

SHIPBUILDING AND OFFSHORE MARINE

THE SHIPPING FORECAST – UNDERSTANDING THE INVESTMENT FUNDAMENTALS OF THE SHIPYARD BUSINESS

By Alan Lok, CFA, Eunice Chu, ACCA and Guruprasad Jambunathan

Anyone who has walked or cycled along Singapore's East Coast Park will be familiar with the sight of hundreds of commercial ships anchored in the Strait. It's one of the few places in the world where the public comes in close contact with the floating cogs that power the global economy.

Indeed, if any of those people spending a leisurely Sunday at the beach were to contemplate how the sports shoes on their feet or the bike they are riding were transported to the island, then they'd have only to look out to sea. That is precisely the direction in which we are heading with this high-level analysis of the shipbuilding and offshore marine industry.

So, let's cast off and embark on an investment journey that will guide you in making the correct financial decisions.

A PERFECT STORM

The shipbuilding and offshore marine industry specializes in the manufacture and maintenance of oceangoing vessels, which includes everything from cargo ships, tankers, and oilrigs to passenger liners. In recent years, however, the industry has faced significant headwinds, with overcapacity at the shipyards in mainland China, escalating trade wars, and oil-price weakness combining to ensure that this sector is at the center of a perfect storm.

Given its labor-intensive characteristics, companies often tussle with trade unions and local regulations. From a capital expenditure perspective, the industry requires significant outlay to operate expensive docking facilities and invest in highly customized tools and equipment.

ECONOMIC ICEBERG, RIGHT AHEAD!

Many shipyards were wrong-footed by the most recent slowdown in global demand, which was partly driven by softness in the Chinese economy. The impact was most keenly felt at lower-end shipyards, which are vulnerable to changes in volume and tighter price competition.

Higher-end shipyards that manufacture specialized equipment, such as semisubmersible oilrigs, were not spared either. When oil prices crashed below US\$50, a large number of orders were dishonored, with clients forfeiting deposits of up to 20% (which often amounted to millions of dollars).

OVER THE HORIZON

On a positive note, shipping remains the top choice for global cargo transportation, accounting for more than 90% of all trade. In fact, the mammoth container ships still carry 70% of the world's goods, including bikes and shoes.

THE VIEW FROM THE BRIDGE

How, then, should we analyze the shipbuilding and offshore marine industry?

As always, begin by establishing which products and services the company you are researching provides. This could include ship construction, maintenance, repair, or renovation. Also look at the types of vessels it focuses on, such as cargo ships and cruise liners or special-purpose vehicles, including ice-cutters and tugs. Armed with this information, explore how much revenue your company derives from each of these services, pinpointing its key customer segments.

With solid knowledge of the company's structure, examine how changes in the economic climate will affect revenue in each element of its operations. Look ahead and study the long-term factors that will influence growth. How will these evolve? Examples include the rise of emerging economies, such as China and India, as well as the changing profile of the energy market.

SELF-ASSEMBLY

Another force in play might not be immediately obvious – that is, the effect of disruptive technologies, such as smart manufacturing and three-dimensional printing, on the industry. The ability to produce parts near to the source of demand will help shipyards reduce costs. From a spares-and-repairs perspective, however, this new technology may be a double-edged sword, as ship operators could bypass shipyards altogether and generate the parts they need while at sea. It is worth ascertaining whether the company has a position on one or both scenarios.

LABOR PAINS?

That said, it doesn't matter where a shipyard is located if you can't source and retain a skilled workforce. This point should prompt you to analyze the strength and depth of the current labor force and enquire about local institutions that specialize in marine engineering, shipbuilding, and naval engineering. Find out, too, whether risks are associated with trade unions. Is there a history of industrial action by the workforce?

ROLLING IN THE DEEP

We must mention that oil-and-gas exploration is progressively moving to the deep sea. Learn about the company's presence, capabilities, and strategy in this segment. Simultaneously, the demand for offshore wind power likely will rise. Does the business intend to expand into the production of windmills?

