.8%	5.3%
3500-3999	524	141	143	40	7.1%	6.9%
4000-4499	1176	279	867	203	16.2%	14.9%
4500-4999	621	131	347	75	12.9%	12.2%
5000-5499	451	88	153	30	8.7%	8.1%
5500-5999	1003	177	144	25	3.6%	3.3%
6000-6499	489	77	133	21	7.1%	6.6%
6500-6999	350	52	418	63	24.6%	23.0%
7000-7999	427	58	81	11	5.1%	4.7%
8000-8999	862	104	931	110	23.3%	21.2%
9000-9999	372	40	339	36	20.3%	18.7%
10000-10999	30	3	304	30	98.8%	89.5%
11000-11999	-	-	226	20	-	-
>=12000	100	8	1572	122	110.3%	98.7%
Total	**11,132.7**	**4,375**	**6,773.4**	**1,486**	**13.7%**	**7.8%**

Source: ISL, Lloyd's Register/Fairplay, 2008

Fig. 2-4 Development of Newbuilding Orders in the Fully Cellular Market



Source: ISL Newbuilding Contracts, Industry Data, ISL 2008

Fig. 2-4 presents the development of new building orders in the container shipping markets. The graph illustrates the classical ups and downs of the shipping markets, which nowadays show the same intensity as tanker markets today and decades ago. The last cycle 2006/2007 seems to indicate a tendency to overcapacities. Therefore I have warned several times not to overbuild the market in order to safeguard sound and valid freight and charter rates.

2.3. Charter Markets

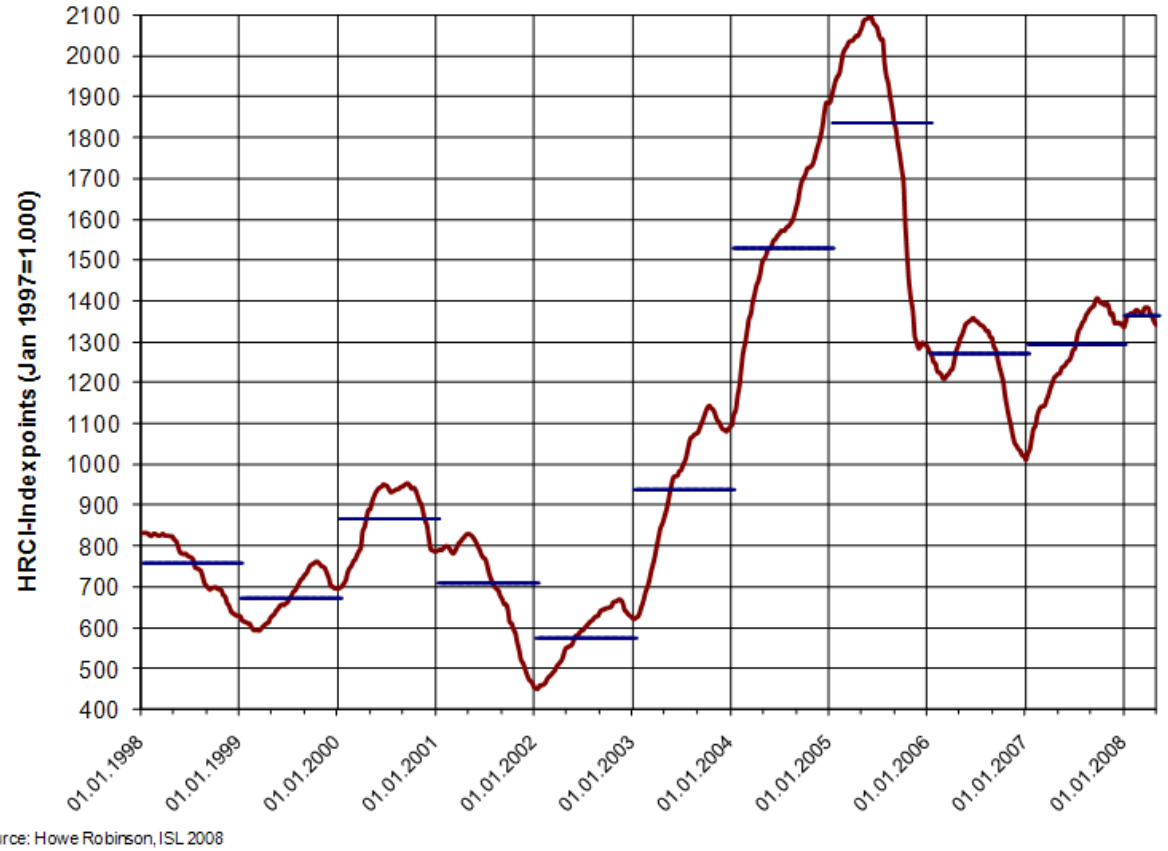
Fig. 2-5 shows the charter rate index in overall container sipping, expressed as Index 1997 = 1,000. After a phase of stagnation between 1998 and 2002, the index accelerated to not expected highs due to the China boom and the overall recovery of world economy. In mid 2005, a historic peak of charters with an index of nearly 2,100 was reached.

