

NEWSLETTER

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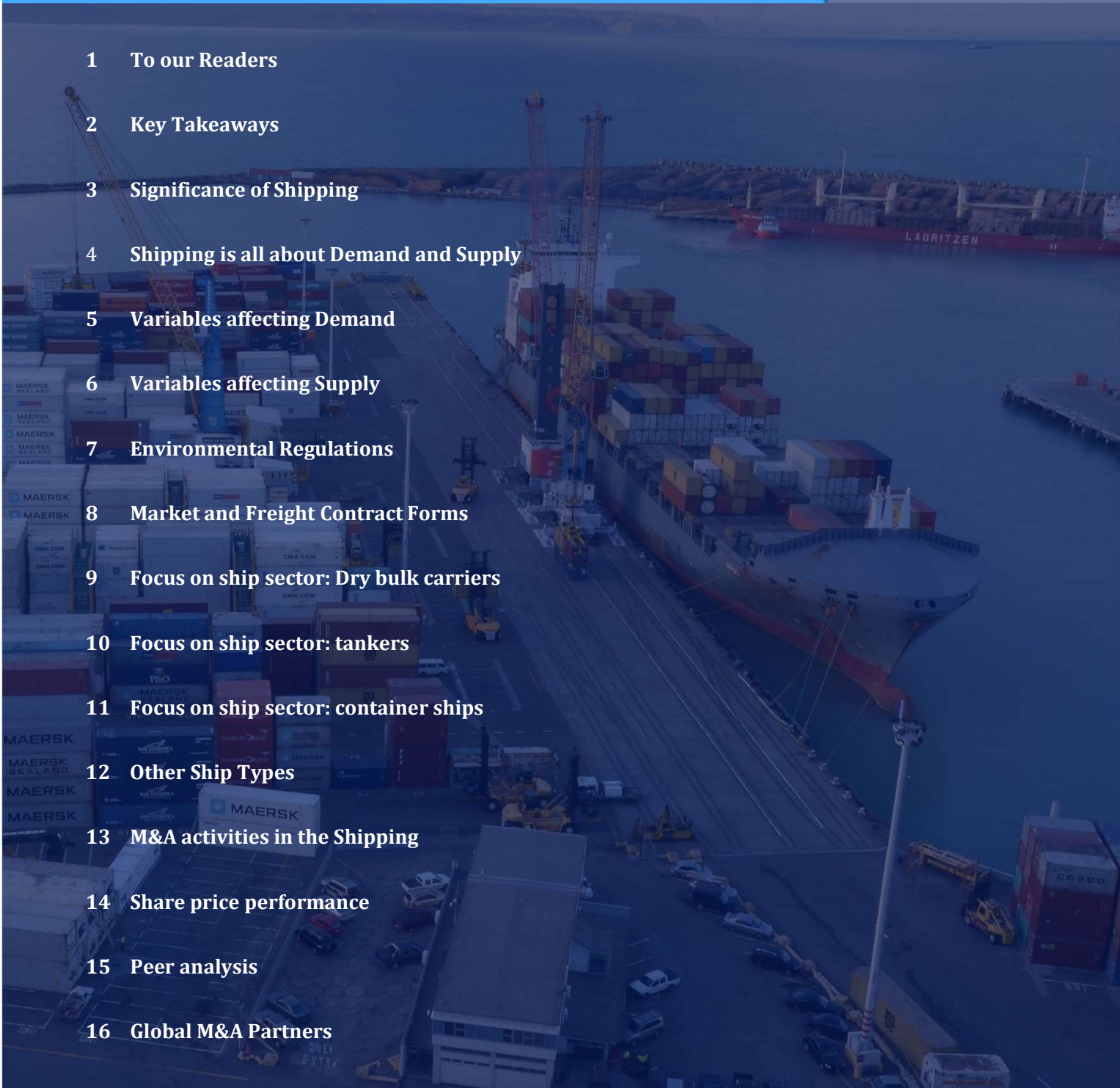
Shipping

May 2023

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1. TO OUR READERS

NEWSLETTER



Dear reader,

We live in a complex and dynamic world. We see many positive developments, like the rapid integration and acceptance of renewable energy and its techniques; in the medical world scientists are making progress in the treatment and prevention of diseases such as HIV, cancer and malaria; we see a decrease in percentage of people living in extreme poverty and an increase of people living in middle class prosperity, we are all getting older and technology is booming.

On the other hand, political and economic tensions are day-to-day reality. Worse are the armed conflicts, which are flaming up. According to Geneva Academy there are 110 armed conflicts worldwide. But there are not only armed conflicts, cyber warfare is disrupting a world so dependent on computer systems.

Challenges and opportunities are more and more formed by the advances in technology. Generation Y, the millennials born in a digital world, are completely used to digitalization. This has its effect on the availability and acceptance of AI, like the use of ChatGPT. AI has abilities like solving logic puzzles, writing computer code or constructing visuals on demand. But this dynamic development also has its downside, as the Future of Life Institute states **"AI systems with human-competitive intelligence can pose profound risks to society and humanity"*** and warns the world to pause the development of Powerful AI systems, until **"we are confident that their effects will be positive and their risks will be manageable"**.

Will we, as all world citizens, all comply to this request? Or is it a lost cause, with too many conflicting interests? One thing is for sure and that is that the rapid progress in AI has sparked anxiety about the potential dangers of the technology.

In the world of maritime and offshore we are dealing with some of these issues as well: use of renewable energy, digitalization, political tensions and geopolitical developments that interfere in trade routes and patterns. We have tried to provide some guidance in this complex world by explaining the phenomenon of shipping in the underlying publication. Why is shipping important, what is being transported and where to, what options do you have as an operator for deploying your ships as strategically and efficiently as possible, who are the major players? Questions like these and others are addressed. We hope you enjoy reading our Newsletter.

We wish you and your family a good health.

The JBR Maritime and Offshore Team

*: *Pause Giant AI Experiments: An Open Letter* - <https://futureoflife.org/open-letter/pause-giant-ai-experiments/>

2. KEY TAKEAWAYS

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Shipping accounts for 80% of world trade

Around 80% of world trade is carried by the shipping industry. This amount is this high, because the international shipping industry has the ability to offer economic and efficient long-distance transportation – in fact, it is the most efficient way of moving large quantities of cargo over long distances . Over the last 20 years, shipping experienced a tremendous expansion: world seaborne trade - calculated as goods loaded worldwide - increased by 83% over these two decades. Nowadays, merchandise trade, estimated at USD 22.3 trillion, contributes to 26% of world's total GDP (2021).

With trade being so dependent on ships and shipping, the maritime transport industry is a critical component of the global supply chain. Cargo ships worth millions of dollars travel around the globe, calling at ports for loading or discharging their contents as soon as possible. Dry bulk, of which coal, iron ore and grains are the most important cargos, amounts to 45% of total trade. Liquid bulk, including crude oil, refined products, chemicals and vegetable oil, accounts for 25% of total trade. Container trade amounts to a share of 15% of total trade. The remaining 15% consists of trade of cattle, cars and persons, exceptional cargo and others.

