

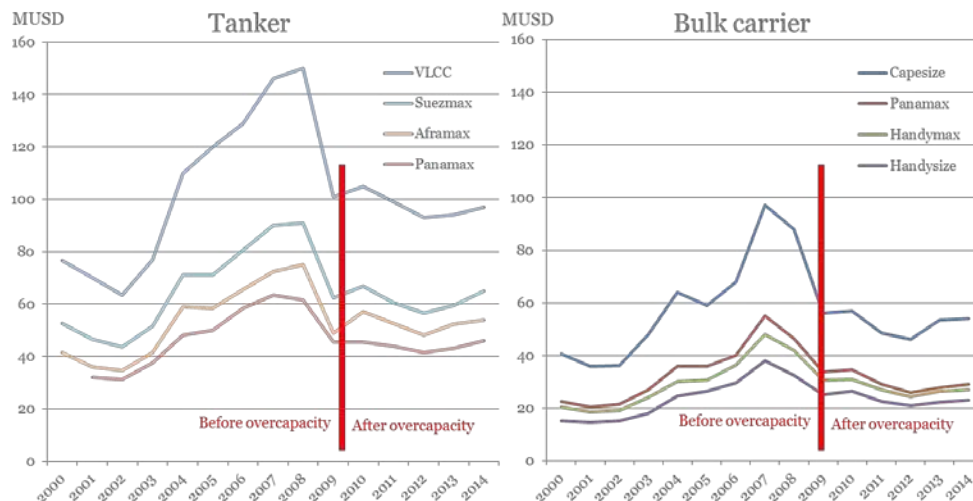
CONSEQUENCES OF OVERSUPPLY AND OVERCAPACITY

This section compares the level of oversupply and overcapacity on a) vessel price developments and on b) the financial performance of the global shipbuilding industry. This section primarily aims to show that the shipbuilding industry has not yet recovered in terms of vessel prices as well as profitability figures. However, the causal links from oversupply and overcapacity to these variables cannot be confirmed.

Vessel prices and excess yard capacity

Annual average prices of bulk carriers and tankers remained at low levels after 2009 when oversupply widened sharply. However, the average vessel price in 2014 was higher than in 2001, while it was only half of the peaks reached in 2007 for bulk carriers and in 2008 for tankers (See Appendix 4 and Figure 15). Considering the complexity of the vessel price setting mechanisms, this part of the report provides preliminary analysis on the links between oversupply and overcapacity and vessel prices.

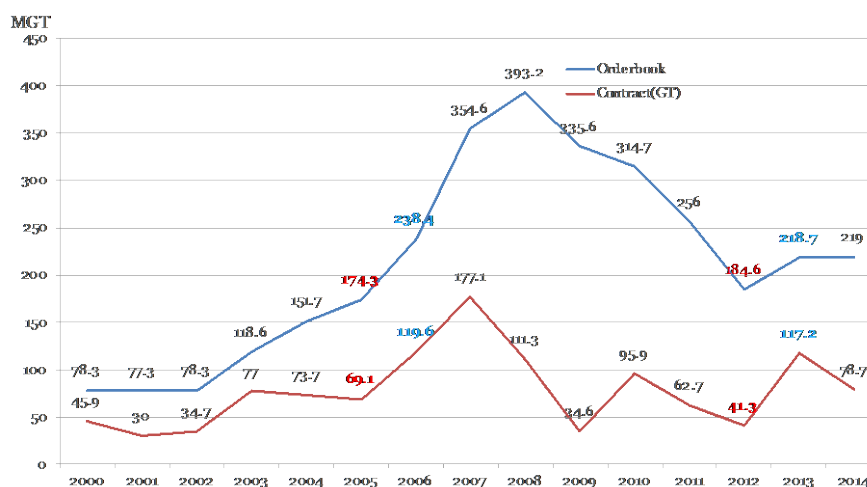
Figure 15. Tanker and bulk carriers price developments



Source: OECD based on Clarkson World Shipyard Monitor.

