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**FIFTH REPORT FROM THE COMMISSION
TO THE COUNCIL**

ON THE SITUATION IN WORLD SHIPBUILDING

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EXECUTIVE SUMMARY

Article 12 of Council Regulation (EC) No 1540/98 of 29 June 1998 establishing new rules on aid to shipbuilding¹ requires the Commission to present to the Council a regular report on the market situation and assess whether European yards are affected by anti-competitive practices. Accordingly, the Commission has presented to the Council four previous reports on the situation in world shipbuilding², outlining the serious difficulties the shipbuilding sector is facing and providing detailed information on the unfair commercial practices of Far East competitors. This fifth report is in continuity with the approach and the findings of the first four reports.

The world shipbuilding market continues to face serious difficulties, due to an imbalance of supply and demand. Past expansion of shipyards, mainly in Korea, but now increasingly also in China³, has led to price depression. Thanks to a historically high level of ordering in 2000, prices recovered to some extent, but the significant drop in orders in 2001 has led to a new reduction in prices.

The year 2001 has been very problematic for the maritime industries world-wide: The recession in the US and the terrorist attacks of 11 September have decreased the demand for sea trade and cruises, respectively. The decline in ordering affected the sectors of containerships and cruiseships most, leading to a drop in overall market share for Korea and the EU which are particularly strong in these segments.

Only the segment of Liquefied Natural Gas carriers (LNG) saw an increase in absolute order volume. However, this is still a niche market. Korean yards took most of the orders for LNG carriers. They hold 65 % of the relevant world orderbook, and 79 % of the new orders placed in 2001 went to Korean yards, despite the fact that Korea is a relative newcomer in the field and the building yards do not hold patents on the key technologies. Market analysis suggests that Korean yards made inroads in this area due to very low offer prices. Their ability to supply a large number of vessels at an early delivery date may have been important in getting a large amount of orders also.

The detailed cost investigations undertaken by the Commission show that certain Korean yards continue to price ships below cost while others are trying to improve their bottom line. Most major Korean yards managed to show a profit for 2001, thanks to the high sales volumes and the related advance payments received, although in some instances, certain one-off measures aimed to improve the yards' financial situation also played a role.

Despite various rounds of talks with Korea, the Commission did not manage to convince Korean authorities and yards to fully implement market principles and allow a shake-out of non-viable companies. An improvement in the market situation is therefore not likely and consequently the Commission has proposed measures to the Council, namely the preparation

¹ OJ L 202 of 18.7.1998, p. 1.

² COM(1999) 474 final of 13.10.1999, COM(2000) 263 final of 3.5.2000, COM(2000) 730 final of 15.11.2000, COM(2001) 219 final of 2.5.2001. These reports are available on internet (in English only): http://europa.eu.int/comm/enterprise/maritime/shipbuilding_market/index.htm.

³ Most of the larger Chinese yards are currently undertaking significant investment projects for new or extended dry docks and for additional crane capacity which will boost their output and productivity (see for example Lloyd's List of 5 and 14 February 2002).

of a request to the WTO for dispute settlement and a Regulation concerning a temporary defensive mechanism to shipbuilding.

The present report confirms the findings from the previous four Commission reports, i.e. that the world shipbuilding market is characterised by a strong imbalance of supply and demand, that over-expansion of shipbuilding capacity in Korea has led to very low offer prices in most market segments and that the resulting losses for Korean yards, in some cases, have been compensated through financial restructuring which, in the view of the Commission, is not in line with applicable WTO rules. The Commission will continue its market monitoring and cost investigations and report its findings to the Council as foreseen in Article 12 of Regulation (EC) No 1540/98.

1. INTRODUCTION

Article 12 of Council Regulation (EC) No 1540/98 of 29 June 1998 establishing new rules on aid to shipbuilding⁴ requires the Commission to present to the Council a regular report on the market situation and assess whether European yards are affected by anti-competitive practices. Accordingly, the Commission has presented to the Council four previous reports on the situation in world shipbuilding⁵, outlining the serious difficulties the shipbuilding sector is facing and providing detailed information on the unfair commercial practices of Far East competitors. This fifth report is in continuity with the approach of the first four reports. Therefore this report should be seen in conjunction with key elements of the earlier reports, in particular regarding

- the longer term supply and demand analysis for merchant ships;
- general remarks on the nature of shipbuilding contracts and on the underlying study work;
- the analysis of the financial sector in South Korea;
- details of certain investigated shipyards;
- the description of the applied methodology;
- the analysis of the shipbuilding industry in the People's Republic of China; and
- the historical background of aid to EU shipyards.

Nevertheless, the information contained in the first four reports is updated in the present report as appropriate, and essential elements are repeated where necessary. This concerns in particular the detailed cost investigations for shipbuilding orders awarded to Asian yards as the underlying cost model is re-run whenever new or better information is obtained. Cost investigations which have been reviewed are marked in the reference table.

This fifth report follows the structure used in the fourth report and updates information on market shares and price developments. Moreover, six new cost investigations for

⁴ OJ L 202 of 18.7.1998, p. 1.

⁵ COM(1999) 474 final of 13.10.1999, COM(2000) 263 final of 3.5.2000, COM(2000) 730 final of 15.11.2000, COM(2001) 219 final of 2.5.2001

specific orders placed in South Korean yards have been undertaken since the last report and the results are presented in this report.

