

SHIPPING MARKET - CAN WE PREDICT THE FUTURE

-ASST COMDT UJJWAL (1892-X)

1. **Introduction.** Around 71 per cent of the Earth's surface is covered with water, with more than 96 per cent held in oceans. 80 per cent of the volume of international trade in goods is carried by sea, and at any one time there are more than 30 million people at sea. The maritime industry is responsible for the transportation of goods, products, and people by sea. This includes everything from container ships, and oil tankers, to cruise ships and passenger ferries to smaller vessels like fishing boats.

It is a crucial part of the global economy—without it, international trade would come to a standstill. In addition to transportation, the maritime industry also encompasses activities like shipbuilding, repair and maintenance, port operations, and marine engineering. Imagine an industry hauling goods over \$14 trillion, controlling 80% of global trade, and being the cheapest mode of transportation for goods worldwide- that's the Shipping Industry whose future is never ending and is surely beyond the predictions.

The global maritime industry is responsible for facilitating over 80% of the world's trade, but it also generates 3% of greenhouse gas emissions. The future of this industry will be shaped by critical forces, including the extent of global co-operation on climate change and the pace of technological uptake, against a backdrop of intensifying geopolitical and macroeconomic shifts.

2. **History.** From the development of wooden sailing ships in ancient civilizations to the invention of steamships in the 19th century, and finally to modern Internal Combustion engines, maritime transportation has undergone major technological transformations. These advancements have increased the capacity, speed, and efficiency of shipping, allowing transportation of goods across vast distances. As technology continued to evolve, the introduction of containerization in the mid-20th century further revolutionized the industry, enabling standardized handling, storage, and transportation of goods on a global scale. These historical milestones have propelled the industry into being the central stage for global trade and commerce.

Companies such as Maersk, MSC, and CMA CGM, among others, have played a pivotal role in shaping the shipping industry, investing in cutting-edge technologies and innovative business models. Infact these companies are currently having one of the best financials report in their long history, but more on that later. The recent decades has unleashed unprecedented challenges on the global shipping industry, disrupting supply chains, trade flows, and logistics operations in its due course.

Also, The shipping industry faces significant regulatory and environmental challenges, including the implementation of Ballast Water Treatment Systems (BWTS), retrofitting scrubbers, and Very Low Sulphur Fuel Oil (VLSFO); with increasing pressure on the shipping companies to go Carbon neutral by 2050.

3. **Current State of the Global Shipping Industry.** The ongoing Ukraine-Russia war, energy crisis, inflation, job cuts, Covid-19 resurgence in China, tighter monetary stance, and supply-side bottlenecks have weighed down on business sentiments and led to weak consumer demand. Higher inflation is also resulting in a fall in consumer saving and reducing their purchasing capacity.

The current cues from European markets remain weak with falling imports amidst the ongoing war. The global container demand is expected to contract further, and the demand for air freight also remains muted. Landside transportation is also suffering from cooling consumer demand. The pent-up demand in the aftermath of the pandemic that led to chaos at ports with a historic surge in cargo volumes is now fading away. There are cases of piling up of empty containers at some ports due to dampening consumer demand, a major indicator of economic slowdown. With more than-expected inflation, and fears of an upcoming recession causing a setback in consumer demand and imports, shipping companies are witnessing canceled sailings.

While the near-term indicators for shipping businesses remain largely negative, the long-term positive view of the industry remains intact."While the industry may see some headwinds in the short term, major dynamics are in favor of the industry. With technological innovations, sustainability measures, and restructuring of core channels, the industry is likely to post better results in upcoming times." The shipping industry is known for its resilient work structure and experience in working under extremely tough situations. Even amidst tough economic times, there are some global shipping companies that have posted decent financial results and showing no signs of a slowdown.

The shipping costs for containers (Maritime) have increased as much as 500% from their pre-pandemic levels. Regained manufacturing activities in the post-pandemic period and port congestion are primary reasons for the surge in shipping costs. The logistical issues due to the war have compelled top shipping companies to increase freight charges to keep their bottom lines in the positive territory. Maersk's CEO attributed the exceptional results to soaring freight rates which have now peaked.

The industry is also working incessantly to decarbonize its operations and make systemic changes to transition to a zero-carbon future.

People in the shipping industry, especially those who sail deep into the oceans, are already witnessing the effects of climate change. The plea to shift to sustainable operations is more than ever. The growth of Cross-border eCommerce has also brought a sea of changes in the shipping industry. There is a shift towards more efficient and cost-effective logistics and

shipping solutions, such as multi-modal transport, advanced tracking technologies, and automation to fulfill the increased demand for faster and more reliable shipping services. Shipping companies are now using granular trade-flow modeling systems to understand how macroeconomic factors develop and how they should strategize responses to create resilient operational models. Such digital disruption and reinvention will create value-oriented services targeted to provide customized shipping services to customers. Digital transformation will reduce supply chain frictions and spur trade growth.

