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A Study on Global Shipbuilding Growth, Trend and Future Forecast

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Abstract

This paper aims at briefly analyzing the global commercial shipbuilding particularly its growth, trend and future forecast. At first inherent characteristics of the global shipbuilding industries have been discussed. On the basis of the secondary data of shipbuilding market segment, order book, countries share etc, shipbuilding growth has been analyzed. It is revealed that shipbuilding industry has vast experiences in surviving during peaks and slumps of economy but due to its nature of being a highly capital intensive industry, strong government support and political stability is prerequisite to tackle this situation. The key factors that drive the growth of the shipbuilding market have also been discussed.

1. Introduction

Shipbuilding industry has become more global than local due to increasing globalization demand and easy to move raw materials, components, finished product across the world’s waterways. Shipbuilding industry always dominates by maritime nations [1], like Britain, France, Germany, USA, Japan, Korea, and China. Shipbuilding has two main segments; named as commercial segment and naval segment. Presently commercial shipbuilding sectors are dominated by China, Japan, Korea, European Countries; whereas naval shipbuilding sector is dominated by USA, China, EC, Russia, Japan, India. Shipbuilding is considered to be one of the most strategic, oldest, most open and highly competitive markets in the world [2]. Although shipbuilding industry has vast experiences in surviving during peaks and slumps of economy, the current global economic and political crisis has hit shipbuilding industry more severely. As shipbuilding is a highly capital intensive industry so strong government support and political stability is prerequisite to survive this industry. The shipbuilding industry is accountable for the design and construction of oceangoing vessels all around the globe. The industry is involved in the construction and modification of ships and these operations are carried out in specialized facilities which are known as shipyards. The key factors driving the growth of the market are GDP, global seaborne trade, improved economic growth, rising urbanization, fossil fuel price and increase in global steel production. Some of the noteworthy trends and developments of this industry are green shipbuilding technology, automation in the industry, modular shipbuilding technique, advanced outfitting, ship launching airbag, LNG/LPG fueled engines and solar and wind powered ships. However, the expansion of shipbuilding industry can be affected by increased competition, environmental regulations, enhanced globalization and political and financial instability. This is an analytical research paper based on data collection during the first author’s stay in China for constructing a naval vessel. On the basis of the data particularly for shipbuilding market segment, order book, coun-

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tries share, Govt. policies etc, shipbuilding growth has been analyzed. The experience of survival of the shipbuilding industry during peaks and slumps of world economy has been also observed. The key factors that drive the growth of the shipbuilding market have also been critically discussed. This paper also briefly analyze the global commercial shipbuilding; particularly growth, demand, share, trend and future forecast. That brief analysis will be helpful for all relevant shipbuilding stakeholders.