After this peak, the charter rate index tuned down to a moderate level of about 1,200 that was expected by experts already several months ago. This

level is very sound and more than sufficient to justify the involvement of capital in the container shipping markets.

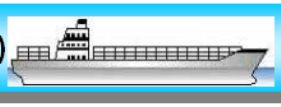
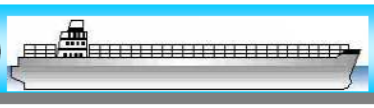
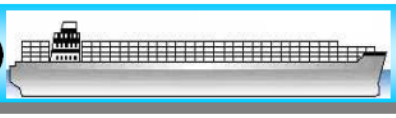
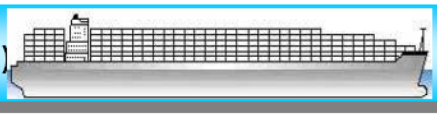
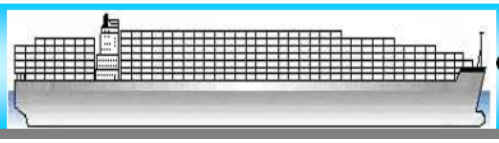
Not seldom one is asked how large container vessels might become. In my opinion, the container carriers with more than 12,000 TEU are now large enough to organise world dry cargo shipping in the best manner at low cost and high quality of logistics. Any considerations on even larger container ships should be compared to the former tanker boom during the mid 70ies. Tankers of 660,000 dwt have then been built, some of them sailed two or three times, others not at all, finally to be scrapped after a life time of not more than two years. Fig. 2-6 shows the impressive growth of container ship sizes from the early 1970ies and today.

Fig. 2-5 Combined Charter Rates



Source: Howe Robinson, ISL 2008

Fig. 2-6 Dimensions of Container Vessels

Generation (Year)	TEU	Length (m)	Beam (m)	Draught (m)
1. (1972) 	to 1,500	225	24.5	9.00
2. (1980) 	to 3,000	275	27.5	10.00
3. (1987) 	to 4,500	300	32.2	11.50
4. (1997) 	to 6,600	320	40.0	14.30
5. (1999) 	ca. 8,300	347	42.6	14.50
6. (2007) 	ca. 13,500	398	56.4	16.00

The combined charter rate index presented before may be differentiated by sizes classes. Without going too much in detail, it may be recognised that in general the individual size classes follow similar non-linear trends of ups and downs. A certain exception is the lowest size class of up to 500 TEU where the medium and long-term trend is quite even and more balanced compared to larger size classes.

In order to illustrate world freight rates in container shipping the market segments of Asia/Europe and vice versa are presented in Fig. 2-7 showing the impact of full or partly empty movements on the rates. The development of new building prices is closely linked to the charter rate development and capacity utilisation of the world ship building industry. Actually, prices are very high, expressed in US $, and reflect the excellent shipping scene as shown in Fig. 2-8.