The Commission's shipbuilding reports have been used to support political initiatives with the objective to find solutions to the persistent problems in the sector. Whilst the imbalance of demand and supply in world shipbuilding has been an issue for many years, hard evidence of resulting unfair trading practices has been difficult to provide due to the nature of shipbuilding contracts (see the related chapter in the first report COM(1999) 474 final) and the economic globalisation which is a typical feature of the maritime industries. Traditional trade policy instruments such as custom tariffs and quotas are not applicable here, leaving policy makers with a very limited set of options. Therefore direct or indirect state support has for a long time been the instrument of choice. As the Commission is convinced that state aid is in principle distortive and does not necessarily help the industry to improve its competitiveness, the Commission has pursued a policy aiming at the reduction of state aid in the sector. There is wide consensus in the EU shipbuilding industry that this approach will benefit EU shipbuilding in the long run.

However, these efforts were seriously undermined when the Asian crisis of 1997/1998 allowed shipyards in South Korea to radically lower prices and win significant market shares in important market segments, to the detriment of EU competitors. While in general the competitive advantages from the ensuing Won devaluation had to be recognised, it turned out that the significantly lower newbuilding prices did not recover when the Won started to appreciate again. Furthermore, the costs stemming from the high level of foreign-currency denominated debt of Korean shipbuilders (which were needed in order to finance the massive expansion of Korean yards in the early 90's) appeared not to be included in their cost calculations. The resulting losses led to serious problems in South Korean yards. Nevertheless, all Korean yards (including those which had to seek court protection) continued to produce ships and offer them in the world market at very low prices.

The resulting market distortions became so apparent that the Commission decided to award a study in order to establish basic facts, such as the actual cost base in Korea and the impact of the policies of the Korean Government with regard to shipbuilding. The shipbuilding market monitoring study, now in its third year, has provided a wealth of data on market developments and the underlying industrial policies. The study deals with shipbuilding in the Far East in general, but due to the market developments most activities have focussed on Korean shipbuilding. The shipbuilding market monitoring study underpins this report and the previous four.

Based on the findings provided in the first four Commission reports, the Commission tried, up to May 2001, to engage South Korea in talks with the aim to stabilise the world shipbuilding market through market instruments. These efforts took place on a bi-lateral level and in the OECD. However, despite a number of negotiation rounds, no progress was achieved, as the Korean Government claimed that it had no influence on the shipyards and the financial institutions supporting them, and it was convinced that business was conducted along free market principles.

Based on a complaint by the EU shipbuilding industry under the Trade Barrier Regulation (TBR)⁶ the Commission undertook a detailed investigation of Korean trading practices in shipbuilding. The investigation concluded that “substantial subsidies have been granted to Korean shipyards through both export and domestic programmes which contravene the WTO’s 1994 subsidies agreement”⁷. The investigation also concluded that “there is evidence that the subsidies have caused adverse effects to EU industry within the meaning of the WTO Subsidies Agreement and are, therefore, actionable”⁸.

Consequently the Commission decided to follow a two-pronged approach in order to address the problem⁹. On the one hand it would immediately pursue the matter with the Korean authorities in order to obtain the immediate withdrawal of the subsidies or the removal of the adverse effects. Unless a solution was achieved amicably by 30 June 2001, the Commission would proceed with the initiation of a procedure within the framework of the WTO (which it has not done so far). At the same time the Commission would propose a temporary support mechanism, which would be introduced in parallel with the initiation of the WTO procedure. As several rounds of talks with the Korean Government did not yield any tangible results the proposal for a temporary support mechanism was made and submitted to the Council¹⁰.

The Industry Council of 5 December 2001 did not reach a decision on the Commission proposal and it was decided to continue the discussion during the Spanish Presidency which has expressed its intention to conclude the matter during its tenure. The EU shipbuilding industry in the meantime requested an extension of the investigative period for the TBR investigation, in order to cover the market developments in the period December 2000 to December 2001 as well. The investigation is on-going.

This present fifth shipbuilding report describes the recent developments in the world shipbuilding market as required in Article 12 of Regulation (EC) No 1540/98.

⁶ Council Regulation (EC) No 3286/94 of 22 December 1994 laying down Community procedures in the field of the common commercial policy in order to ensure the exercise of the Community's rights under international trade rules, in particular those established under the auspices of the World Trade Organization, Official Journal L 349, 31.12.1994, p. 0071-0078.

⁷ Press release IP/01/656, 8.5.2001.

⁸ Press Memo 00/176, 8.5.2001.

⁹ Press release IP/01/656, 8.5.2001.

¹⁰ COM(2001) 401 final, 25.7.2001, see also press release IP/01/1078, 25.7.2001. The Commission proposal foresees to authorise contract related aid of up to 14 % for those shiptypes for which it has been demonstrated that the EU shipbuilding industry has suffered considerable injury through unfair Korean trading practices.

2. MARKET ANALYSIS

2.1. Market developments and market shares

The year 2001 was particularly difficult for the world shipbuilding industry. The surge in new orders recorded in 2000, triggered by very low prices and making 2000 a record year in the history of shipbuilding with new orders reaching the level of more than 29 Mio. cgt (compensated gross tonnes), proved to be unsustainable. Total orders were 21 % lower in 2001 compared to 2000 (based on cgt), as market segments reached saturation and even lower offer prices failed to cause additional speculative ordering.