Also, governments, particularly in emerging markets, are encouraging cross-border trade and establishing special economic zones that promote free trade (exemption from tax and customs duties). The foreign direct investment flow is significant in these zones. The popularity and growth of these special economic zones will further shift the trade balance in favor of emerging economies, and the shipping industry will be a direct benefactor of this development. The shipping operators provide the trading network via transport links that connect markets.

Already, the world's biggest shipping giants and multinational logistics providers have entered emerging markets. Shipping companies such as DHL, FedEx, Maersk, etc., operate in more than 150 countries and service every emerging market. With government support, quality infrastructure, and industry-friendly regulations, the shipping sector is all set to achieve new highs in the coming times.

From advanced communication systems to autonomous vessels, maritime trade has witnessed significant technological advancements that have transformed operations, efficiency, and sustainability, as well as reducing manpower and the human error element that comes with it. One major area of technological innovation in the shipping industry is digitalization. With the advent of sophisticated software systems, data analytics, and Internet of Things (IoT) devices, shipping companies can now better manage their operations, track shipments, optimize routes, and enhance supply chain visibility. This has led to improved efficiency, reduced costs, and enhanced decision-making capabilities. Automation is also reshaping the shipping industry. Automated port terminals, robotic cargo handling, and autonomous vessels are becoming more prevalent, leading to increased productivity, reduced human error, and improved safety. These technological advancements have the potential to transform the entire logistics and supply chain ecosystem, making shipping operations faster, safer, and more reliable.

4. **Recognised challenges over decades.**

- (a) **Regulatory Compliance.** The emissions regulatory framework aims to reduce sulphur emissions by monitoring carbon emissions, fuel consumption and associated transport work. Ship operators are required to use far more extensive distillate fuel (gas oil) with a sulphur content of less than 0.1 percent as compared to 1.0 percent earlier. Although distillates cost more than the fuel that most ships presently

use, the price difference is expected to be greater due to uncertainties about which oil refiners will be able to produce distillate in the quantities that will be required.

(b) **Cyber Security.** With new technologies pushing the industry forward at a rapid pace, new threats emerge. The omnipresent interconnectivity exposes the sector's infrastructure to more and more cyber vulnerabilities- this year alone cyber-attacks increased by 400% due to COVID-19 crisis. Cyber risk is not only tied to new digital solutions, but it is equally important to understand the human and organizational factors involved in order to get the full picture. Shipping companies need to be able to manage risk in a consistent and transparent way, for a safe and secure transition to the new connected digital market.

(c) **Financing.** During the boom of 2004-08 in the shipping industry, many banks aggressively lent to shipping companies. There was considerable PE invested in the industry, providing capital for growth and restructuring of companies. The availability of this financing led to overcapacity and declining freight rates. This, in turn, led to declining profits, with a number of companies filing for bankruptcy. The heavy toxic debt burden following the 2008-09 global financial crisis and a shipping markets crash in 2010 has resulted in a substantial decline in finance from European banks in particular. Compounded by a lack of shipping finance provisions from regional banks, this has caused liquidity in the shipping industry to tighten, forcing marine operators to seek alternative finance in order to continue operations.

(d) **Response to Risk.** The performance of the shipping industry is greatly dependent on other factors such as consumer preferences, trade, geopolitical factors, economic factors and global pandemics. In order to reduce disruption in their operations and loss in revenue, companies need to be able to respond quickly to these changes when they occur as well as have robust operating models which have accounted for risks that could occur.

(e) **Capacity Optimization.** There is an over-supply of shipping vessels in comparison to demand leading to declining freight rates. The major driver of overcapacity has been the anticipation of continuing expansion in trade and new vessels being ordered to meet the expected demand. New container ships are ordered with few being retired.

5. **Developments in maritime industry**

(a) **Changing Role of Vessel.** The emergence of digital technologies and tools will transform the role of vessels from being a central mechanism to an enabler of value creation. These tools will create smarter, more connected distributed networks and will provide performance monitoring as well as real-time visibility of the vessels. This will massively reduce the chasm in communication between the people on the vessel and those on-shore and will create more centralized know-how where data from one vessel can be used to drive improvements in other vessels as well.