2. Global Shipbuilding Trend Analysis

Historically, shipbuilding industry has suffered from the absence of global control and role and there is a tendency towards over-investment due to the fact that shipyards offer a wide range of technologies, employ a significant number of workers and generate income as a shipbuilding market. On the other hand, it is very common that shipbuilding is always a state supported industry and enjoy government subsidies [3]. As a result shipbuilding is an attractive industry for developing countries. After World War II, Japan used shipbuilding in the 1950s and 1960s to rebuild its industrial structure; Again South Korea started to make shipbuilding a strategic industry in the 1970s, and China is now in the process of repeating these models with large state-supported investments in this industry [4]. Conversely, Croatia, Brazil, Philippine, Myanmar, Vietnam are privatizing its shipbuilding industry. Shipbuilding has gone into decline in high labour cost countries, due to the state subsidies have been removed and domestic industrial policies do not provide support. The British shipbuilding industry is a prime example of this with its industries suffering badly from the 1960s. In the early 1970s British yards still had the capacity to build all types and sizes of commercial vessels but today they have been reduced to a small number specializing in defence contracts, luxury yachts and repair work. Decline has also occurred in other European countries, although to some extent this has reduced by protective measures and industrial support policies. In the U.S.A, the Jones Act [5] which places restrictions on the ships that can be used for moving domestic cargoes) has meant that commercial shipbuilding has continued, albeit at a reduced rate, but such protection has failed to penalize shipbuilding inefficiencies. The consequence of this is that contract prices are far higher than those of any other country building oceangoing ships. China is an emerging shipbuilder that overtook South Korea during the time of global financial crisis in year 2008 to 2010. China is now firmly the world’s largest shipbuilder with around 45% of the world’s total orders, and its quality and technology have improved significantly. At present, Korea is the world’s second largest shipbuilding country with a global market share of about 29% in 2014 (Figure 1). South Korea leads in the production of large vessels such as Super tanker, cruise liner, LNG and LPG Carrier, drill ship, offshore structure (FSPO, FPO) and large container ship. South Korea’s shipyards are highly efficient, with the world’s largest shipyard in Ulsan operated by Hyundai Heavy Industries slipping a newly built, $80 million [6] vessel into the water every four working days. South Korea’s “big three” shipbuilders, Hyundai Heavy Industries, Samsung Heavy Industries and Daewoo Shipbuilding and Marine Engineering, dominate global shipbuilding, with STX Shipbuilding, Hyundai Samho Heavy Industries, Hanjin Heavy Industries and Sungdong Shipbuilding and Marine Engineering, also ranking among the top ten shipbuilders in the world. While evaluating the trend of global shipbuilding industry, it is found that, Japan had been the dominant ship building country from the 1960s through to the end of 1990s but gradually lost its competitive advantage to the emerging industry in South Korea which had the advantages of much cheaper wages, strong government backing and a cheaper currency. South Korean production overtook Japan’s in 2003 and Japanese market share has since fallen sharply (James, 2009). Philippines has placed fourth among shipbuilding nations around the world producing more than six million deadweight tonnes of ships built in 2012 [7]. Figure 1 shows the world shipbuilding market share by countries. Figure 2 is showing the

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<th>Rank</th>
<th>Country</th>
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<tr>
<td>1</td>
<td>China</td>
<td>67,000,000</td>
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<tr>
<td>2</td>
<td>South Korea</td>
<td>53,000,000</td>
<td>29%</td>
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<td>3</td>
<td>Japan</td>
<td>28,000,000</td>
<td>18%</td>
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<td>4</td>
<td>Philippines</td>
<td>6,000,000</td>
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<tr>
<td>5</td>
<td>European Union</td>
<td>4,500,000</td>
<td>1%</td>
</tr>
<tr>
<td>6</td>
<td>Rest of the world</td>
<td>11,000,000</td>
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Fig. 1: World Shipbuilding Market Share by Countries (2014)

global new-building order book since 2005. This graph indicates the cyclic movement of new orders with the time.
From this graph, it has been seen that at first half cycle phase of the sinusoidal curve the demand was at the trough at 2005 and continued to rise at peak until 2007, and then fell down at 2009. At the second half cycle phase, the demand was at the peak on 2010 and fell down on 2012. From the last half cycle phase, the demand curve rose again and reached the highest point on 2013, and then it decreased gradually [9]. Besides, from this analyzing it is obvious that shipbuilding markets are always unstable; exists between hope and frustration and never remains platitude. This phenomenon is hopeful for ship building stake holders and shipyards. Figure 3 compares the changing trend of world new annual orders between the year of 2014 and 2015. It has been seen that world shipbuilding orders dropped down from 72.2 m GT in 2014 to 68.7 m GT in 2015. All types of ship orders such as Bulk carriers, Gas Carriers, and others decreased from 2014 to 2015 except two types (Tanker & Container). However, overall world orders trend were negative, the container and tanker orders moved opposite to the wave; where these two types of ship orders increased over last year. Besides, it is also observed that all types of ship market usually not fall down at the same time; some market fell down and some stepped up. For an example, where in 2015 bulk carrier market fell down, but container orders increased [?]. Figure 4 shows the global demolition since the last 11 years and the top ship demolition countries. From the graph, it has been seen that global demolition had been increasing till 2012. But since then it has started to decrease gradually. Ship demolition major market share belong to China and Greek, as they possesses the biggest commercial fleet. One interesting point is that, there is a direct relation between global ship demolition and global ship order. From Figure 5 in pie charts it has been showed that, the proportion of the different type of ship in global orders. According to this pie chart, the new order demands of tanker and container are higher than the other vessels demand. In Figure 6, it has been shown the different types of ship order in last decade. If we analyze the graph, we can find some phenomena repeat every after some years.
3. Sector-wise Present Global Shipbuilding Market Analysis