The price of a vessel is set by the negotiation between the buyer and the shipbuilder. Therefore, the impact of overcapacity on vessel prices can be compared between years which have similar levels in the balance between annual contract volumes and order books. Comparing the years before and after 2009 when excess supply widened, there are two sets of years, 2005 versus 2012 and 2006 versus 2013, with similar levels in new-building contract volume and order book volume (Figure 16).

Figure 16. Change in new-building contract and order book (MGT)



Source: OECD based on Clarkson World Shipyard Monitor.

Average nominal price of capesize bulk carrier in 2012 was 22% lower than in 2005 and average nominal price of capesize bulk carrier in 2013 was 21% lower than in 2006. In addition, the average nominal price of VLCC in 2012 was 22% lower than that in 2005 and the average nominal price of VLCC in 2013 was 27% lower than that of 2006.

Costs in the shipbuilding industry are also influencing vessels prices. According to Stopford (1997), the cost structure of merchant ships is composed of 17% direct labour costs, and 27% overhead costs and 56% materials cost (i.e. within material costs of 20% for major purchases, 16% for engine, 13% for steel products and 7% for other inputs). Between 2005/2006 and 2012/2013, steel costs increased. Total cost comparison (see Appendix 4) show that average cost in Korea, Japan and OECD countries have not markedly changed over the last 15 years, while wages in China have drastically increased.

The analysis above shows that the current shipbuilding oversupply and overcapacity situation is correlated with vessel price decreases, while some of the costs for shipbuilding such as steel and labour cost in some regions have increased. When comparing the prices of vessels in the periods which experienced similar pricing circumstances in terms of buying and selling intentions, oversupply, overcapacity, financial crisis and any other factors happened between 2006 and 2012 are likely to have contributed to the nominal vessel price decreases by around 20-30% for bulk carriers and 17-27% for tankers between 2005/2006 and 2012/2013 (see Appendix 4 Table 18, 19).

Analysis of profitability indicators

This subsection presents selected financial indicators for shipyards between 2000 and 2015. The analysis is based on data from Thomson Reuters Eikon covering around 114 mostly publicly traded shipbuilding companies (varying by year and indicator). Figure 17a shows that the operating profitability⁵ of shipbuilding companies decreased from around 10% in 2010 to about 4% in 2014. Shipbuilding companies showed better profitability rates in 2006 than in 2014 and a higher number of yards experienced negative EBITDA margins in 2014 than in 2006 (Figure 17b).

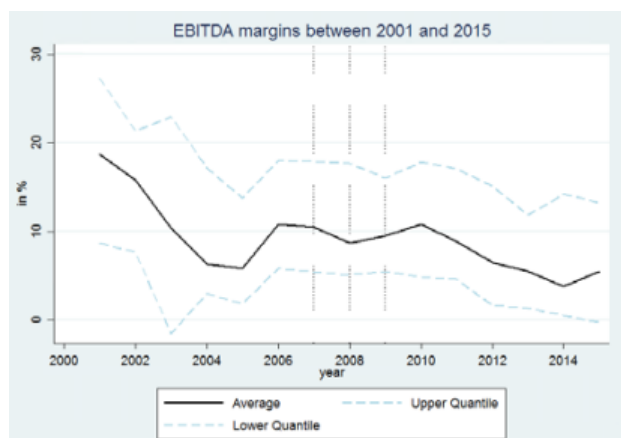
Average Return on Capital started decreasing in 2007, indicating a decline in the efficiency with which the company's capital is employed. Figure 17c shows that the ratio of debt to value has been increasing since 2007. Cash flow margins, indicating a company's ability to use cash available from sales,

decreased from 2010 (around 10%) until 2012 (about 4%) and recovered slightly from then onwards. Although not significantly, in 2014 a higher number of yards faced negative cash flow margins. Such negative profitability figures imply that, although the yard is generating sales revenue, it is losing cash. In this case, the company is forced to either raise money through investors or borrow money in order to continue operating.