ENVIRONMENTAL, SOCIAL, AND GOVERNANCE FACTORS

The days of throwing what we don't need into the sea are hopefully numbered. With this in mind, has the company invested in solutions to reduce various discharges like ballast water, gray-and-black water, and bilge from the vessels it builds? Another valuable enquiry is to check whether the firm participates in industry forums, such as the Sustainable Shipping Initiative, the Clean Cargo Working Group, and Green Ship of the Future.

THE CAPTAIN'S LOG

It's time to visit the company's engine room by looking at its books. Start your enquiries by establishing how the firm has performed on operational measures. What has been its growth in terms of order-book size, services provided, customer type, and complexity of the vessels being built or repaired? How do these compare with those of its peers? Next, take stock of the various factors that affect costs. Examples include components, supplies, and equipment. How do these affect demand? Finally, turn to financial measures and, among other things, investigate the company's working-capital requirements as a proportion of order value. How are these funded?

HAPPY SAILING

This framework has taken you on a short cruise around the shipbuilding and offshore marine industry. Hopefully, it acts as a solid base for a longer journey across the sector.

Bon voyage!

About the Authors

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02 GAUGING PERFORMANCE



03 KEY AREAS OF ANALYSIS



01 HEADWINDS FACING THE INDUSTRY



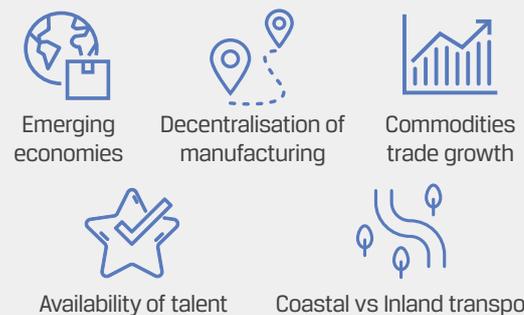
SHIP BUILDING AND OFFSHORE MARINE INDUSTRY

Infographic showing the step-by-step process of analyzing the ship building and offshore marine industry

04 GAUGING PERFORMANCE



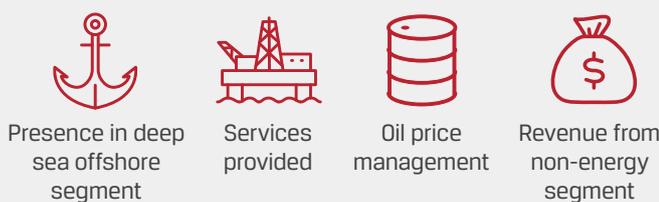
05 STRUCTURAL INFLUENCES



07 ESG FACTORS



06 OFFSHORE MARINE CONSIDERATION



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⊕ Common to the Sector

1. What are the products and services provided by the company?

- What are the services provided by the company - ship building, maintenance, repair, renovation or any other services?
- Which customer segments does the company cater to: transportation (passenger, cargo), military, cruise lines or any other defined segment group?
- What are the types of ships built or repaired: barges, cargo ships, passenger ships, cruise liners, oil and gas rigs, military vessels and special purpose ships (like dredgers, search and rescue rigs, tugs, ice cutters, pollution fighting rigs and research vessels)?
- What are the types of cargo ships built or repaired by the company: bulk carriers, general cargo ships, oil tankers, crude carriers, container carriers?

2. What is the gap between trade volume and fleet capacity in the key markets, segments and cargo types served by the ships that the company builds or repairs?

- How sensitive is demand for shipping capacity to the trends in trade deficit/surplus and overall demand and supply of goods in regions, segments and cargo types to which the company caters to?

3. What are the company's different revenue streams?

- What is the mix of revenues by type of service provided: ship building, renovation, repair, maintenance and other services?
- How much revenue is derived from key customer segments: transportation (passenger, cargo), military, cruise lines and other
- What is the mix of revenues by size (by capacity) and complexity (general purpose vs. specialised) of vessels built or repaired?
- What is the geographical mix of revenues?