3.1. Tanker Market

From the graph (Figure 7) on tanker order book in 2015, it has been shown that, number of all types (crude & coated) of tanker gradually increases in 2015 except VLCC. Global economic growth and the dislocation of consumption and production drives energy transport and that increase the supply and demand of tanker market. Prices of new-build and second hand tankers are a vital force which reflecting the industry’s dynamics. Again lower crude prices make oil purchases attractive, triggering stockpiling and increased demand for tanker vessels.

3.2. Gas Carrier Market

The number of almost all types of LPG carrier (of different capacity) has been increased throughout the year 2010 to 2014. Interesting point is that, in 2015 this number has gradually decreased.

3.3. Bulk Carrier Market

The global dry bulk carrier fleet is divided into four categories based on a vessel’s carrying capacity. These categories consist of: Capesize vessels, Panamax vessels, Handymax vessels, and Handysize vessels. The global dry bulk shipping industry is an essential part of the international shipping sector, with ocean-going vessels representing the most efficient and often the only method of transporting large volumes of basic commodities and finished products. The industry itself is extremely cyclical and volatile, characterized by large booms and busts. The key factors for growth of the global dry bulk industry include rising urban population, accelerating global economic development, growing steel production and increasing global pig iron industry. Some of the noteworthy developments of this industry include downturn in the dry bulk charter market and containerization of dry bulk.
3.4. Container Shipping Market

The container-shipping industry has been highly downstream over the past five years. Making things worse, earnings have been exceptionally volatile. Several factors are responsible, notably global financial crisis, and redoubled efforts by corporate customers to control costs. A drastically change in number of container ship has occurred after the year 2006 and 2007 specially in 2009. Charter rates may be another reason for decreasing the container shipping market. The market needs growth in the high volume trades in order to get the market evolution going and create an effective deployment of ultra large containerships. We expect the challenges to persist, especially with new capacity, but argue that container-shipping lines must not give up in the face of market adversity. They can and must launch comprehensive transformations that addresses technical issues and organizational and mind-set challenges. This is the only way to stay a step ahead of competition and achieve elusive steady condition.

4. Analysis of Shipbuilding Growth with Future Forecasting

There is a direct relationship between world GDP growth and shipbuilding growth. On the other hand, world GDP growth, seaborne trade growth and active fleet growth are directly related to each other. From the Figure 8 in growth comparison graph, it has been clearly shown that on 2009 all three figures were in downstream and very low position. Then all three parameters rose sharply on 2010 and then again fall down gradually. But last few years (2013-2015), the tendency of GDP growth is almost steady or change very moderately. So we can predict that seaborne trade growth and active fleet growth in the upcoming future will be steady like previous couple of years. The shipbuilding industry was dealt a huge blow by the global economic crisis in 2008, when vessel demand decreased, dragging down prices and shortening order book covers over the following seven years. Despite big fluctuations in price and demand, the major markets - China, Japan and South Korea; remain at the forefront of the global shipbuilding and ship repair industry. There are strong reasons behind the growth of their ship building market. Financial backing of their governments, investment by the own countries, a healthy dose of foreign investment due to lower labour costs, scheduled infrastructure developments and business friendly regulations helped them to reach peak position in 2015 (Figure 9). From analyzing the Global Shipbuilding Market, it has been found that, in different countries, the quantity of shipbuilding product gradually declined like sine curve; primarily due to slow economic growth and imbalance in supply and demand of ship. The weaker demand was also due to increase in shipbuilding
price. Shipbuilding is considered to be one of the oldest, most open and highly competitive markets in the world. Although shipbuilding industry has vast experiences in surviving peaks and slumps of economy, the recent past global crisis has hit shipbuilding industry more severely. Strong government support and political stability is required in this industry because of being highly capital intensive. In Figure 10, it has been clear that, government support and countries own investment in this sector is the important prime mover to survive in case of global slump. There is still huge room for shipbuilding industry to grow in the next decade. Countries like Japan, Korea and China are increasing domestic demand which attracts global shipbuilding market.