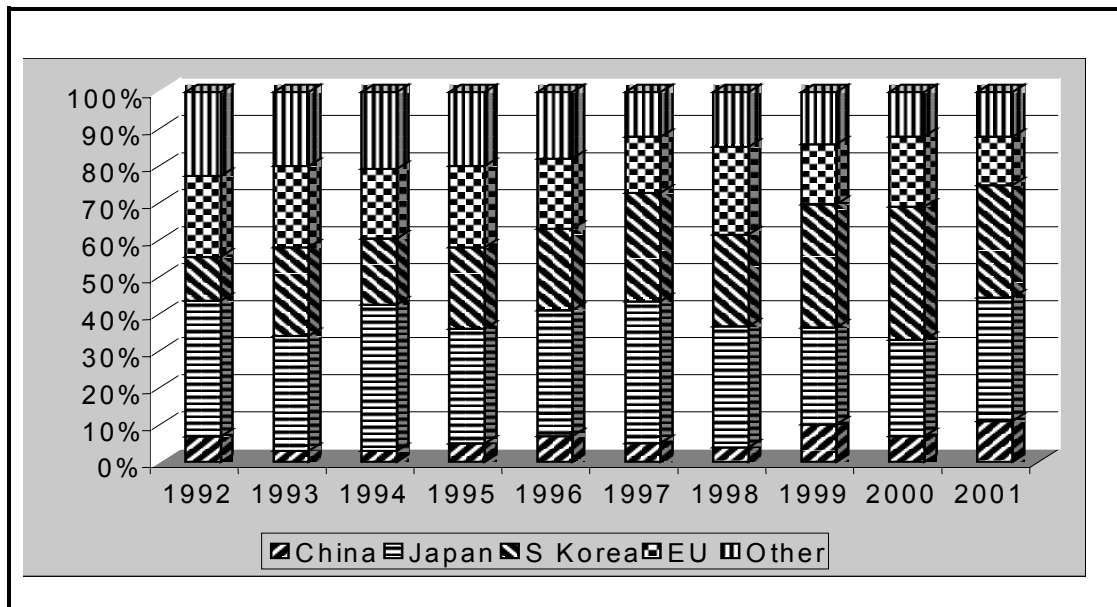
This development was further accelerated by the abolition of operating aid in the EU from 1 January 2001, bringing forward orders to EU yards, the world-wide economic slump, lowering the demand for transport services and thus depressing freight rates and consequently newbuilding demand, and the effects of the terrorist attacks of 11 September 2001.

While the decline in the world's major economies mainly affected the liquid bulk and the container segments, the events of 11 September had a strong impact on the cruise industry which saw three bankruptcies and a significant drop in bookings. Cruise operators then took a reluctant stand and consolidated operations (e.g. by pursuing mergers or departing from certain cruise areas) rather than aiming for further expansion. Consequently almost no orders for cruise ships were recorded in 2001 (the only orders placed concerned some smaller, specialised ships for Antarctic cruises where terrorist threats are considered low and customers in general are less prone to cancellations). On the contrary, some orders for new cruiseships were postponed and options for additional ships were not exercised.

As a result the maritime industries in general are facing a bearish mood. Although many shipyards are still well occupied with the orders placed in 2000 (and earlier), there is an increasing uneasiness about the situation after 2003 when most of the previous orders will have been completed. This concerns in particular those companies which have technical constraints (dock size, design capabilities) and therefore a narrow product focus, which are already highly specialised with regard to shiptypes built, which cannot count on the creation of new demand, e.g. through domestic orders or which are not in the position to develop a naval shipbuilding portfolio as an alternative to merchant shipbuilding. Unfortunately these characteristics apply to the majority of yards in the EU and in the European Economic Area.

The delays in the publication of ordering statistics do not allow to give a final analysis of 2001 yet, but the Commission undertook significant efforts to consolidate available information and develop it into a longer time series. The result is presented in the graph below.

Fig. 1 - Market shares in new orders in percent and based on cgt, all shiptypes, 1992-2001



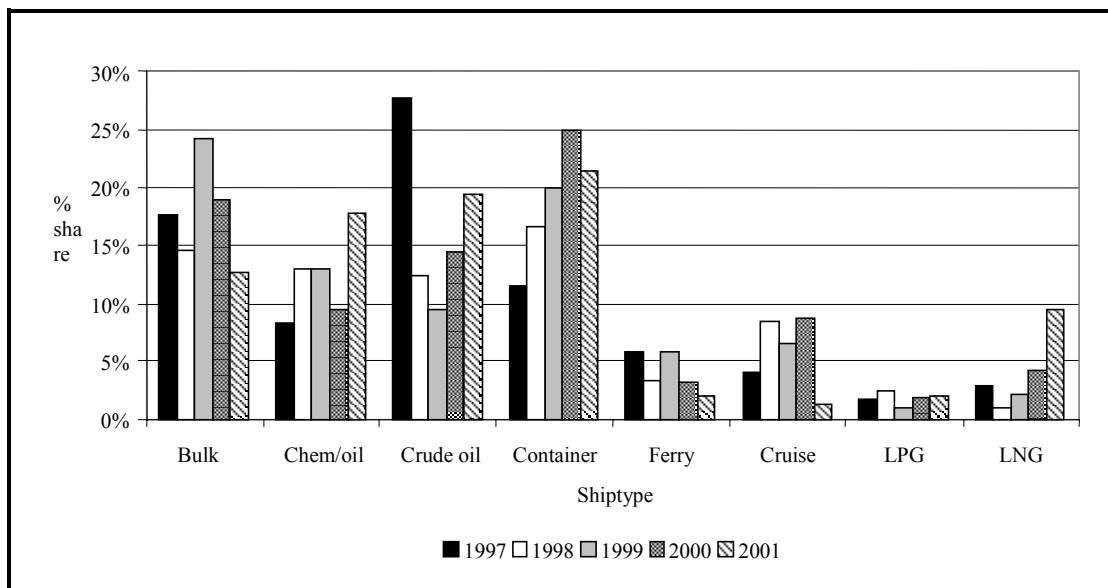
| Year | China | Japan | South Korea | EU | Other |
|------|-------|-------|-------------|------|-------|
| 1992 | 7 % | 37 % | 12 % | 22 % | 23 % |
| 1993 | 3 % | 31 % | 24 % | 22 % | 20 % |
| 1994 | 3 % | 40 % | 18 % | 19 % | 21 % |
| 1995 | 5 % | 31 % | 22 % | 22 % | 20 % |
| 1996 | 7 % | 34 % | 22 % | 19 % | 18 % |
| 1997 | 5 % | 38 % | 29 % | 15 % | 12 % |
| 1998 | 4 % | 33 % | 25 % | 24 % | 15 % |
| 1999 | 10 % | 26 % | 33 % | 16 % | 14 % |
| 2000 | 7 % | 26 % | 36 % | 19 % | 12 % |
| 2001 | 11 % | 33 % | 30 % | 13 % | 12 % |