Asia remained the world leading maritime freight area, with a market share of over 40% in export and almost 65% market share in import. With China opening up after the strict COVID-19 lock-down regulations it is expected that its economy will increase and with this increase the import and export will be stimulated. China will be needing dry cargoes, like coal and iron ore for energy and production, it will need oil and refined oil products, and products manufactured in China will be exported again.

Meanwhile in Europe, the Russia-Ukraine war has disrupted global supply of grains, oil and refined oil products. New trade routes emerged, mostly bringing the cargo from a longer distance, which gave a pressure on the available fleet. Not favorable for shippers, though fortunate for ship owners and operators of dry and liquid bulk carriers, because this pressure on the fleet raised the tariffs for transport.

The container sector has seen supersize freight tariffs during the COVID-19 years. But this is over now and tariffs are back to normal, or even lower. Meanwhile, during these glorious years container liners have ordered many new vessels, which will be delivered in the coming years. The declining demand for containers along with the growing fleet will be reflected in the tariffs. Another consequence of the newbuilt boom of container ships is the shortage of capacity at shipyards to build other vessels, like dry bulk carriers or tankers.

The sector is transforming itself to be part of a greener and cleaner world. Since it accounts for approximately 2-3% of the emissions that cause climate change, there is increasing pressure on the sector to reduce its carbon footprint. National or regional regulations, regulations from associations and organisations, demand from shippers are drivers for ship owners to invest in sustainability. However, the uncertainty around the availability of new fuels and its infrastructure, the technical developments and the (timing of) regulations to be taken constitute a drag on investments.

However, the commitment to reduce at least a 40% in carbon intensity by 2030 and pursuing efforts towards a 70% reduction by 2050, both compared to 2008 levels meet 2050 net zero carbon, goals and some organizations even pursue net-zero by 2050, form a big stick to green the fleet now.

3. SIGNIFICANCE OF SHIPPING

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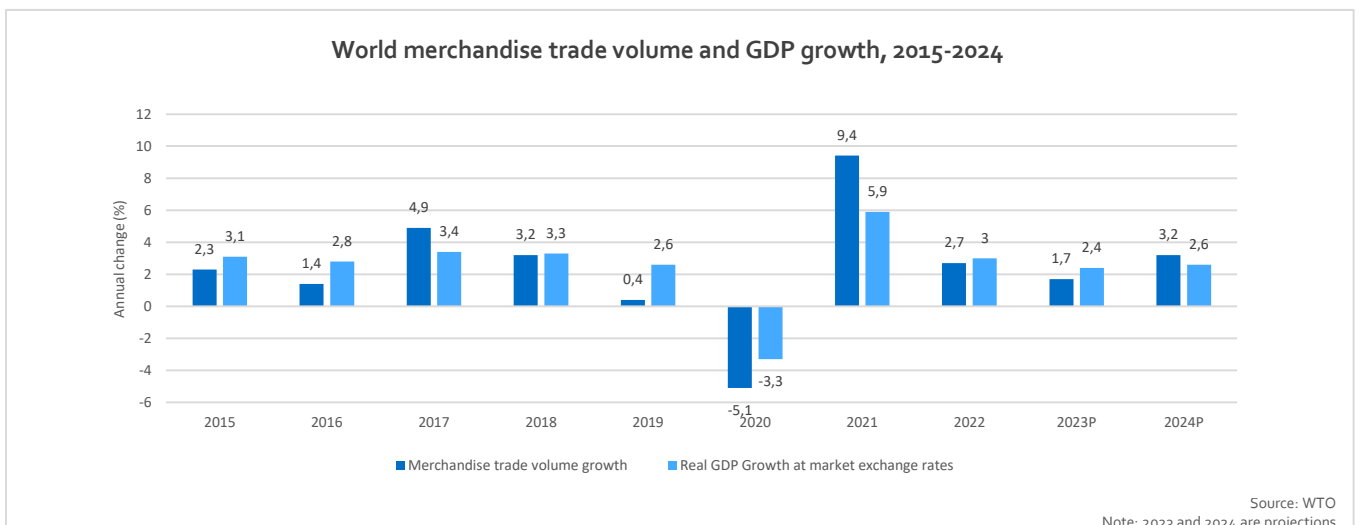
Overview

In the 20-year period from 2001 to 2021, the maritime industry experienced a tremendous expansion. World seaborne trade – calculated as goods loaded worldwide - **increased by 83% over these two decades.**

By way of comparison, merchandise trade, estimated at USD 22.3 trillion, **contributed to 26% of world's total GDP** as of 2021. This is monumental, given **almost 80% of world trade is carried by the international shipping industry.**

Shipments in terms of volume, reached 11.0 billion tons, which represented an impressive **1.4 tons per person** based on the current global population.

Having contracted by over 5% in 2020 on the back of the COVID-19 pandemic, international trade recovered in 2021 as volumes strongly bounced back at an estimated rate of 9.4%. This is in line with the global y-o-y decline in global GDP of 3.3% in 2020, which rebounded to 5.9% in the following year.



Between 2015 and 2022, trade has grown at a CAGR of 2.3%; with the WTO projections for 2023 and 2024 the CAGR for trade is predicted to amount to 8.9% between 2022 and 2024

The year 2021 saw a recovery, and by the third quarter, both containerized trade and dry bulk commodity volumes had returned to pre Covid levels. This laid the framework for a revolution in global supply chains and new marine trade patterns. Meanwhile, trade is normalized to pre-Covid growth figures and fluctuations.

A key trend in maritime trade is the shift in cargo composition. In 1970, more than half of global seaborne trade was tanker cargo

Today, about 60% of loaded goods are dry cargo, including bulk and cargo shipped in containers