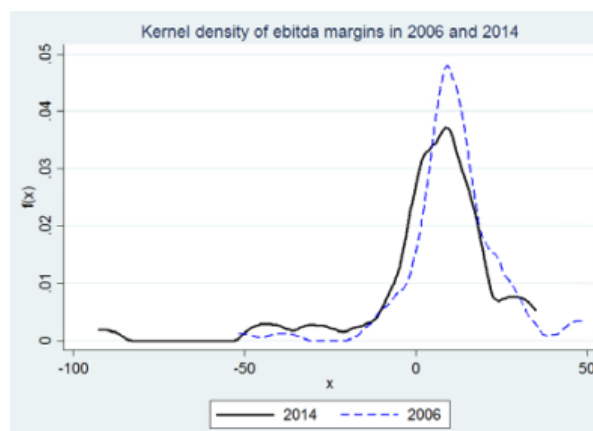
In total, the financial health of the global shipbuilding industry has been deteriorating in terms of operating profitability, indebtedness and cash flows and is now at a low level. Whether the current economic and financial situation in the global shipbuilding industry is a result of the financial crisis or/and the market imbalances starting around 2008/2009 is difficult to distinguish and requires further analysis.

Figure 17. Selected financial indicators for shipbuilding companies

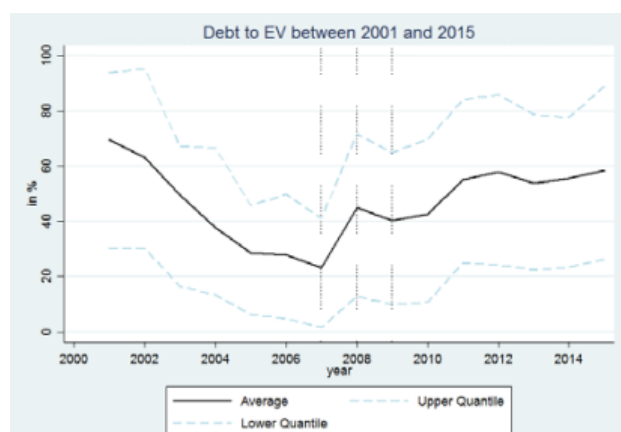
(a) EBITDA margins, 2001 – 2015



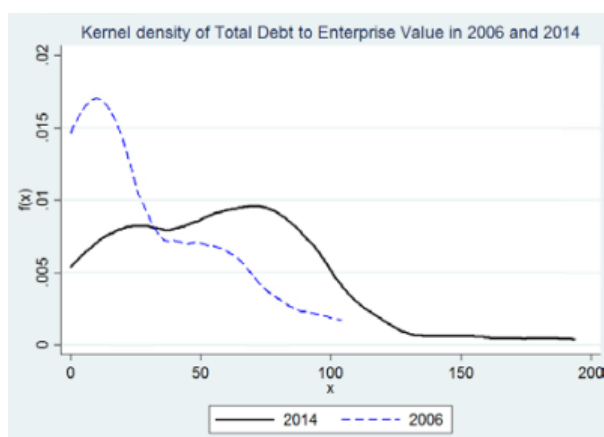
(b) Density of EBITDA margins, 2006 vs. 2014



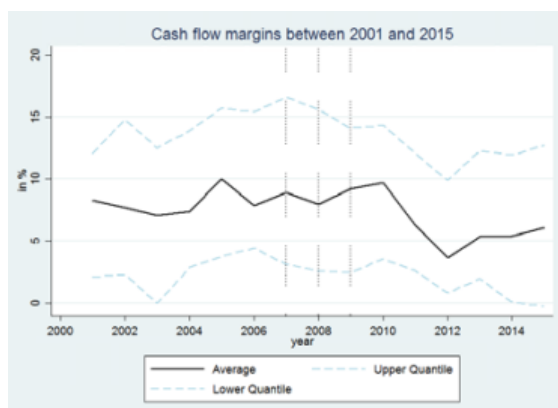
(c) Debt to Enterprise Value, 2001 – 2015