Source: Lloyd's Register/Fairplay – European Commission

It can be seen that in 2001 South Korea and the EU saw decreasing market shares while Japan and China (PRC) managed to increase their respective shares. This can be explained by the developments described above: Korean yards had very much focussed on the market for tankers and containerships, and EU yards are strong in the construction of cruise ships. All these segments were massively affected by the effects mentioned earlier, and shifts in product focus (South Korean yards turning to the construction of LNG carriers, EU yards expanding their ferry and Ro/Ro portfolios) were not at all sufficient to compensate for the overall decline in orders. Nevertheless South Korea still maintains a market share significantly higher than the one it had in the year before the Asian crisis. On the other hand Japan saw a surge in domestic orders and benefited from a weaker Yen compared to the USD, while China became a prolific builder of product tankers through low offer prices and improved quality. Nevertheless the situation in all major shipbuilding regions is seen as problematic as newbuilding prices decline further and profits are very difficult to achieve (see next chapter). Therefore the bottom line for many yards is to stay in business and minimise losses as far as possible.

In order to give an impression about the shipbuilding market in general, the graph below provides a breakdown of new orders during the last five years by shiptype.

Fig. 2 – Change in distribution of orders based on cgt, 1997-2001



Source: Lloyd's Register/Fairplay – European Commission

Four main volume ship types dominate the market: bulk carriers, chemical/oil products tankers, crude oil tankers and container ships. Together these ship types accounted for 73 % of the total order intake in 2001 (in cgt). Other market sectors effectively make up niche markets, the largest of which are the cruise and LNG sectors. The decline of the cruise sector and growth of the LNG sector are particularly marked in the above chart.

LNG carriers are the only market segment that saw an absolute increase in ordering for new ships in 2001. Although LNG carriers represent a niche market in terms of volume (less than 2 % of the number of ships on order is for LNG carriers; in terms of cgt the share of LNG carriers is ca. 8 % of the existing order volume), the ships are highly sophisticated and comparatively expensive, with unit prices of ca. 170 Mio. USD. Key patents for the cargo containment systems are held by European companies.

Fifty LNG carriers are currently on order world-wide, with 28 more options. The confirmed orders represent nearly 36 % of the currently existing fleet of LNG carriers (in number of ships). Korea holds 65 % of these orders (by cgt), with Japan taking ca. 25 % and the EU 10 %. Of the 30 new orders placed in 2001 (there were only orders for four ships world-wide in 1998), Korea took an even greater share (by cgt): 79 %, compared to 14 % for Japan and 7 % for the EU. This means that this segment which was dominated by Japanese and European yards (mainly in France and Finland) before the Asian crisis, is now mostly controlled by Korean yards. The sector has seen tremendous growth in 2001, but prices for LNG carriers have declined from 190 Mio. US Dollars per ship in 1998 to less than 170 Mio. US Dollars in 2001 which can hardly be explained by productivity increases or technical progress alone. Some orders in Korea, placed in late 2000 at the beginning of the market expansion, were even reported to be priced below 145 Mio. US Dollars. It appears that Korean shipbuilders see the LNG sector as the next growth area in

which they try to gain market shares. In particular Daewoo has been very active in this sector, taking most of the orders placed in Korea. It should be noted that Daewoo underwent a complete restructuring in 2000, during which the largest part of the company's debts were forgiven or converted to equity held by the main creditor, the Government-controlled Korean Development Bank (KDB).

While there is some reason to believe that the shipment of natural gas will increase in the future due to environmental concerns and the needs of emerging economies such as China, it should also be noted that some orders for LNG carriers were related to the energy crisis in the USA in early 2001 which in the end proved to be of temporary nature. Furthermore some orders related to Enron Corp. and probably these may now be reviewed.

2.2. Price developments

The issue of newbuilding contract prices is one of the most non-transparent in the shipbuilding industry. Neither shipowners nor shipyards are very open when it comes to reporting prices. This is mainly due to the fact that shipbuilding is about large individual orders, fostering a close relationship between yard and customer. While the yard may wish to attract certain customers through competitive pricing (and/or a particularly high specification), the owner typically does not want to reveal a favourable purchase as this may lead his customers to ask for equally favourable terms with regard to charter terms or freight rates. Therefore, reliable pricing information is difficult to come by.

The source mostly referred to is H. Clarkson Ltd.¹¹ and its various subsidiaries (in particular Clarkson Research). While Clarkson is a well recognised company in the field and their data is also used by international organisations such as the OECD, the Commission sees a number of problems with regard to the information provided. Clarkson price information is related to certain standard shiptypes (with a number of important shiptypes such as Post-Panamax containerships or passenger ships being absent), not to actual contracts concluded. The complexity of ships ordered in terms of technical specification, series production and financing terms is not reflected in the single figure given for each subtype. Finally, Clarkson also acts as a broker which may influence positively their view on the market.