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Significance of Shipping



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Impact of Global Regions

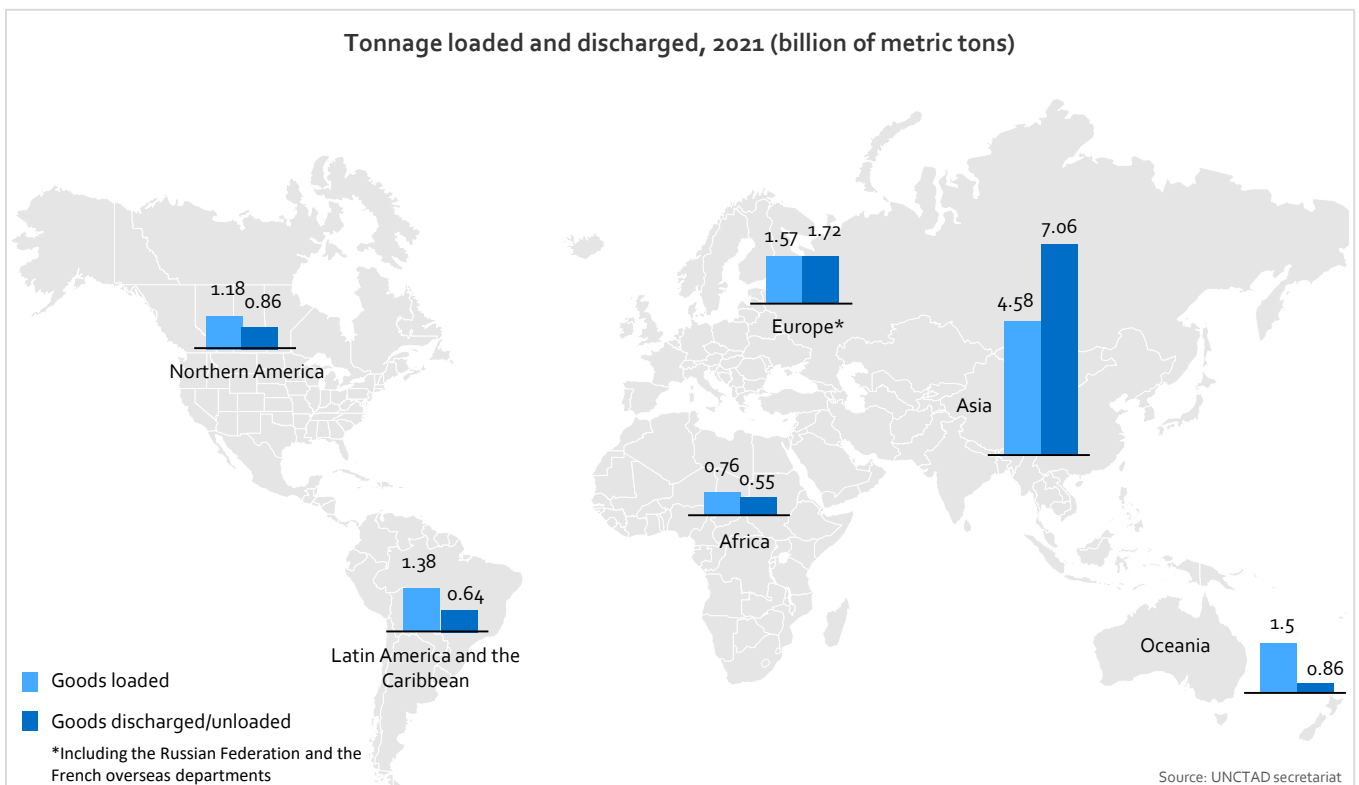
In 2021, Asia remained the world-leading maritime freight area with Asian ports, including in developed and developing regions, loading around 4.6 billion tons of goods, or about **42% of total goods loaded in ports worldwide**

About 7.1 billion tons, equivalent to 64% of total goods discharged worldwide, were received by Asian ports in 2021

For an economic region such as the European Union, shipping accounts for 80% of total exports and imports by volume, and some 50% by value

Around 40% of total containerized trade was on the main East-West routes – between Asia, Europe and the United States.

Non-mainland East-West routes such as South Asia-Mediterranean accounted for 12.9%, while South-South trades, such as Sub-Saharan Africa to Latin America and the Caribbean, accounted for 12.5%, and North-South, such as Africa to Europe, for 7.8%.



As demonstrated by the blockage in March 2021 of the Suez Canal by the Ever Given, the world's biggest passages have a substantial impact on world trade. A permanent closure of three important passages (Suez, Panama, Gibraltar) would increase the nautical distances and thus the duration of specific trips.

<p>Closure of the Suez Canal would reduce world trade by</p> <p> 3.5%</p> <p>and up to 26% in the Middle East</p>	<p>Closure of the Panama Canal would reduce world trade by</p> <p> 3%</p> <p>and up to 28% in the Northeast America</p>	<p>Closure of the Gibraltar would reduce world trade by</p> <p> 7%</p> <p>and up to 44% in the Mediterranean</p>
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Impact of Shipping on Global Macro Factors



Helping to house, move and feed populations

Each year, the Shipping transports nearly **2 billion tons of crude oil**, **1 billion tons of iron ore**, and **350 million tons of grain**. These shipments would not be possible by road, rail or air; such raw materials allow countries to create industries, construct cities, house and move populations, and transform resources into refined products for re-export. This ability to add value drives prosperity, and enables developing countries to scale up.

\$0.03 to ship a cup of coffee

Shipping also offers the **cheapest mode of transport per ton**: sea transport contributes just **\$0.03 to the \$3.0 cost of a cup of coffee**, \$0.20 to the \$6 cost of a bottle of wine, and \$5 to the \$100 cost of a Nike trainer. This underlines shipping's ability to transport goods cheaply and in large volumes, and with a minimal environmental footprint.



Ships transport more than 80% of world trade volume and about 70% of trade value

Today, about 60% of loaded goods are dry cargo, including bulk and cargo shipped in containers. Dry bulk ships are the main mode of transportation for commodities, such as grain, ore, and coal. Tankers account for over 30% of the loaded goods, with oil and oil products taking the majority part within this sector, with 25% of the total global loaded goods.

Transport companies influence transport costs and thus global imports and exports

Changes in economic circumstances, such as an increase in oil prices or a major economic slow-down in a key country such as China, largely impact shipping prices and trade flows.





4. SHIPPING IS ALL ABOUT DEMAND AND SUPPLY

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Overview

World container rates climbed more than sixfold by October 2021 from pre-Covid-19 levels - wherein doubling of maritime-transport expenses caused inflation to increase by roughly 0.7 percentage point.

This was primarily driven by supply-chain disruptions, commodity-price increases owing to Russia's invasion of Ukraine, and the unwinding of pandemic-era savings that boosted demand.

Policymakers also had a role to play – with the hiking of interest rates by Fed making up for its delayed start contributing to fueling the drivers of inflation.

A doubling of maritime-transport expenses caused inflation to increase by roughly 0.7 percentage point, that in turn has a multiplier impact on the market for shipping.

However - the cost of shipping a container from Asia to the US peaked at \$8,585 in March last year and has since plummeted to \$1,200 — the lowest since 2018, according to an index compiled by Drewry Shipping Consultants.

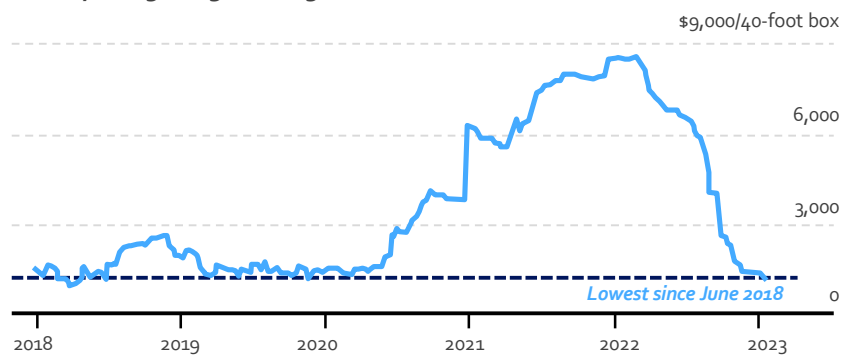


If ships have been invested in, but trade does not grow as expected, ships will become idle. As demand for ships is derived from seaborne trade, a change in seaborne trade will lead to a change in shipping demand. Demand for ships reflects the need for shipping capacity.