4. What are the long-term factors that influences company growth? How are these expected to evolve?

- What are the implications of commodity-driven trade growth from the rise of emerging economies such as China and India to demand for shipping capacity in the long term?
- What does the shifting of manufacturing locations on the basis of cost of production, availability of talent or technology portend to the demand for shipping capacity?
- Are production and consumption likely to get geographically closer or farther, on average? How different is this likely to be for different goods? What are

the implications for demand for shipping capacity?

- What are the trends in traffic through coastal shipping and inland water transport and consequent demand for capacity?

5. Is manufacturing expected to become more decentralised in the backdrop of emerging technologies such as smart manufacturing and 3D printing?

- What are the likely implications for demand for shipping capacity?
- What are the areas likely to be disrupted by technology-driven innovations? How does the company intend to leverage these opportunities and address threats?

6. How is super-sizing—the trend of the average size and capacity of ships increasing—viewed by the company?

- What are the likely implications of the conversion of single hull tankers to double hull tankers?
- How flexible are the company's facilities and equipment to adapt to build and repair larger ships and double hull tankers?
- How is the average service life of ships evolving and what are the implications for fleet replacement cycles?
- How does the scenario look for the company, in the backdrop of specific segments where it has significant presence?

7. What are the likely implications from the evolving profile of the energy market?

- How much of the demand for crude tanker capacity is likely to be lost to long-distance pipelines in the medium to long term?
- What is the likely impact on demand for bulk and crude carrier capacity due to shifts away from coal and crude oil towards natural gas and renewables?
- What are the implications of these trends for the ship building and offshore marine industry? How are the consequences likely to be managed?

8. What is the company's outlook on the link between trade through the high seas and world economic activity?

- Is the link between economic growth and trade expected to strengthen or weaken, in the backdrop of trends such as rebasing and decentralisation of manufacturing, shift from fossil fuels to renewables and shift from ownership to sharing economy?
- Is the share of sea transport in world trade likely to increase or decrease?
- What are the implications to demand for shipping capacity? How are these challenges likely to be met?

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9. What is the level of market concentration and entry barriers?

- What are the Top 5 regions/countries accounting for the highest share of orders?
- What is the extent of market concentration? What is the market share of the Top 5/Top 10 players in the industry?
- What are the major barriers and capital requirements for new players to enter the industry?
- How important is the availability of fiscal and policy support for the entry of new players in the industry?
- What is the state of the industry from the perspective of consolidation of ship yards? What is the company's strategy?

10. How does the location of yards influence the business?

- What are the inherent economic (like skilled and competitively priced labour and cheaper power) or other advantages (like access to deep water port, coastline or relevant type of waterfront and presence of a strong shipping tradition) available in locations where the company has yards?
- How mature and developed is the ecosystem of ancillaries—steel mills, engine builders, component makers (like propellers, boilers, seawater treatment plants and navigation equipment), engineering and design bureaus—around the company's yards? What is the proportion of inputs sourced from the local ecosystem?
- How easy and economical is the availability of suitable land parcels for locating the yards and plants?
- Is adequate power supply available at competitive prices where the company's yards are located?
- Are the company's repair facilities located on key maritime trade routes?

11. What are the observed trends in the location of ship-building bases?

- Has there been an industry-wide shift in the location of ship-building bases? What are the emerging locations?
- What are the factors causing these shifts—like capacity constraints in mature locations, lower costs in emerging locations, shifting demand profile, evolving policy environment, government incentives and tariff and non-tariff barriers?
- How does the location profile of the company's facilities compare against these industry trends? What is the company's strategy in this aspect?

12. How does the policy environment affect the industry in locations where the company operates?

- What are the subsidies, incentives and other supportive measures available in areas where the company operates?
- What are the import quotas and export controls in existence? Are there restrictions in selling to the domestic market?
- Are there any existing or proposed import taxes, levies or tariffs for components, equipment and supplies in countries where the company's yards are located?
- What are the existing or proposed import tariffs or non-tariff barriers in countries which are export markets for the company?
- Are there cabotage restrictions in markets the company operates?