Indeed, the Commission's detailed price investigations for specific contracts showed that in almost all cases the prices reported by Clarkson for a comparable ship were higher than the ones found through direct investigations. Suezmax tankers may serve as an example: Clarkson reports the price for a standard Suezmax tanker of 150 000 dwt as 46,5 Mio USD (end 2001) and Fearnleys indicates a price of 48,0 Mio USD, while the Commission's market monitoring observed several orders at a price of 43,0 Mio USD, i.e. 7 to 10 % lower than reported by those companies. Nevertheless, this report continues to present price information as provided by Clarkson as the most important source, but reserves the right to complement this information with its own findings.

¹¹ <http://www.clarksons.net/>.

Table 1 - Clarkson Research price data for bulk shiptypes

| Shiptype | | | Price (Mio. USD) | | |
|----------|-----------|-------------|------------------|----------|----------|
| | | | End-1999 | End-2000 | End-2001 |
| Tankers | VLCC | 300 000 dwt | 69,0 | 76,0 | 70,0 |
| | Suezmax | 150 000 dwt | 42,5 | 52,0 | 46,5 |
| | Aframax | 110 000 dwt | 33,0 | 41,0 | 36,0 |
| | Panamax | 68 000 dwt | 31,0 | 35,5 | 32,0 |
| Bulkers | Capesize | 170 000 dwt | 35,0 | 40,0 | 36,0 |
| | Panamax | 75 000 dwt | 22,0 | 22,0 | 20,5 |
| | Handymax | 51 000 dwt | 20,0 | 20,5 | 18,5 |
| | Handysize | 30 000 dwt | 15,5 | 15,0 | 14,5 |

Table 2 - Clarkson Research price data for specialised shiptypes

| Shiptype | | Price (Mio. USD) | | |
|-------------|------------------|------------------|----------|----------|
| | | End-1999 | End-2000 | End-2001 |
| LNG carrier | 138 000 m3 | 165,0 | 172,5 | 165,0 |
| LPG carrier | 78 000 m3 | 56,0 | 60,0 | 60,0 |
| Container | 400 TEU | 8,5 | 10,0 | 8,9 |
| Container | 1 100 TEU | 17,5 | 18,0 | 15,5 |
| Container | 3 500 TEU | 38,0 | 41,5 | 36,0 |
| Ro/Ro | 1 200 - 1 300 lm | 21,5 | 20,0 | 19,0 |
| Ro/Ro | 2 300 - 2 500 lm | 32,5 | 33,0 | 31,0 |
| Tweendecker | 15 000 dwt | 13,0 | 13,8 | 13,8 |

The information provided by Clarkson Research confirms the general downward trend in ship prices. This applies to all standard shiptypes and reflects the generally negative sentiment in the market, despite rising costs stemming from inflation, wage increases and higher prices for raw materials priced in USD in all major shipbuilding regions. This trend is equally confirmed through information provided by the Norwegian company Fearnleys¹², as published by their subsidiary Fearnresearch. Fearnleys uses a slightly different breakdown of shiptypes with variations in size and specification. An overview, indicating slightly higher price levels for most of the major shiptypes, is given below.

¹² <http://www.fearnleys.com/>.

Table 3 - Fearnresearch price data for various shiptypes

| Shiptype | | | Price (Mio. USD) |
|-----------|-----------|-------------|------------------|
| | | | End-2001 |
| Tankers | VLCC | 280 000 dwt | 72,0 |
| | Suezmax | 150 000 dwt | 48,0 |
| | Aframax | 105 000 dwt | 37,0 |
| | Panamax | 68 000 dwt | n/a |
| Bulkers | Capesize | 170 000 dwt | 36,5 |
| | Panamax | 75 000 dwt | 20,0 |
| | Handymax | 53 000 dwt | 18,0 |
| | Handysize | 30 000 dwt | n/a |
| Container | Gearless | 3 500 TEU | 37,0 |
| | Gearless | 2 750 TEU | 32,0 |
| | Geared | 1 700 TEU | 22,5 |
| | Geared | 1 000 TEU | 16,0 |

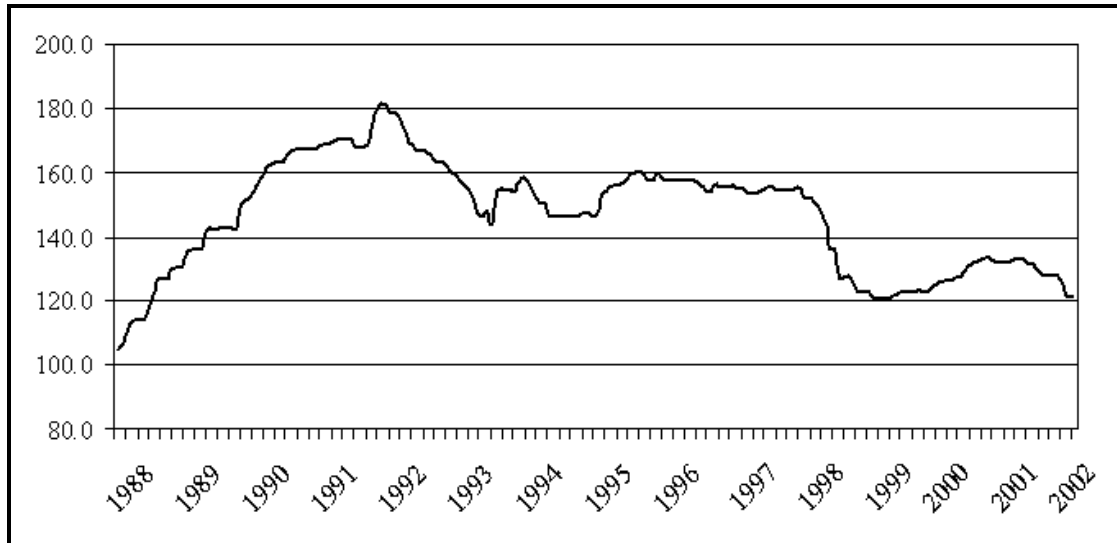
2.3. Detailed price analysis

Prices in South Korean shipyards, which are considered the price leaders for most shiptypes¹³, are monitored by the Commission on a contract by contract basis to gain a more accurate picture of developments. This information is used in order to assess the pricing policies of individual Korean yards and the shiptypes in their portfolio. A full presentation of this analysis would be too detailed and thus go beyond the scope of this report.