It is a rational decision for shipping firms to increase their shipping supply when they are optimistic about the sea cargo volume. Such reflection suggests that a change in seaborne trade affects carriers' decisions on whether or not to expand, and their decisions can influence the supply of world fleet capacity.



Drewry Hong Kong-Los Angeles Container Rate Index



Source: Drewry Shipping Consultants

Benchmark price for moving containers to US from Asia plummets 86% - lowest since June 2018

Outlook

→ With the pandemic related capacity crunch getting over, it is expected that most of its inflationary impact on freight rates has already been witnessed globally leading to stabilization of freight rates. Still, current global trade patterns largely contribute to the uncertainty in the global shipping landscape.

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Shipping is all about demand and supply



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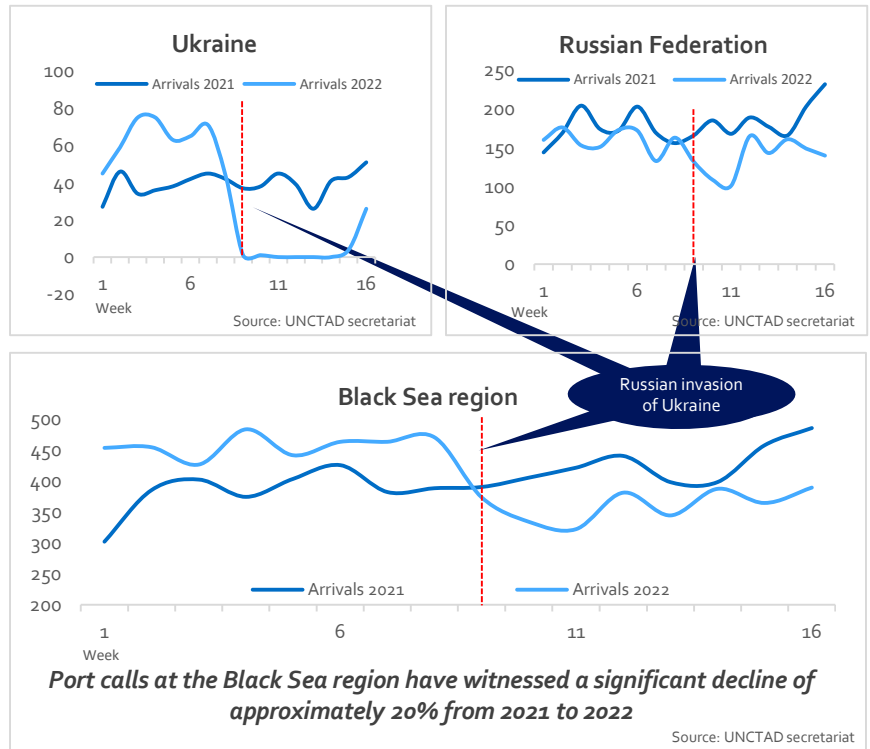
Change in Trade Patterns has largely impacted the global shipping market

The war in the Ukraine is stifling trade and logistics of Ukraine and the Black Sea region. The search for alternate trade routes for Ukrainian goods has rapidly increased the demands on land and maritime transport infrastructure and services.

Grain prices and shipping costs have been on the rise since 2020, but the war in Ukraine has exacerbated this trend and reversed a temporary decline in shipping prices. Between February and May 2022, the price paid for the transport of dry bulk goods- such as grains- increased by nearly 60% as per UNCTAD.

Disrupted regional logistics, the halting of port operations in Ukraine, the destruction of important infrastructure, trade restrictions, increased insurance costs, and higher fuel prices, have all contributed to the logistical hurdles arising in the Black Sea region leading to a costlier and unpredictable global trading and shipping environment.

Number of port calls of dry bulk in the Black Sea region, by week, 2021 and 2022



Outlook

- Russia is the primary exporter of crude oil to Asia while Western European crude oil - earlier sourced from Russia - is being replaced by the Middle Eastern supply. Thus, demand for tankers is on the rise since 2022, as they covered longer distances that led to increase in the freight rates.
- Another impact of the increase in crude oil prices is the increase in bunker prices, which will in turn bring overall up shipping costs.

While most of the world recovered from the COVID-19 trade disruptions, China kept a zero-COVID policy with strict pandemic restrictions. This influenced the world trade enormously.

Since the start of 2023 China is rapidly dismantling its lockdowns. The impact of the reopening on the global economy will be major.

Monthly TEU volume capacity coming into the US (West Coast + East Coast) from China has seen a steep decline since August 2022



Increased costs coupled with decrease in freight rates are a challenge for all traders and supply chains, particularly smaller shippers who are unable to absorb the additional expense and disadvantaged when they are negotiating rates and booking space on ships.