13. What are the challenges in sourcing and retaining a skilled work force?

- How does the labour market look, on cost and availability of skilled labour, in areas where the company operates?
- Are there mature and established institutions for training, design, research and development in the areas of marine engineering, ship building and naval engineering?
- What are the risks associated with trade unions? What is the minimum wage criteria and what are the implications to costs?
- Has there been any history of industrial action by the work force? How does the company manage such situations?
- What is the mix of permanent employees vs. contractual workers? How is the churn rate and lower employer loyalty arising from higher use of contract personnel managed?
- What are the challenges posed by regulations on employing non-local work force?
- What is the perception of the foreign workforce among local population and workforce?

14. How has the performance been on operational measures? How do these compare with those of peers and how are these expected to evolve?

- What has been the growth in terms of the size of the order book, new orders and deliveries, by service provided, customer segment and the type, size and complexity of vessels built or repaired?
- What are the costs as a percentage of revenue? What are the various components?
- What is the nominal and productivity-adjusted labour cost as a percentage of total? How is this evolving?

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Offshore Marine

15. What are the various factors impacting costs? How do these affect demand?

- What are the major input costs governing the company's operations?
- What is the share of input costs (components, supplies and equipment) from imports? What is the sensitivity of these costs to fluctuations in exchange rates?
- How does the location of ship yards affect transportation costs for components, supplies and equipment? How does this in turn affect the choice of suppliers?

16. How has the performance been on financial measures? How do these compare with those of peers and how are these expected to evolve?

- What are the working capital requirements as a proportion of order value? How is this funded?
- What is the company's gearing level and how does it compare with its peers?
- Is the company able to raise funds at competitive rates? How does the company stand in terms of interest cover? What is the sensitivity of interest expenses and interest cover to changes in interest rates?
- What are the commitments pertaining to bank guarantees the company is required to provide to counterparties? What is the cost involved?
- What are the gross, operating and net margins? How does it compare in relation to its peers?
- What is the sensitivity of revenue, costs and profitability to changes in currency exchange rates?

17. What are the products and services provided to the offshore marine industry?

- What are the various services provided to the offshore marine industry?
- What is the mix of order book, new orders, deliveries and revenues by different product and service offerings?
- How sensitive to changes in oil prices is the demand for these products and services?
- What is the company's strategy to manage volatility arising from changes in oil prices?
- What is the proportion of revenues from the non-energy segment (like offshore wind-mills and port-support vessels)?

18. How much presence does the company have in the deep sea offshore segment?

- What proportion of the company's products and services cater to the deep-sea vs nearshore/offshore marine segment?
- In the backdrop of oil and gas exploration progressively moving deep sea, what is the company's presence, capabilities and strategy for the segment?
- Does the company intend to leverage the likely surge in demand for offshore wind-mills?

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Environmental, Social and Governance

19. What are the details of the company's ESG principles, practice and track record?

- a. What is the company's strategy, practices and track record in reducing the energy intensity, water intensity, emissions intensity, material consumption, waste generation and overall environmental and ecological footprint during ship building, repair and maintenance operations?
- b. How much recycled, eco-friendly and locally sourced material are used during shipbuilding?
- c. How does energy consumption, emission, water use and waste generation intensity of the ships and other vessels developed by the company, during their normal functioning, compare with industry benchmarks? What are the initiatives taken to reduce these?
- d. Does the company invest in developing solutions to reduce, or make less hazardous, various discharges like ballast water, grey and black water and bilge water from the vessels it builds?
- e. What are the measures such as anti-fouling systems implemented to eliminate or minimise transfer of invasive aquatic species through the vessels built by the company?
- f. Are systems and mechanisms implemented to reduce, reuse and recycle water used during normal functioning of the vessels?
- g. How has been the company's track record regarding the safety and fair treatment of workers employed in its facilities? What is the total number of fatalities, days lost and injuries in relation to total number of personnel employed?
- h. What is the proportion of total work sub-contracted or outsourced?
- i. What is the proportion of the local population in the workforce?
- j. How much is the typical spend on maintenance and safety at the company's facilities?
- k. Does the company participate in industry fora such as The Sustainable Shipping Initiative (SSI), The Clean Cargo Working Group (CCWG) and Green Ship of the Future?