Price information has been accumulated and price developments are presented below in the form of an index with the price level of 1987 equalling an index of 100. The index is based on published information from brokers and other sources and it shows the long term price trend as analysed by the Commission's consultant. The index is continuously updated with the information contained in the monthly monitoring reports.

¹³ Chinese yards can be considered the price leaders for general cargo ships (tweendeckers) and product tankers with low specification; Japan has recently become very competitive again for standard bulk carriers (for which it has specialised yards that benefit from serial production) after the recent decline in the Yen/USD exchange rate. However, for all commercial shiptypes which would be in the range of EU yards, Korean yards set the prices.

Fig. 3 - Newbuilding price index (1987=100)



Source: European Commission

The index clearly shows the massive drop in prices following the Asian crisis of 1997/98 and the subsequent efforts to increase prices along the ordering boom in 2000. The (not very pronounced) trend towards better prices stopped in late 2000 and for the year 2001 the trend was reversed as had to be expected with the number of incoming orders falling. It is noteworthy that 2001 price levels are only ca. 20 % higher than they were in 1987, i.e. prices did not keep pace e.g. with inflation.

With very limited ordering expected for 2002, price recovery will be difficult to achieve, although yards may be inclined to look for orders in those segments that have been less affected by price erosion. Past experience has, however, shown that this behaviour does not improve the financial results of yards, but rather leads to additional price erosion in the targeted sectors, as long as the market is characterised by over-supply.

The Commission will continue its price monitoring and will, in accordance with market developments, put increasing emphasis on production in China. Chinese shipbuilders have expressed their intention to aim for a large scale expansion of facilities, quoting South Korea as an example to follow. This is likely to lead to further price decline, unless China herself creates significant additional demand for ships. With China now being a full WTO member, this issue should be addressed before more shipbuilding capacity enters the market.

3. DETAILED COST INVESTIGATIONS

3.1. Update of previous investigations

In order to collect the necessary data, the Commission has recourse to consultants whose ongoing study has defined a cost breakdown model, including all relevant cost components both of the direct ship production and the shipyard in general. The model is based on cost elements covering direct costs (materials, labour, equipment, etc.) and indirect costs (financing of the ship and of the production equipment, overhead,

insurance, etc.). The calculated building price also includes a 5 % profit margin. More details of the cost model can be found in Annex I of the first report.

As the study develops, additional information is gathered and used to validate previous cost investigations. Consequently, the 32 orders placed in Korea covered in the first four reports have been recalculated and the updated findings are given below. As already stated in the first report all parameters are based on a prudent approach to ensure that calculated minimum costs for particular projects will be difficult to challenge. The updated analysis includes assumptions on inflation. With orders taken now but executed in the coming two to three years it is considered normal business practice to assess future costs at the time of building up to delivery.

Since the 4th shipbuilding report the analytical approach has been reviewed in order to compare investigation results based on the initial method, namely the calculation of contributions to debt servicing (in USD per cgt) that have to be carried by the individual shipbuilding project, to results based on “costs” stemming from facility depreciation. There is no consistent approach to depreciation in Korea, i.e. different shipyards use different depreciation periods and calculation methods and it is therefore very difficult to assign those costs to individual shipbuilding projects.

Nevertheless these alternative calculations have provided a clear picture: Yards, such as Hyundai (HHI), Hanjin (HHIC) and Samsung (SHI), which have not benefited from large scale debt restructuring and which operate comparatively “old” facilities show (slightly) higher production costs under the debt-based methodology, while yards, such as Daewoo (DSME) and Daedong, which benefited from debt reductions and moratoria but operate comparatively “new” facilities show (slightly) higher production costs when basing the investigations on the depreciation approach. The two approaches give very similar results for the other two major Korean yards, Hyundai Mipo and Samho. Of course, results are also influenced by the financing terms of the individual projects investigated. Large up-front payments allow the yard to collect interest while tail-heavy payment terms increase financial costs. On the other hand these payment terms have no influence on depreciation. Delivery dates for individual orders may also play a role, if for example debt moratoria have expired by then and the vessel needs to contribute to the required debt servicing. In summary the differences between the two approaches are insignificant and do not change the conclusions from the individual cost investigations.

In the context of the first shipbuilding report nine orders placed at South Korean shipyards were investigated. In addition to these orders, nine more orders placed in Korea have been analysed for the second report and seven investigations were added in the third report. The fourth report covered seven additional orders. The Commission ensured a balanced selection of shipbuilding contracts while taking into account the overall objective of the exercise, the relative urgency of the matter, and the availability of meaningful data for comparison. The Commission is convinced that the information entered into the analysis is at present the best available and reliable. The following table summarises the updated findings for the 32 orders placed in Korea. In order to be consistent with the previous reports and as differences between investigation methodologies are in general not significant, all results presented are based on the debt servicing approach.