Fig. 2-7 : Container Rates Freight 1994 – 2007

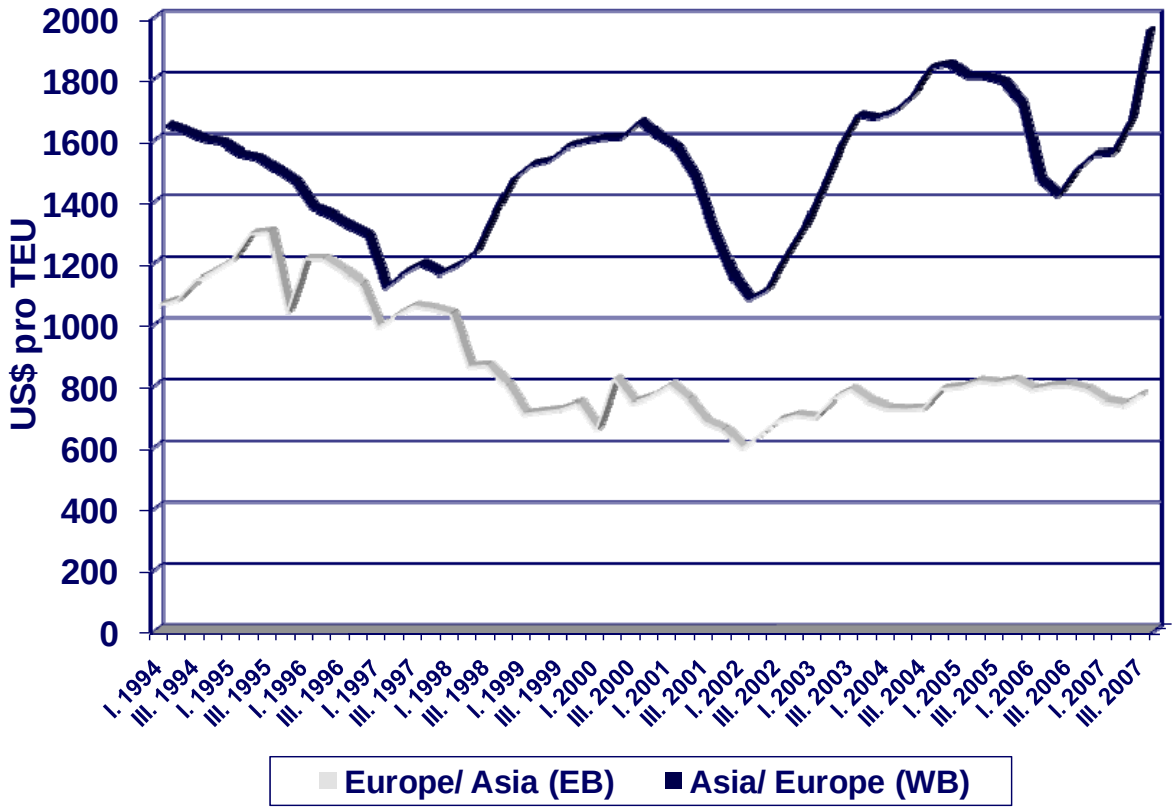
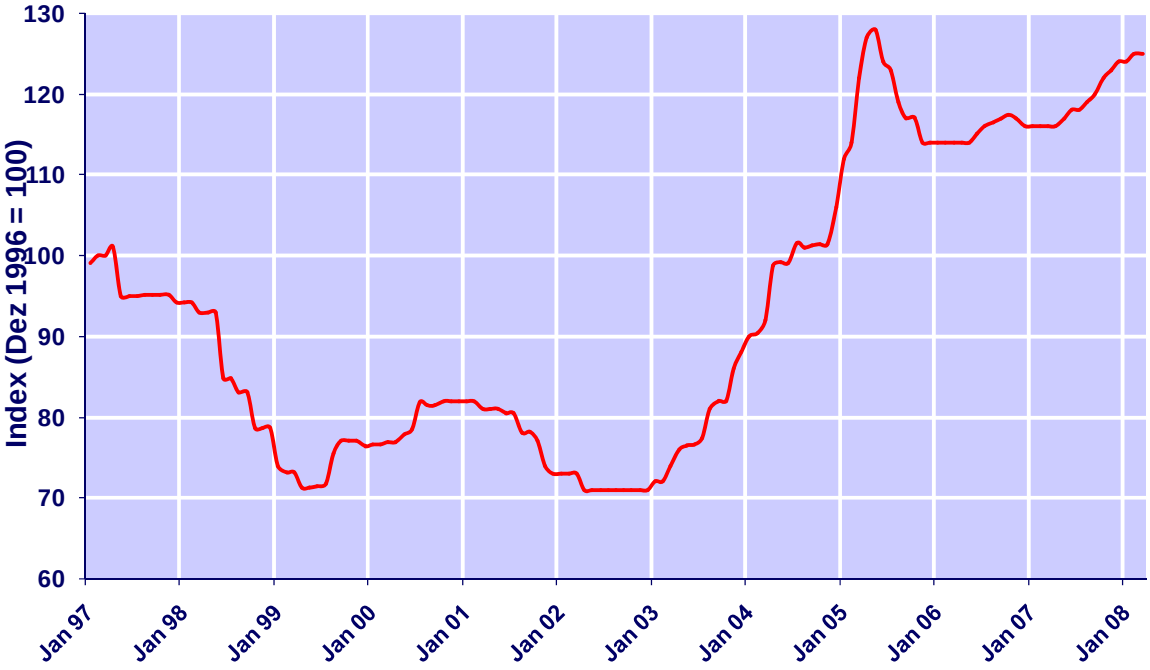