![Fig. 10: Historical Evidence of Investment by Owner Countries (government support).](image)

### 5. Forecast of Global Shipbuilding

Global shipbuilding industry will continuously dominated broadly by Asia and particularly by China, South Korea and Japan due to few distinct advantages; such as cheaper wages, strong government backing and strong forward & backward linkage industries. We forecast that, shipbuilding market for tanker and container will growth next few years. On the other hand shipbuilding market for bulk carrier has less hope for growth in the next decade. As most of the developing world in an economic slowdown, so there will be lengthened weakness in commodity prices over the next decade. On the other hand, prices for coal, iron ore and crude oil are all likely to remain depressed for the next few couple of years. Accentuating the price weakness is that most fleets with the exception of Panamax fleet coal and grain cargo vessels are fairly young, leaving little room to reduce capacity. The trend in tanker shipping, it is expected to stay strong in the short term. However lower oil prices will spur more consumption, the overall global oil demand growth will average just 0.6% per year through 2040. The excesses in industrial capacity, housing inventory and debt are expected to further dampen China’s domestic demand [12]. While the larger Asian shipyards appear stable, smaller shipyards may be vulnerable, particularly those that specialize in the dry bulk and offshore vessel markets. Shifts in global demographics and population growth rates, coupled with long-term economic growth in developing markets, will have implications for the maritime sector over the course of the next decade. The middle class is growing in the emerging economies of Asia, Africa, and Latin America where disposable incomes will drive growth in demand for imports of commodities and finished goods. One consequence for the maritime sector of a rise in consumer spending in developing markets will be long-term growth opportunities for container ships. Iran’s oil adding to global market will further depress already weak oil prices, inflating near-term demand for oil, gas and petroleum products, thereby helping global shipping overall [13]. New-building prices suggest that freight rates will drop further. Shipping’s employment problem is critical, because ship and shipbuilding industry is low-tech compared with industries such as the aviation, automotive and technology. To attract the next generation of maritime professionals, shipyards must become more technologically advanced and innovative, and seafaring must learn new skills and integrate new technology. The key factors driving the growth of the shipbuilding market are GDP, global seaborne trade, improved economic growth, rising urbanization, fuel price, and increase in global steel production. The expansion of shipbuilding industry will be affected by increased competition, environmental regulations, enhanced globalization and political and financial instability. It has been clear that, government support and subsidy to the shipbuilding industry is mandatory to growth and long term survives of the industry.
6. Conclusion

Shipbuilding is considered to be one of the oldest, most open and highly competitive markets in the world. Although shipbuilding industry has vast experiences in surviving peaks and slumps of economy, the current global crisis has hit shipbuilding industry more severely. Strong government support and political stability is required in this industry because of being highly capital intensive. There is still huge room for shipbuilding industry to grow in the next decade. Countries like Japan, Korea and China are increasing domestic demand which attracts global shipbuilding market. World GDP growth, seaborne trade growth and active fleet growth are directly related to each other. Seaborne trade growth and active fleet growth in the upcoming future will be steady like previous couple of years. However, the expansion of shipbuilding industry may be affected by increased competition, environmental regulations, enhanced globalization and political and financial instability. As shipbuilding markets are always unstable; shipyards should explore and emphasize of different types of ship market, rather than specific types of the ship; so that shipyards can switch to profitable types of ship building to survive in the global market. Government should support the shipbuilding industry in time of global financial crisis. Shifts in global demographics and population growth rates, coupled with long-term economic growth in developing markets, will have implications for the maritime sector over the course of the next decade. The middle class is growing in the emerging economies of Asia, Africa, and Latin America where disposable incomes will drive growth in demand for imports of commodities and finished goods. One consequence for the maritime sector of a rise in consumer spending in developing markets will be long-term growth opportunities for all commercial and particularly container ships.

References