Table 4 - Comparison of reported order prices and calculated construction prices for selected new shipbuilding contracts (update)

| | Shipyard | Shiptype | Owner | Contract price (Mio. USD) | Normal price ¹⁴ (Mio. USD) | Loss/gain as % of normal price | Ref. to ship-building report no. |
|----------|------------------|----------------------------|-----------------------|---------------------------|---------------------------------------|--------------------------------|----------------------------------|
| (*) | Daedong | 35 000 dwt tanker | Searland | 21,5 | 26,0 | - 17 % | 1 |
| | Daedong | Panamax bulker | Sanama | 18,5 | 26,1 | - 29 % | 1 |
| (*) | Daedong | 46 000 dwt chemical tanker | Cogema | 24,5 | 28,1 | - 13 % | 2 |
| | Daedong | 2 500 TEU | EF Shipping | 30,0 | 31,4 | - 4 % | 4 |
| (*) | Daewoo | VLCC | Anangel | 68,5 | 73,6 | - 7 % | 1 |
| (*)/(**) | Daewoo | Ferry | Moby | 74,3 | 89,0 | - 17 % | 2 |
| (*) | Daewoo | Panamax bulker | Chandris | 22,5 | 23,5 | - 4 % | 2 |
| (*) | Daewoo | LNG carrier | Bergesen | 151,1 | 159,6 | - 5 % | 3 |
| | Daewoo | ULCC | Majestic Shipping | 85,0 | 94,0 | - 10 % | 4 |
| (*) | Halla | Panamax bulker | Diana | 18,9 | 31,0 | - 39 % | 1 |
| (*) | Halla | 3 500 TEU | Detjen | 38,0 | 52,8 | - 28 % | 1 |
| (*) | Halla | Capesize bulker | Cargocean | 32,0 | 45,8 | - 30 % | 2 |
| | Samho (ex-Halla) | Aframax tanker | Chartworld Shipping | 33,5 | 41,3 | - 19 % | 4 |
| (*) | HHI | 6 800 TEU | P&O Nedlloyd | 73,5 | 81,0 | - 9 % | 1 |
| (*) | HHI | 5 600 TEU | K Line | 54,3 | 59,3 | - 8 % | 2 |
| (*) | HHI | LNG carrier | Bonny Gas | 165,0 | 182,5 | - 10 % | 2 |
| (*) | HHI | 5 500 TEU | Yang Ming | 56,0 | 64,6 | - 13 % | 2 |
| | HHI | Ferry | Stena | 70,0 | 88,4 | - 21 % | 4 |
| | HHI | Suezmax tanker | Jebsen | 43,0 | 51,5 | - 17 % | 4 |
| (***) | HHI | 7 200 TEU | Hapag-Lloyd | 72,0 | 81,0 | - 11 % | 3 |
| | HHI | Suezmax tanker | Athenian Sea Carriers | 43,0 | 50,8 | - 7 % | 3 |
| | Hyundai Mipo | Cable layer | Ozone | 37,3 | 46,8 | - 20 % | 1 |
| | Hyundai Mipo | Chemical tanker | Bottiglieri | 24,5 | 27,3 | - 10 % | 4 |
| (*) | HHIC | 6 250 TEU | Conti | 62,0 | 66,0 | - 6 % | 3 |
| (*) | HHIC | 5 608 TEU | Conti | 58,0 | 62,3 | - 7 % | 3 |
| (*) | HHIC | 1 200 TEU | Rickmers | 19,5 | 21,2 | - 8 % | 3 |
| | Il Heung | 3 700 dwt chemical tanker | Naviera Quimica | 10,5 | 13,0 | - 19 % | 2 |
| (*) | Samsung | 5 500 TEU | Nordcapital | 55,0 | 71,8 | - 23 % | 2 |
| (*) | Samsung | 3 400 TEU | CP Offen | 36,0 | 59,9 | - 40 % | 1 |
| (*) | Samsung | Ferry | Minoan | 69,5 | 95,6 | - 27 % | 1 |
| | Samsung | 7 400 TEU | OOCL | 79,7 | 94,1 | - 15 % | 4 |
| | Shina | Product tanker | Fratelli D'Amato | 21,7 | 24,1 | - 10 % | 3 |

(*) These orders were recalculated after new information on the debt situation of the companies or on the specific order was received.

(**) This order was recalculated after the correct contract price was revealed in the owner's account statement for 2000.

(***) This order was recalculated after the correct contract price was revealed in the press.

¹⁴

The normal price includes the cost elements covering direct costs (material, labour, equipment, etc.) and indirect costs (financing of the ship and the production equipment, overhead, insurance, etc.). It also includes a 5% profit margin.

3.2. New investigations

Since the last shipbuilding report six more orders (all placed in South Korea) were investigated in detail, in order to establish the actual building costs. The investigated orders are:

- VLCC, 48 120 cgt, to be built at Samho Heavy Industries;
- LNG carrier (series of 5), 71 850 cgt, to be built at Daewoo Shipbuilding and Marine Engineering Co. Ltd. (DSME);
- LNG carrier, 69 675 cgt, to be built at Samsung Heavy Industries (SHI);
- LNG carrier (series of 2), 88 500 cgt, to be built at Hyundai Heavy Industries (HHI);
- Suezmax crude oil tanker (series of 4), 30 800 cgt, to be built at Samho Heavy Industries;
- 5 762 TEU containership (series of 2), 42 835 cgt, to be built at Samsung Heavy Industries (SHI);

Table 5 summarises the findings from the new cost investigations.