Fig. 2 –8 : Index of New Building Prices of Container Vessels



2.4 Summary

A summary of the most important topics discussed before is presented in the following.

- **Moderate Reduction of Real Growth of World Economy and World Trade, but yet very high in 2008 – 2011**
- **Growth in Container Shipping will remain high with more than 10% -12% p.a.**
- **Very strong growth especially in the upper size classes of 8,000 Ton and beyond (up to 12,000 TEU plus) with a tendence to larger ships within nearly size classes including Feeder shipping.**
- **So far under – average order activities within the feeder markets (<2000 TEU) and in smaller direct trades (up to 3,000 TEU)**
- **With respect to the entire container markets it may be expected that the very strong growth of large-scale container tonnage will be absorbed by some factors, such as beginning scrappage, slow steaming waiting time in- and outside ports (especially in China and Far East) and longer average travel distances**
- **In general quite stable charter rates with a tendency to somewhat lower ones. The markets for new buildings should be observed and interpreted carefully.**

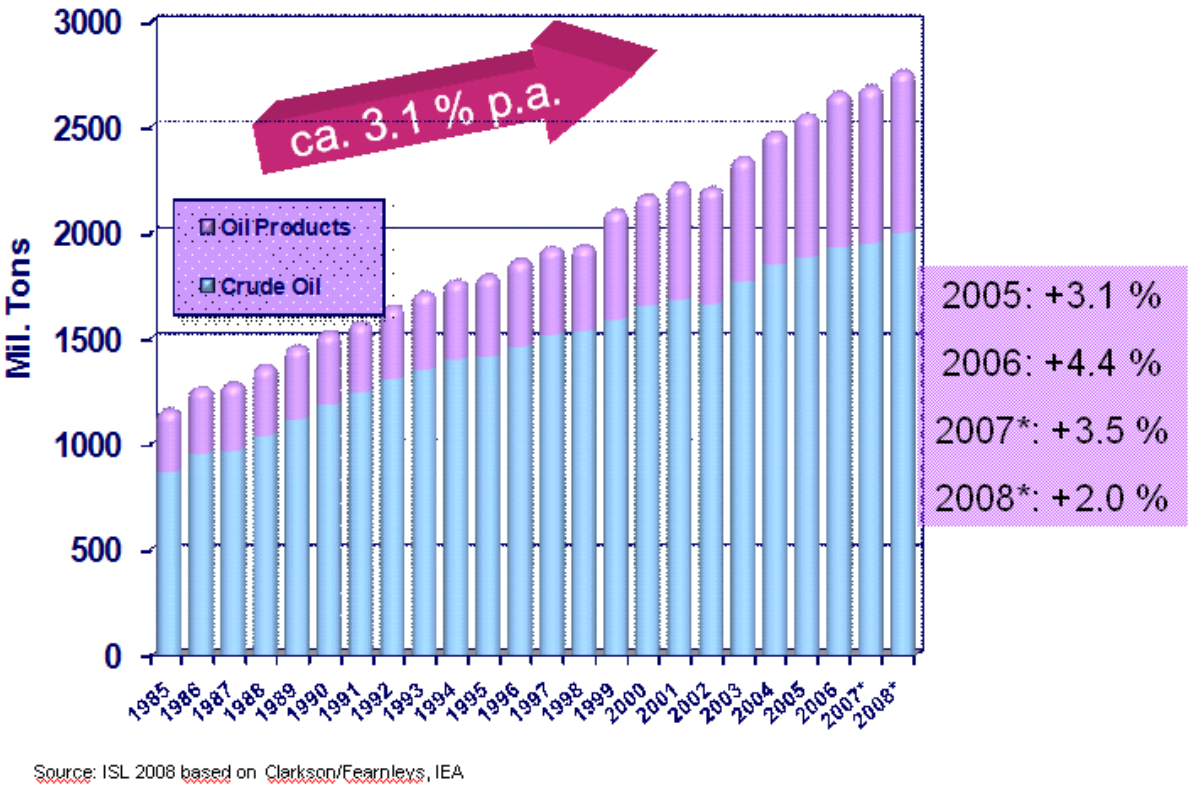
3. Tanker Markets

The future development of world tanker markets is less dependent on the market growth, but more on the replacement requirements of tonnage due to the IMO regulation to replace single-hull vessels by double-hull tankers. This policy which is probably the only one worldwide being followed by all countries is of high benefit to the shipbuilding industry, it requires, however, an enormous amount of money and capital from the shipping and the banking sector.

3.1. Demand

Total world oil consumption in 2007 amounted to about 4.5 billion tons. The recent growth was substantially originated by the China boom, but also other countries such as India and others are candidates for stronger demand for crude oil and mineral oil products. These countries are drivers of oil transport demand since they have only limited amounts of oil from own production, but they need oil imports to cope with their industrial development plans. Thus, they are dependent on long-distance transportation in large carriers.