5. VARIABLES AFFECTING DEMAND

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Economy

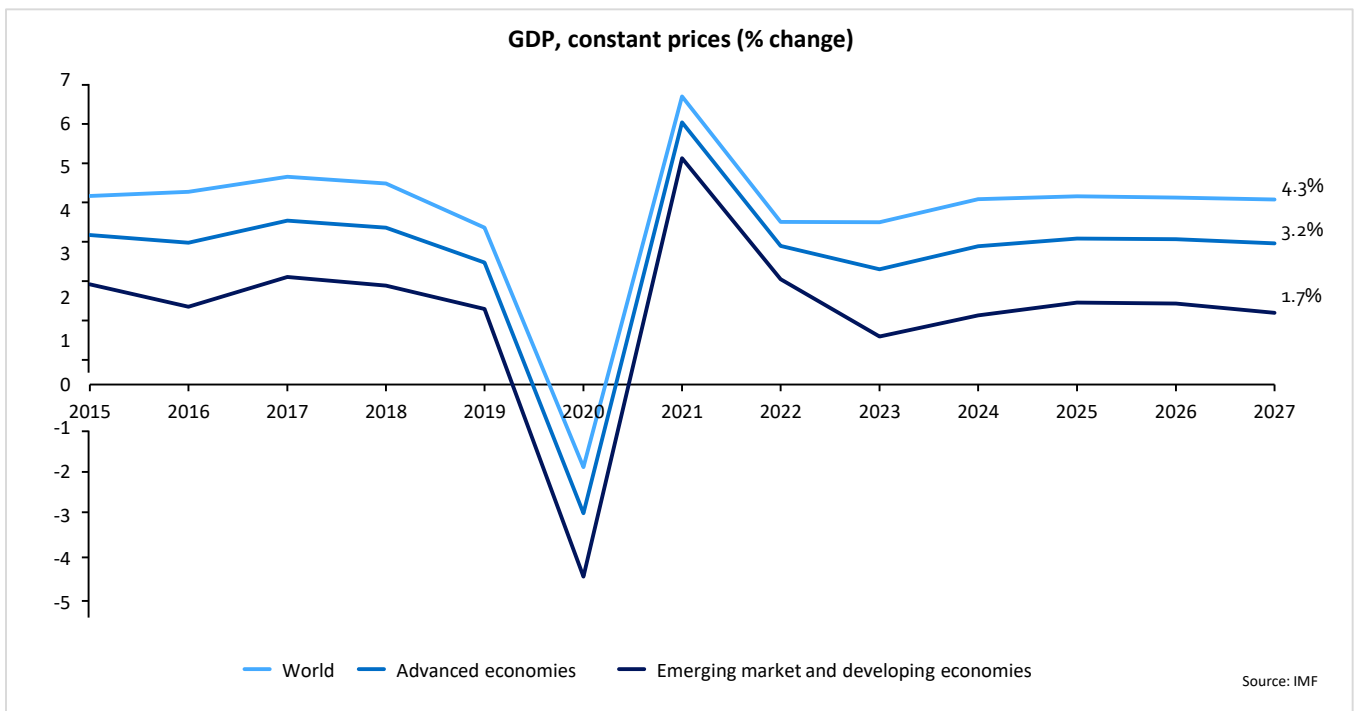


The occurrence of business cycles affect the rate of economic growth

The world economy generates most of the demand for sea transport i.e., import of raw materials for manufacturing industry, trade in manufactured products, et cetera.

The occurrence of business cycles such as alternate increases/reductions in the rate of economic growth, is expected to bring change in the demand for sea transport. These fluctuations will work through into seaborne trade so that demand for sea transport is unlikely to grow smoothly.

- Business cycles typically involve alternating periods of expansion and contraction, with each phase lasting several years
- The rate of economic growth is closely linked to the business cycle, with growth typically accelerating during expansionary phases and slowing down or declining during contractionary phases
- The duration and severity of each phase can vary widely depending on the specific factors driving the cycle



5 Shipping

Variables affecting demand



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Depletion of domestic sources of raw materials force industries to import raw materials to sustain economic growth

- Domestic sources of raw materials may become depleted, forcing users to turn to foreign suppliers leading to imports growing faster than industrial production
- This will lead to change in industrial development for demand of bulk commodities which make up a large part of seaborne trade
- On the other hand, due to increasing tensions between regions and countries, economies are implementing opportunities for near-shoring of (parts of) manufacturing. This will eventually lead to a change in trade patterns
- The status of the countries driving industrial growth may fluctuate; new nations may emerge while others may lose significance



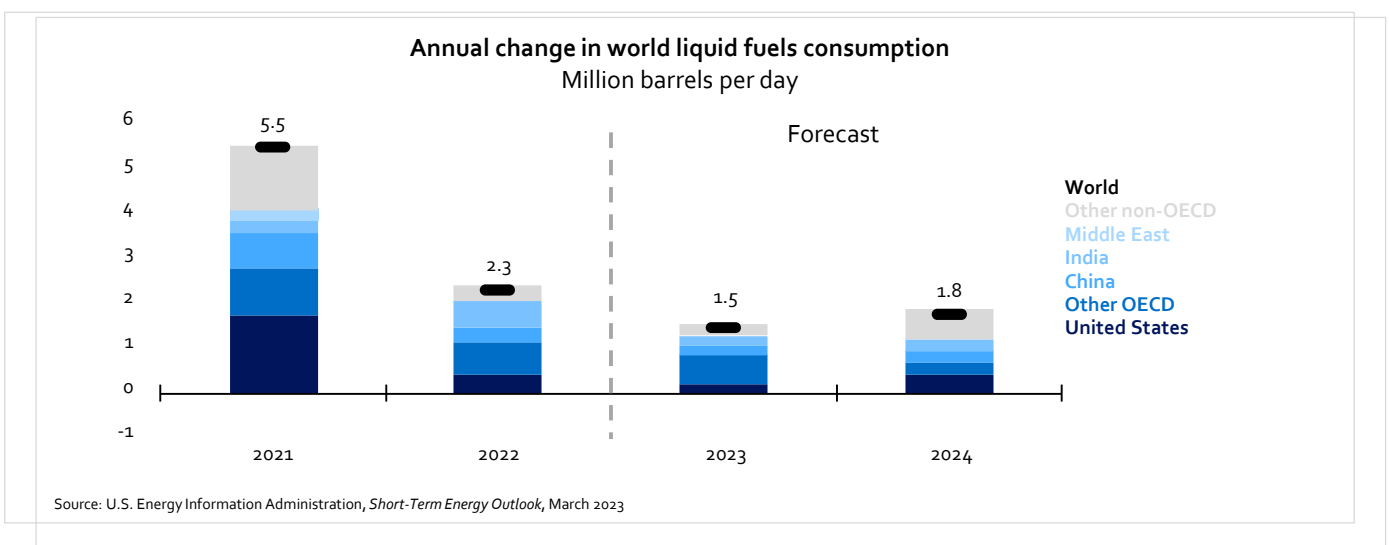
Trade



Demand and Supply of commodities

Crude oil

- Globally, the forecasted liquid fuels consumption increases from an average of 99.4 mn barrels per day (mbpd) in 2022 to 100.9 mbpd in 2023
- The higher consumption forecast is primarily driven by upward revisions to global economic growth
- China will account for about half of the growth in global liquid fuels consumption in 2023
- The global liquid fuel consumption is forecasted to grow by an additional 1.8 mbpd in 2024
- The Brent crude oil spot price is expected to fall from an average of \$84/b in 2Q2023 to \$81/b in 4Q2023, followed by an average \$78/b in 2024