Table 5 - Comparison of reported order prices and calculated construction prices for selected new ships (new investigations)

| Shipyard | Shiptype | Owner | Contract price (Mio. USD) | Normal price ¹⁵ (Mio. USD) | Loss/gain as % of normal price |
|----------|----------------|-------------|---------------------------|---------------------------------------|--------------------------------|
| Samho | VLCC | Oldendorff | 69,5 | 81,0 | - 14,2 % |
| DSME | LNG | Exmar | 162,0 | 159,1 | + 1,8 % |
| SHI | LNG | British Gas | 162,5 | 166,0 | - 2,1 % |
| HHI | LNG | Golar | 162,6 | 159,3 | + 2,1 % |
| Samho | Suezmax tanker | Thenmaris | 43,0 | 54,0 | - 20,0 % |
| SHI | Containership | CP Offen | 55,0 | 59,3 | - 7,3 % |

While the level of price under-cutting seems to diminish, mainly due to foreign exchange gains in 2001 which are expected to be eroded by forecasted wage increases and inflation¹⁶, the investigations confirm certain known business patterns of Korean yards. As mentioned before the cost investigations and their under-lying assumptions are constantly reviewed in order to take into account the latest

¹⁵ On the definition of normal price see footnote 14.

¹⁶ The Won weakened significantly against the USD in the first half of 2001, moving from a prevailing level of around 1 130 Won to the USD to a level around 1 300. Annual wage increases are expected to be around 10 % while inflation is still comparatively high at around 8 % per annum.

developments in the yards and in the Korean economy. Therefore debt restructuring and re-financing efforts, as well as more favourable conditions e.g. stemming from increased cash flow, are recognised and results therefore may look more positive. However, the Commission concluded in its TBR report that most of these efforts cannot be considered compatible with WTO rules and Korean yards, despite coming close to covering their operating costs, are causing material injury to EU shipbuilders. Without recognition of the various measures undertaken in Korea in order to improve the yards' financial situation the results of the cost investigations would show a serious gap between full costs and offer prices. Samho, like its predecessor Halla, continues to price vessels far below building costs, although losses of up to 40 % of actual building costs as in the past are no longer accepted since the management of the yard was taken over by Hyundai. Samho also increased production under the new management, nearly doubling it and focussing mainly on tankers and thus achieving a better economy of scale. Prices at Samho are now seen to reflect at least operating costs, although there is still no provision to service or reduce the company's debts.

DSME has become the leading builder of LNG carriers in the world, with sixteen ships on order, giving the yard an economy of scale unseen before. However, the detailed analysis undertaken revealed that for the construction of LNG carriers there are limits to the improvement in efficiency as some yard equipment needs to be duplicated, leading to high up-front investment costs. Furthermore, DSME managed to start as a new company in late 2000, shedding most of the debts of its predecessor. Therefore DSME can operate a very large state-of-the-art shipyard without the massive initial investment costs being reflected in their product prices. Nevertheless DSME still stands at a debt to equity ratio of 279 % (estimated for 2001), and although it is currently cash rich due to high order intake in 2001, this is likely to be dissipated when those orders need to go into production and the actual building costs begin to be incurred.

SHI remains burdened with a comparatively high level of debt (the debt to equity ratio for 2001 is estimated to be still more than 200 %) and this fact is reflected in their cost base. SHI also suffers from a lower productivity than its Korean competitors, leading to higher wage costs. In addition SHI did not manage to attract multiple orders as Daewoo and Hyundai did and this has to show in the unit costs.

After being able to dispose of some non-performing assets stemming from HHI's previous engagement with other Hyundai subsidiaries, HHI seems now to be heading towards profitability. HHI's debt to equity ratio is assumed to reach 183 % in 2001, but, as with all Korean yards, an assessment of the yard's financial situation is difficult to make. Very few meaningful financial figures are given and published accounts are not very recent and have little or no annotations.

4. CONCLUSIONS

The world shipbuilding market continues to face serious difficulties, due to an imbalance of supply and demand. Past expansion of shipyards, mainly in Korea, but now increasingly also in China, has led to price depression which became particularly pronounced after the Asian crisis of 1997/98. Although a number of Korean yards went bankrupt, capacity was not reduced and companies were allowed to continue their operations. Thanks to a historically high level of ordering in 2000, prices recovered to some extent, but the significant drop in orders in 2001 has led to a new reduction in prices.

The year 2001 has been very problematic for the maritime industries world-wide: The recession in the US and the terrorist attacks of 11 September have decreased the demand for sea trade and cruises, respectively. Consequently ship owners have been very reluctant to invest in new tonnage and yards basically live from orders placed before 2001. The decline in ordering affected the sectors of containerships and cruiseships most, leading to a drop in overall market shares for Korea and the EU which are particularly strong in these segments.

Only the segment of LNG carriers saw an increase in absolute order volume. However, this is still a niche market, representing only ca. 8 % of world orders in cgt. Korean yards took most of the orders for LNG carriers. They hold 65 % of the world orderbook for LNG carriers and 79 % of the new orders placed in 2001 went to Korean yards, despite the fact that Korea is a relative newcomer in the field and the building yards do not hold patents on the key technologies. Market analysis suggests that Korean yards made inroads in this area due to very low offer prices, as has been the case before in certain tanker segments and for containerships. Their ability to supply a large number of vessels at an early delivery date may have been important in getting a large amount of orders also.

The detailed cost investigations undertaken by the Commission show that certain Korean yards continue to price ships below cost while others are trying to improve their bottom line. Most major Korean yards managed to show a profit for 2001, thanks to the high sales volumes and the related advance payments received, although in some instances, certain one-off measures aimed to improve the yards' financial situation also played a role.

Despite various rounds of talks with Korea, the Commission did not manage to convince Korean authorities and yards to fully implement market principles and allow a shake-out of non-viable companies. An improvement in the market situation is therefore not likely and consequently the Commission has proposed counter-measures to the Council.

The present report basically confirms the findings from the previous four Commission reports in relation to the general market situation, the price trends and the detailed cost investigations. The Commission will continue with its market monitoring in line with the requirements laid down in Article 12 of Regulation (EC) No 1540/98.

5. REFERENCES

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