Fig 3-1 : World Seaborne Trade of Crude Oil and Mineral Oil Products 1985 - 2008



Source: ISL 2008 based on Clarkson/Fearnleys, IEA

Total shipments of liquid fuels amounted to 2.7 billion tons and grew by about 3.1 % annually during the period 1985 to 2008. Compared to a respective growth of world oil consumption of 2.0 % p.a. this means an elasticity of transport demand of about 1.5. The total market is contributed by crude oil (two thirds) and others such as oil products, gas and liquid chemicals.

A very important segment of liquid fuel transport by sea are the movements of chemicals, which reached a level of 160 million tons in 2007. Until 2015 a quantity of up-to 220 million tons will be realised. In addition, gas tankers play an interesting role. Their market share is yet quite small, they will, however, show substantial growth rates in future.

3.2 Supply

The world tanker fleet amounted to about 7,000 vessels with an overall capacity of 443 million dwt, thereof about 65 % crude oil carriers, 16 % product tankers, 10 % oil/chemical tankers and 9 % others such as gas tankers and other specialised vessels. Due to growing demand and especially because of the replacement of single-hull tankers, there has been established a high tanker order book as shown in Fig. 3-2. As at April 1, 2008 the total number of ships on order amounted to 1,714 vessels with an overall capacity of 181 million dwt.

Fig. 3-2 : World Fleet and Orderbook of Oil Product and Chemical Tankers by Size Classes (April 1, 2008)

No. of Vessels Size Class	Fleet	Phase Out to 2015	Order book til 2011 and after	AAGR til end of 2011*
<20.000 tdw	5.031	662	831	2,9%
20-30.000 tdw	233	127	62	-9,0%
30.-40.000 tdw	473	100	104	2,1%
40.-50.000 tdw	733	85	312	9,3%
50-60.000 tdw	125	24	217	30,2%
60-70.000 tdw	100	32	9	-4,8%
70-80.000 tdw	164	3	92	13,5%
>=80.000 tdw	146	14	87	14,2%
Total	7.005	1.047	1.714	8,2%

Calculated based on tdw. Assumption: Scrapping of complete Phase-Out Tonnage without prolongation of use with CAS.