5 Shipping

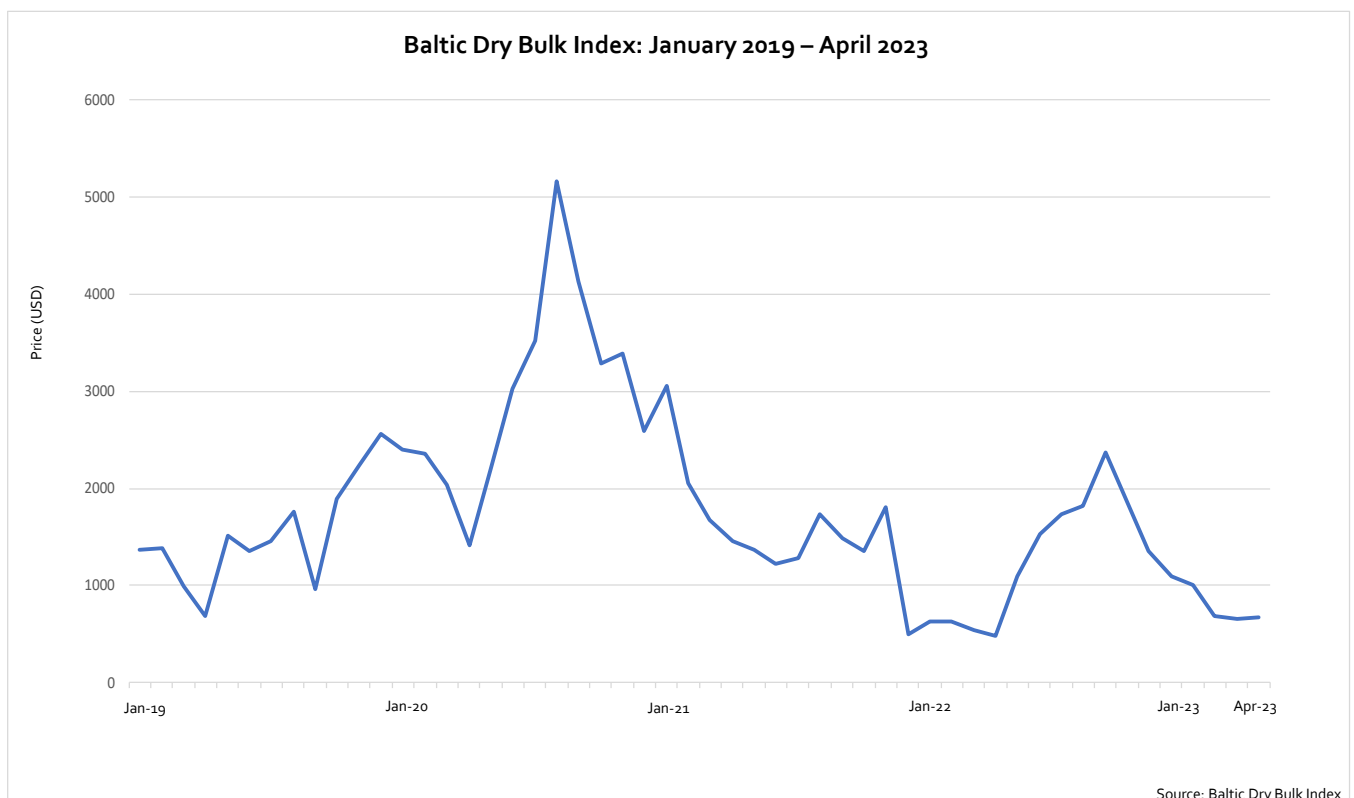
Variables affecting demand



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Dry Bulk commodities

- Now the zero-COVID policy in China has ended lockdowns and has reopened trade, there will be a pick-up in demand in China, which in its turn will drive an improvement in the supply/demand balance
- As depicted in IMF 2023 report, iron ore and coal demand will stagnate, while grain supply will remain subdued
- Growth in minor bulks will weaken as global economic growth stalls in 2023, while 2024 is expected to be a favorable year for dry bulk demand as economic conditions improve
- The bulk carrier fleet should grow by 2.7% in 2023 and by 2.0% in 2024 amid limited deliveries. Additionally, due to environmental regulations supply growth is expected to reduce by 0.5-1.5% as sailing speeds fall. Overall, supply is expected to increase by 1-2% in 2023 and by 0.5-1.5% in 2024, while demand growth is predicted at 1.5-2.5% in 2023 and 1-2% in 2024
- The Baltic Dry Index (BDI) is a shipping and trade index created by the Baltic Exchange, an independent organization that provides benchmark rates for the maritime industry. The BDI measures the cost of shipping dry bulk goods, such as coal, iron ore, and grain, along various routes around the world
- The BDI is reported daily by the Baltic Exchange in London. The index provides a benchmark for the price of moving the major raw materials by sea. The index is a composite of three sub-indices that measure different sizes of dry bulk carriers: Capesize, which typically transport iron ore or coal cargoes of about 150,000 tonnes; Panamax, which usually carry coal or grain cargoes of about 60,000 to 80,000 tonnes; and Supramax, with a carrying capacity between 48,000 and 60,000 tonnes. The BDI takes into account 23 different shipping routes carrying coal, iron ore, grains and many other commodities.
- The BDI is widely used as a leading indicator of global commodity demand and economic activity, as it reflects the supply and demand dynamics of the global shipping industry



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Variables affecting demand



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Average Haul

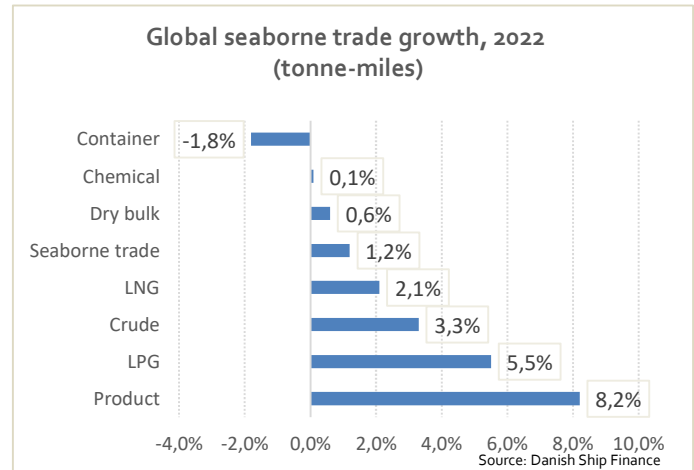


Tonne-miles for measuring transport performance

The demand for sea transport depends not only on the volume, but also on the distance over which a cargo is shipped. A ton of iron ore shipped from South America to China generates a greater drain on available capacity than a ton of iron ore shipped from Australia to China.

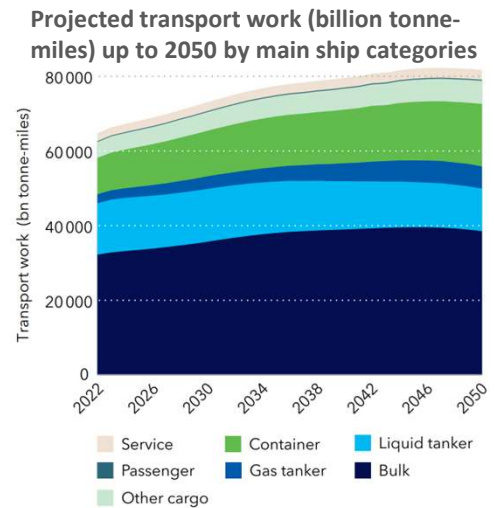
The average haul expresses the distance travelled by a ship before it reaches its final destination. The average haul is generally referred to as cargo tonne-mile – a combination of the transported weight multiplied by the transport distance of the goods.

So, tonne-miles reflect both changes to tonnage and distance. Performances in tonne-miles can be measured to analyse the e.g. efficiency, changes or occupancy of a vessel or fleet.