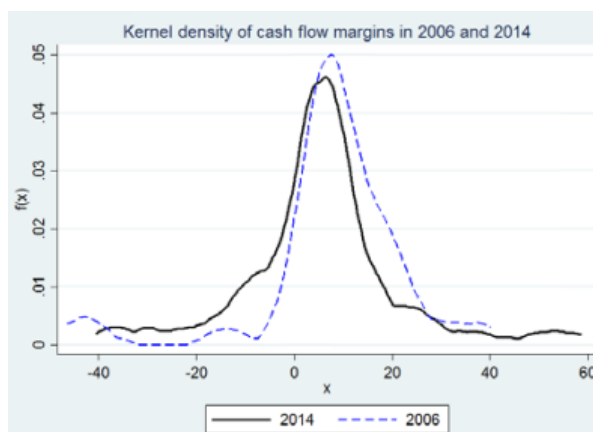
(d) Density of Total Debt to Enterprise Value,



(e) Cash flow margins, 2001 – 2015



(f) Density of cash flow margins in 2006 vs. 2014



Note: The dashed lines provide information on the distribution of financial indicators across the firms in the sample: 25% of the companies have these indicators below (above) the first (third) quartile line. The solid line depicts the industry average indicator.

Source: OECD based on data from Thomson Reuters Eikon.

CHARACTERISTICS AND STRUCTURE OF THE GLOBAL SHIPBUILDING INDUSTRY

Against the backdrop of the increasing economic interconnectedness of trading partners around the world, the shipbuilding and shipping industries, responsible for the production and operation of merchant vessels, are at the heart of the international economic system.

The shipbuilding market has been suffering from excess vessel supply and excess shipyard capacity for several years. This can be explained by the entrance of numerous players and the economic slowdown following the financial crisis, but also by the intrinsic characteristics of the shipbuilding industry.

This section presents a brief analysis of the main characteristics of the shipbuilding industry and the current structure and performance of ship yards. As the shipbuilding sector is a complex and diverse industry, the analysis of the industry characteristics includes a generic analysis and some specifications for selected vessel categories.

Characteristics

Table 3 presents a summary of the characteristics of the shipbuilding sector. The shipbuilding industry is characterized by a relatively high heterogeneity of vessels produced that are aggregated into main vessel categories, notably bulkers, tankers, containerships, offshore vessels, passenger ships. The spectrum of price is very wide with, for instance, large cruise ships costing up to USD 1 billion whereas a Handy-size bulk vessel costs around USD 23 million (Clarkson, 2015a).

As discussed in section 2, the major demand drivers for the shipbuilding industry are seaborne trade expansion and vessel replacement. This section presents other structural characteristics of the shipbuilding industry in terms of delivery time, production factor intensity, tradability, substitutability and possible reorientation areas.

Table 3. Selected structural characteristics of the shipbuilding industry

Industry Characteristics	Situation of the shipbuilding industry
Delivery time	Long (2-3 years)
Production factor intensity	Labour-intensive for low value-added ships Balanced for high value-added ships
Tradability	Very high, large role of ship finance in ship exports
Possible reorientation areas	Notably offshore, but involves large risks; ship repair and maintenance
Heterogeneity of products	High between vessel types
Demand drivers	Seaborne trade expansion, vessel replacement, regulations
Capacity to inventory vessels	Limited

Source: OECD.

The role of these characteristics in excess vessel supply and excess shipyard capacity is discussed in more details in Section 5 on causes for imbalances between supply and demand in industry sectors.

Structure

According to IHS Maritime & Trade, the three largest shipbuilding economies, China, Korea and Japan accounted jointly for 83% of global ship completions in compensated gross tonnes (cgt) in 2014. The ten and fifteen largest countries represented 92.7 % and 96.2 % of ship completions, respectively (Table 4), reflecting a high level of concentration of the global shipbuilding industry. However, it should be noted that shipbuilding is partly an assembly industry where a high share of value added is embedded in the inputs provided by the marine equipment industry, where Europe accounts for 50% of world supply (BAL, 2014).