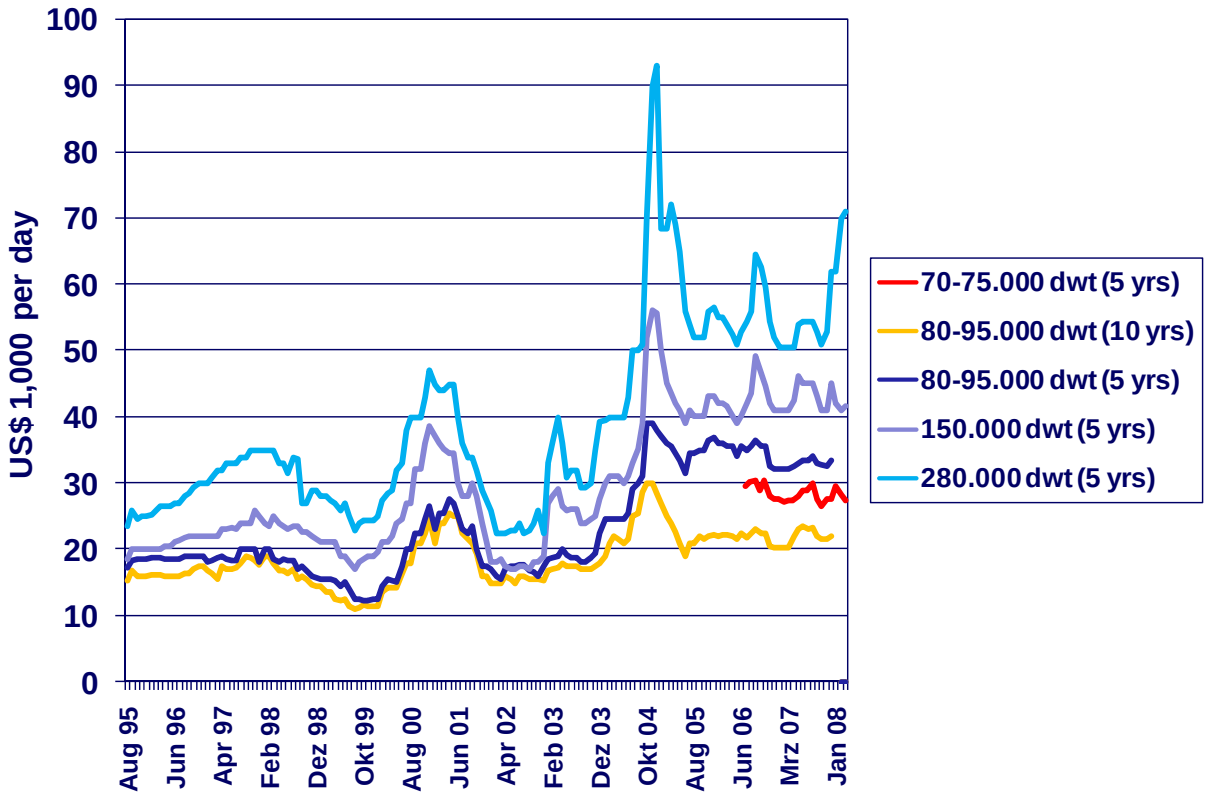
Source: ISL based on LR/Fairlplay

3.3. Charter Markets

Fig. 3-3 shows the development of the charter rates in the various ship sizes. After a phase of very low rates until 1999/2000, there was a first peak in 2001 with a jump of charter rates up to US $ 47,000 per day for a 280,000 dwt tanker, followed by a bottom of only US $ 23,000 in 2002 as consequence of the terror attacks in September 2001.

A surprisingly extreme peak was reaches in late 2004 with top charters of US $ 92,000 for 280,000 dwt tankers. At the beginning of 2008 the respective rate amounted to about US $ 70,000 per day. The rates for other size classes follow these ups and downs and proof the so-called cascade effect.

Fig. 3-3 : One-Year-Time Charter Rates for Crude Oil Tankers of 70,000 – 280,000 dwt



3.4. Summary

- **Medium- to long-term growth of about 2 to 3 % (at present 4 % p.a.)**
- **Transport of mineral oil products with over-average growth compared to crude oil shipments**
- **Relatively close markets with strong reactions on external impacts in the spot markets**
- **At present high charter rates, especially in the product tanker markets**
- **High order book and strong fleet growth 2008/2009**
- **However, phasing out of single-hull tankers balancing out possible overcapacities to a certain extent**
- **Slight pressure on charter and freight markets expected in 2008/o9, but yet high rates, different in various size classes**