(b) **Digital Transformation.** Shipping is going through a digital transformation which is driving numerous other trends in the industry. There is a large number of startups creating relevant tools. Technologies such as Internet of Things (IoT), big data, artificial intelligence (AI) and sensors are being used to optimize operations, enhance efficiency, drive down costs and increase the uptime of vessels. Implementation of these innovations will require changes operating models, use of data, cyber security as well as the role of vessels to create value.

(c) **Transparency.** With the advent of new technologies, the Shipping industry's landscape is changing rapidly. Companies are adopting blockchain to their supply chain to increase productivity, efficiency and transparency. To effectively manage the increasing supply chain pressure due to rising volume of global trade, companies are shifting to platforms that can ease their work. With the inclusion of blockchain into the operations, the companies believe that the information is traceable, demonstrable, transparent and is recorded in a way that all parties can trust the information. This is creating fresh opportunities for shipping carriers to improve operations and efficiency and helps them to maintain greater transparency.

(d) **Ongoing Consolidation.** Increasing consolidation in the Shipping industry is driven by over capacity and weak global economic growth. Companies are looking for opportunities to increase market share and reach through M&A and alliances.

(e) **Sustainability.** There is growing awareness regarding sustainability in shipping, and it could become a key parameter for the companies to compete with others. This is not limited to developed economies, as energy-efficiency measures are also being established in developing economies through assistance provided by international organizations.

6. **Future dimensions of predictions.** The shipping industry is continually changing and adapting to meet the needs of the commercial marketplace, so that it can become more competitive and cost-effective. It is a huge and complex industry, which is constantly being affected by global trends and by advances in technology, materials and fuels.

Here are five future trends that perfectly illustrate some of the dynamic changes that are happening in the shipping industry and the new opportunities that these create for marine manufacturing businesses.

(a) **Digital sensing.** The technology for monitoring ship operations and performance has been steadily increasing in its sophistication. Ships of the future will have a complete network of sensors to measure all aspects of operations, including detecting faults and identifying areas needing maintenance or repair. Allied to this, increasingly powerful ship to shore communications will mean that most aspects of the ship's operation can be controlled by a land-based team of fleet managers.

(b) **Bigger megaships.** Improvements in ship technology, structure and materials will lead to even bigger megaships, particularly within the container shipping industry. Completed in March this year, the MOL Triumph is the world's largest container ship. It measures 400m long (for comparison, The Shard building in London is 310m tall). This giant ship will carry up to 20,150 TEU containers. Manufacturers will seek to take advantage of the lower transport costs that these vessels can provide by gearing their production to make the most efficient use of this container space.

(c) **Greener shipping.** There is constant pressure to reduce the carbon footprint of the world's shipping fleets, and this will only increase into the future. A whole host of technologies are being explored including low carbon fuels, more streamlined hulls, more efficient propeller design, improved voyage planning to make savings on fuels, better hull coatings and even air cushions to reduce friction.

(d) **Liquefied natural gas (LNG) as fuel.** There is growing interest in the potential of LNG as a fuel for commercial shipping. Those who support LNG believe it can help operators to meet their targets for reduced emissions, while also being competitive on price. CO₂ emissions can be reduced by up to 25% when compared with diesel engines. While conventional oil-based fuels will continue to dominate in the near future, there is likely to be increased adoption of LNG for specialist vessels, which gives an opportunity for the technology to be proved and developed on a larger scale.

(e) **Solar and wind power for ships.** The shipping industry is exploring renewable energy to power the fleets of the future. Some of this technology is already being trialled and tested. The Turanor PlanetSolar is a catamaran powered by 29,000 solar cells which has successfully circumnavigated the globe. However, the likeliest application for this technology in commercial shipping will be systems that reduce fuel consumption by supplementing the existing power supply with on-board wind turbines or solar panels.

7. As the shipping industry continues to evolve and adapt to changing dynamics, it is essential to stay informed and stay ahead of the curve to make informed decisions and capitalize on emerging opportunities in this dynamic industry. The connectivity that the shipping industry provides shapes the global trade arena. The future of shipping will be characterized by strenuous regulations and intense rivalry, and shipping providers will likely put more money into technological systems to enhance their productivity, environmental friendliness, and competitiveness in the market. As the public's growing interest in sustainability is changing the standards across all industries, the tide will turn in favor of the early adopters of alternative energy like solar and other greener and emission-free sources of energy. Exceptional speed and watertight reliability will be differentiating factors for shipping firms in upcoming times. However, the rising global temperatures, depleting fuel sources, extremely complicated supply chains, disruption-prone shipping routes, etc., are challenging situations going forward. Hyper-competition and protectionism during economic uncertainties are also risks to the shipping industry. But, the industry is known for its resilience and resourcefulness. Undoubtedly, the convergence of new-age technologies and disruptive business models will keep the massive global shipping industry intact.