Moreover, leading shipbuilding economies vary across market segments. For instance, production of cruise ships is concentrated in four European countries, Germany, Italy, France and Finland. It is a niche market which mainly differentiates among producers by quality, technology, services, prices, sustainability.

Table 4. Ship completions by the fifteen largest shipbuilding economies in 2014

in millions of compensated gross tonnes (cgt). Share and cumulated share are in % of world total

	Tonnage (In mn cgt)	Share (in %)	Cumulated share (in %)
China	11.9	32.6	32.6
Korea	11.6	31.8	64.5
Japan	6.8	18.6	83.0
Philippines	1.0	2.7	85.8
Germany	0.5	1.3	87.1
Indonesia	0.5	1.3	88.4
United States	0.4	1.2	89.6
Chinese Taipei	0.4	1.1	90.7
Viet Nam	0.4	1.1	91.8
Turkey	0.3	0.9	92.7
Romania	0.3	0.9	93.6
Italy	0.3	0.9	94.4
Malaysia	0.2	0.6	95.1
Poland	0.2	0.6	95.7
Singapore	0.2	0.5	96.2
World total	36.5	100.0	100.0

Source: IHS Maritime and trade.

At the firm-level there is also considerable concentration. The largest shipbuilder in the world, Hyundai Heavy Industry, including its subsidiaries, accounted for 16.0% of world ship completions. The

top five shipbuilding companies represented 34.2% of world ship completions in 2014 (Table 5). For purposes of comparison the top five steelmakers accounted for 17% of global steel production, just over half of the share in world ship completions of the top five shipbuilders (Table 6). Moreover, concentration in particular market segments may be much higher.

Table 5. Ship completions for top five shipbuilding companies in 2014

in millions of compensated gross tonnes (cgt). Share and cumulated share in % of world total.

	Tonnage (In mn cgt)	Share (in %)	Cumulated share (in %)
Hyundai Heavy Industry (Korea)*	5.8	15.9	15.9
Daewoo (Korea)	2.6	7.1	23.0
Samsung (Korea)	1.8	4.9	27.9
Imabari (Japan)	1.4	3.8	31.8
Shanghai Waigaoqiao (China)	0.9	2.4	34.2

Note: * including Hyundai HI, Hyundai Samho HI, Hyundai Mipo and Hyundai HI (Gunsan).

This Table could be subject to errors and omissions given the difficulties faced by the Secretariat to identify all major shipbuilding companies and their subsidiaries.

Source: OECD based on World Shipyard Monitor (Clarkson, July 2015).

Table 6. Steel production for the top five steelmakers in 2014

in millions of tonnes (cgt). Share and cumulated share are in % of world total.

	Tonnage (In mn cgt)	Share (in %)	Cumulated share (in %)
Arcelor Mittal (European Union)	98.1	5.9	5.9
Nippon Steel & Sumitomo Metal Corporation (Japan)	49.3	3.0	8.9
Hebei Steel Group (China)	47.1	2.8	11.7
Baosteel Group (China)	43.4	2.6	14.3
POSCO (Korea)	41.4	2.5	16.8

Source: World Steel Association, World Steel in Figures 2015.

Value chain

Costs, quality and delivery schedule are essential competitive advantages in the shipbuilding production process. As a consequence, the competitiveness of a yard is also strongly linked to its supplier relationship, and shipyards therefore aim at working in close cooperation with their suppliers.

The supply side of the industry is relatively concentrated among a few maritime equipment suppliers. The strong bargaining power of these suppliers is limited by the fact that the shipbuilding industry represents an important customer who makes up a larger part of their revenues. Suppliers are therefore expected to ensure a mutually beneficial relationship (Porter, 1980).

On the demand side, the shipping industry is also relatively concentrated and equally faces overcapacity concerns, which affects shipbuilding due to decreasing demand for new vessels and increased bargaining power of ship owners.