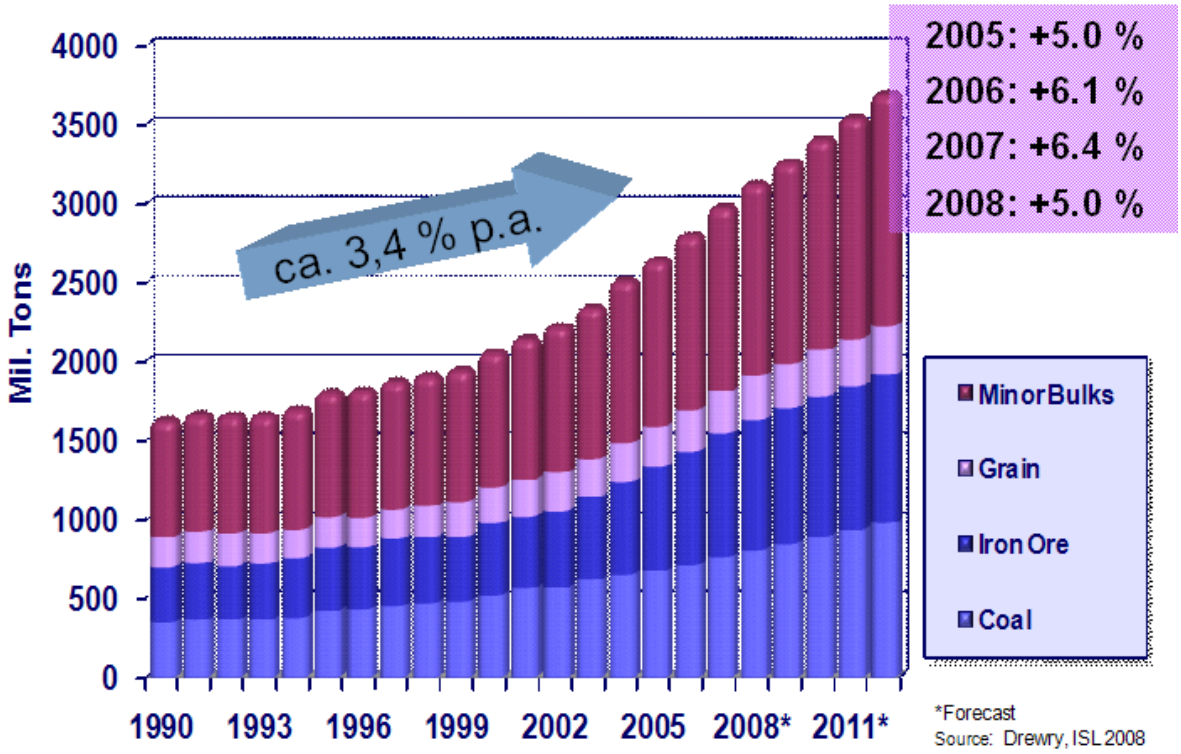
4. Dry Bulk Markets

4.1. Demand

Total dry bulk shipments amounted to about

As presented by R.S. Platou Economic Research (The Dry Bulk Market …. 2008), preliminary figures indicate around 7 % increase in seaborne transportation of dry bulk commodities in 2007. According to their estimates, the increase of average sailing distances, port congestion and technical off hire all increased substantially resulting in some 13 % increase in real tonnage demand.

Fig. 4-1 : World Seaborne Trade of Dry Bulk 1990 - 2012



The growth in dry bulk shipment was heavily driven by the rise of world steel production by 7.5 % in 2007 compared to the year before. This resulted in another record level of iron ore transport by sea with a growth rate of 10 % in 2007 (more than 70 million tons, thereof 85 % accounted for by China.

Coal shipments grew by 7 % with steam coal by 8 % and coking coal by 6 % with strongest growth in demand from China and India, but also other Fareast countries raised their imports.

4.2. Supply

Total capacity of the world bulk fleet of around 7,150 vessels as at April 1, 2008 amounted to 392 million dwt. Compared to total shipments of dry bulk of billion tons this means that a on average one ton capacity of bulkers was used about 7 times. All size categories of the fleet were adequately involved in the various trades, i.e. large carriers in coal, iron ore and grain shipping, medium-sized bulkers in bauxite and phosphate rock trades as well as in the shipment of coal etc. over medium distances.

The very important fleet of handy and handy-max carriers is engaged in the transport of several minor bulks such as agricultural products, forest products, steel products, fertilizers, salt, sugar, etc. Moreover, there is a intensive shipping scene with relatively small bulkers and multipurpose vessels which are busy in the transport of smaller quantities.