DNV estimates an overall growth of seaborne trade of almost 30% between 2022 and 2050

DNV regularly publishes its Maritime Forecast. In the latest published one, the DNV Maritime Forecast to 2050, published in 2022, DNV has projected the seaborne trade to increase by an overall 29.55% growth between 2022 and 2050 (in tonne-miles). Most of the growth will come before 2030, after which global seaborne trade will stabilize. Bulk is expected to see a minor growth in the next decade, and to decrease slightly yearly between 2041 and 2050. Still, the total change in the next decades will add up to 22.3%. While tankers are expected to see major growth. Containers and other cargo are also positioned to see substantial growth. Passenger and service performance is expected to increase by over 30%.



Seaborne-trade demand growth assumptions

Assumptions	Average annual change			Total change 2022-2050
	2022-2030	2031-2040	2041-2050	
Bulk	1.4%	0.9%	-0.1%	22.3%
Liquid tanker	0.5%	-0.9%	-1.3%	-15.9%
Gas tanker	4.4%	3.6%	2.2%	160.2%
Container	2.0%	1.7%	1.5%	77.2%
Other cargo	2.2%	1.2%	1.0%	50.5%
Passenger and Service	1.7%	0.8%	0.3%	31.2%
Total growth	1.6%	0.9%	0.3%	29.5%

Source: DNV Maritime Forecast to 2050 Ship Finance

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Variables affecting demand



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Transport Costs



Higher transport costs lead to higher shipping rates

Transport costs refer to the expenses incurred in moving goods, people, or other materials from one location to another. These costs can include various expenses such as fuel, maintenance, insurance, labor, and infrastructure costs. The amount of transport costs can vary depending on factors such as the distance traveled, mode of transportation, type of goods being transported, and the level of demand for transportation services. Transport costs are a critical component of global trade and commerce, and they have a significant impact on the pricing and availability of goods and services. Improved efficiency, bigger ships and more effective organization of shipping operations have led to steady reduction in transport costs and higher quality of service, contributing to the growth of international trade. The mode of transportation used can also affect the transport costs, with air and express shipping typically being more expensive than ground or sea transportation.

Impact:

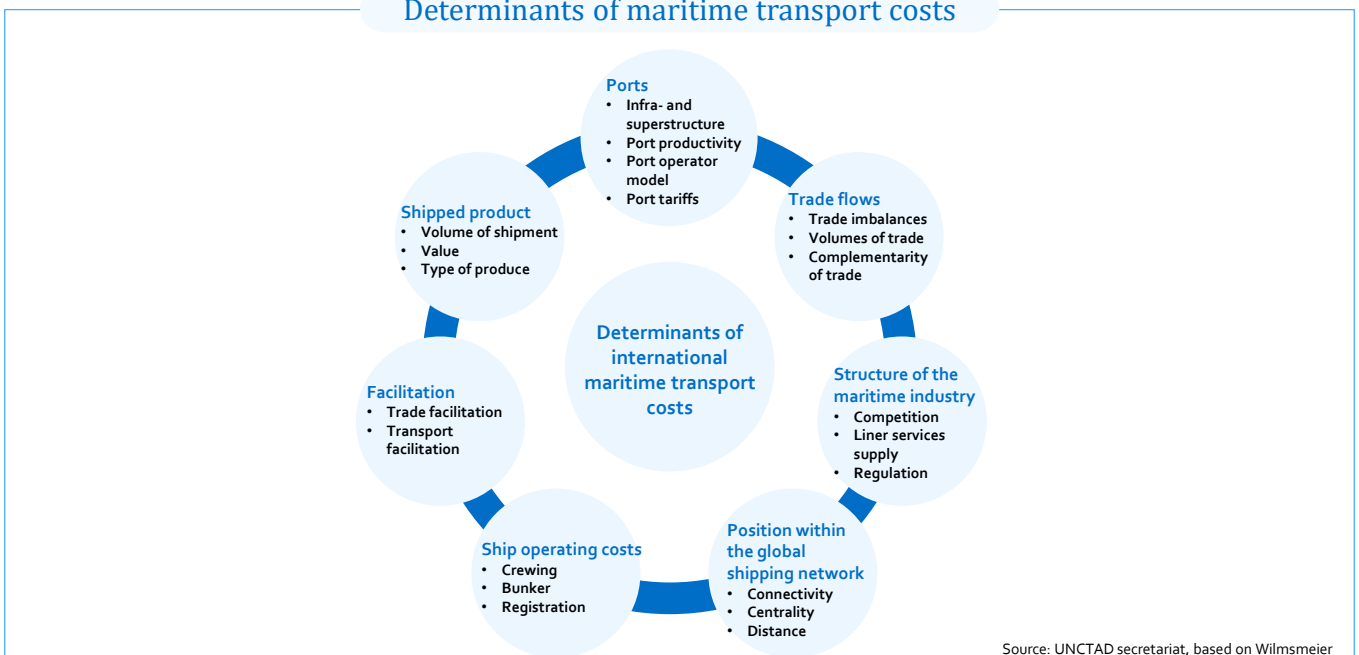
- Higher shipping rates due to an increase in fuel costs
- Higher transportation cost may become uneconomical for some businesses to ship their products leading to a decrease in overall shipping capacity



Decisions to use certain types of vessels and trade routes also alter transport costs

- **Type of vessel:** Larger ships with more carrying capacity can reduce the cost per unit or tonne
- **Trade Agreements:** Trade agreements can impact costs by providing preferential treatment to certain trade routes or ports
- **Regulations:** Restrictions on vessel emissions or vessel size can limit the available options, leading to higher costs. Additionally, regulations on trade routes can impact the time and cost of transporting goods, leading to higher or lower transport costs depending on the specific regulations

Determinants of maritime transport costs



5 Shipping

Variables affecting demand



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Turbulent world



Random shocks

The world trade and maritime industry are constantly exposed to various random shocks that can disrupt their operations and affect their performance. These shocks can be natural disasters, such as earthquakes, hurricanes, or pandemics, or man-made events, such as cyberattacks, wars, or sanctions. These shocks can have significant impacts on the supply and demand of goods and services, the availability and cost of transport capacity, the safety and security of seafarers and cargo, and the resilience and sustainability of the global trading system. In the figure below, just a selection of conflicts are summarized, just like tensions between countries coming from economic, environmental, political or military disagreements.