Fig. 4-2 : Bulk Fleet and Order book by Size classes (April 1st, 2008)

No. of Vessels / Size Class	Fleet	Order Book	25 years and above	Plausible AAGR til end 2011*
<30.000 tdw	2.550	267	1.066	-1,8%
30-60.000 tdw	2.306	1.338	472	11,6%
60-70.000 tdw	459	26	182	-3,7%
70-85.000 tdw	963	398	56	8,9%
85-120.000 tdw	102	254	10	37,9%
120-150.000 tdw	145	0	49	-4,4%
>150.000 tdw	632	620	15	19,5%
Total	7.157	2.903	1.850	11,8%

Assumption: Srapping of 50% of all tonnage built 1982 or earlier
Source: ISL 2008 based on LR/Fairplay

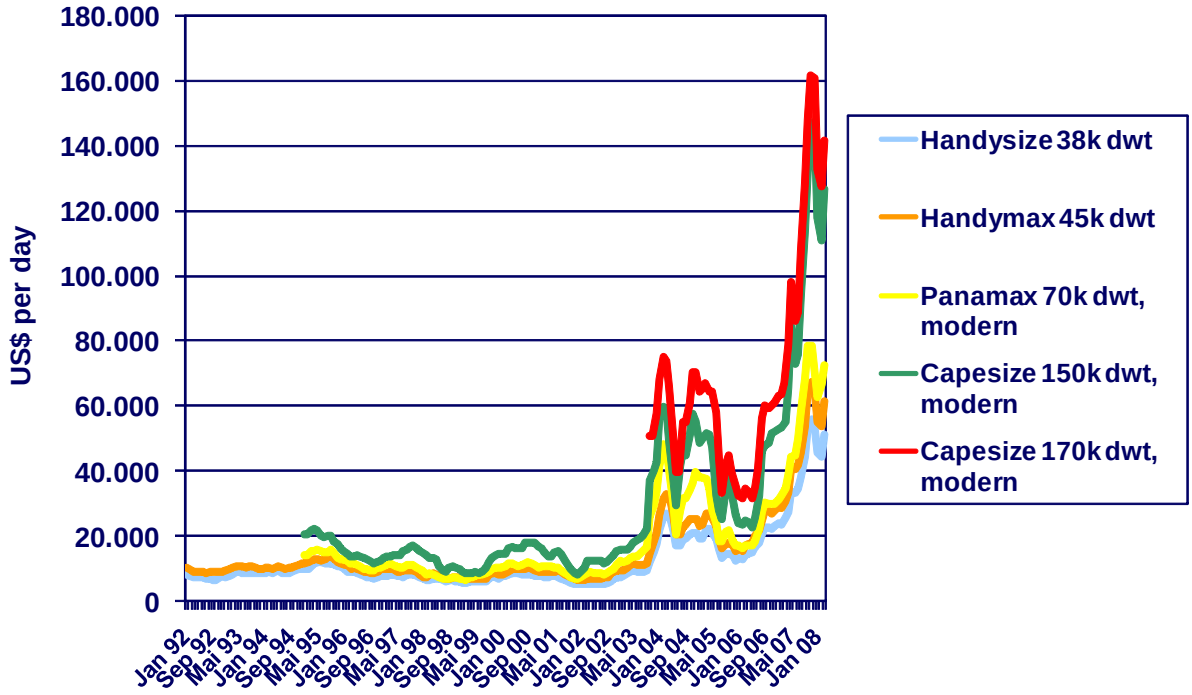
The world order book of bulk carriers amounted to 252 million dwt as at April, 1 of 2008. This is a very high volume compared to the existing fleet. With respect to the tonnage, the most important and at the same time alarming fleet segment is that of vessels with more than 150,000 dwt and an order book of about 124 million dwt. It may be suggestedthat several of these orders might be cancelled if the freight and charter rates would slow down and the demand would grow slowlier compared to the present robust markets.

4.3. Charter Markets

Because of the extreme demand of China for bulk commodities, especially coal and iron ore, the charter rates in the dry bulk markets reached unexpected highs in all size classes. The absolute peak was realised in 2007

with a rate of more than US $ 160,000 per day for a modern capesize vessel of 170,000 dwt. In the meantime, the rates have weakened, but are yet very high. Any forecast of further rate development is very difficult. However, there is no doubt, that the charter rates will slow down during the next two years since there will be a high pressure from the present order book and the expected fleet growth despite some scrapping of very old bulk tonnage.

Fig. 4-3 : One-Year-Time Charter Rates of Bulkers by Size Classes



4.4. Summary

- **Strong growth of demand 2003 – 2007 (6 % p.a.)**
- **Slight cooling-down to 5 % in 2008 and later**
- **Binding of fleets due to over-demand such as waiting times, longer distances, and partly scrapping**
- **Very high order book and large number of large carriers on order, especially since 2009**
- **At present very high rates with some variations by ship size and type**
- **In the near future rates weaker with fluctuations on a high level, latest since 2009 clearly lower rates to be expected**