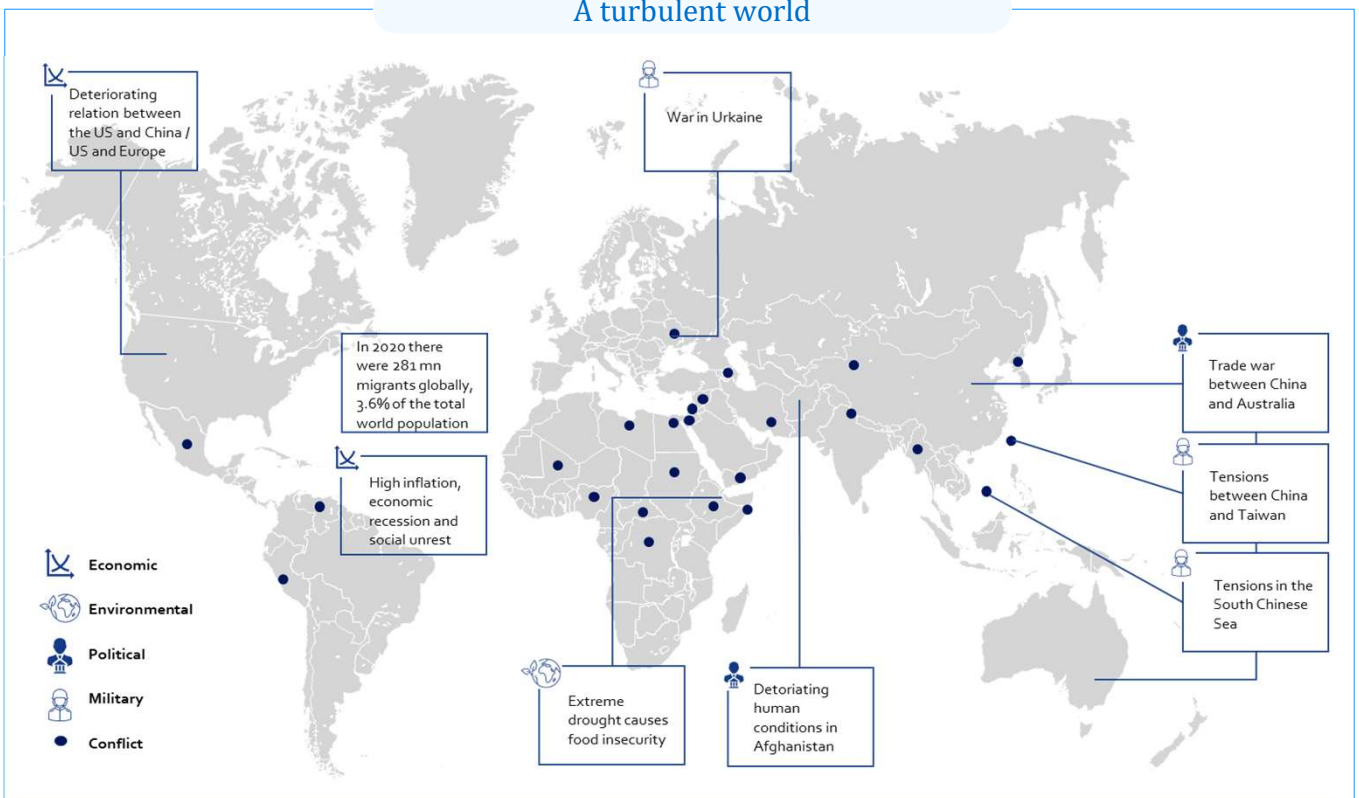
The last decades have formed the recent global landscape:

- The world has turned into a globalized economy
- An economic welfare growth for billions of people occurred
- The population is aging
- There is abundant fossil energy and other resources
- Fossil fuel being one of the engines for climate change
- And a shifting geopolitical landscape

How will the world transition for the next decades?

- A polarized world?
- A next level of digitization – AI, bioengineering
- Global demography shows an aging population, increased health science and increasing urbanization;
- An increasing inequality within countries
- Climate stability needs refocussing on low-carbon energy, though investments and technology are lacking behind the energy needs
- Critical resources for the future economy are becoming economic and geopolitical disputes

A turbulent world



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Variables affecting demand



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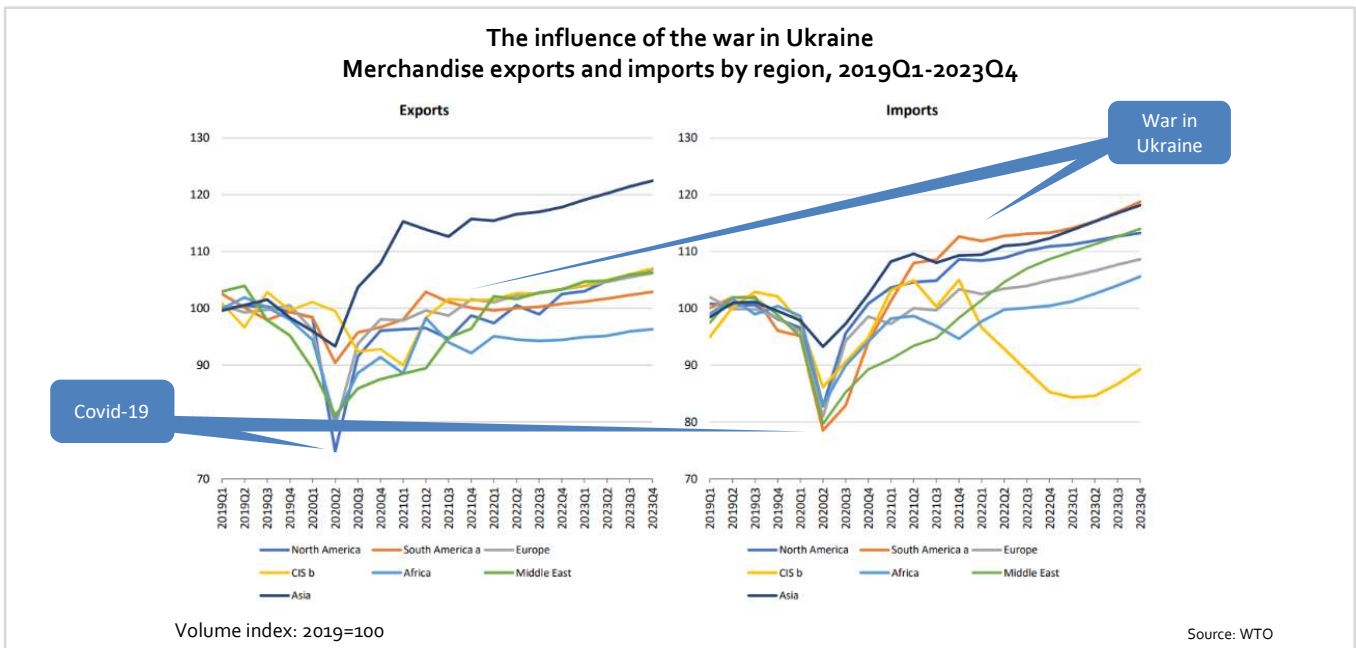
Russia-Ukraine war

The Russia-Ukraine conflict has affected the global logistics market on every level. The war impeded the flow of goods, fueled cost increases and product shortages, and created catastrophic food shortages around the globe.

The Black Sea and Azov Sea had been blocked by Russia, and the Ukrainian grain shipments were hijacked in the early months of the attack. However, in July, Russia and Ukraine signed a United Nations (UN) deal to unblock Ukrainian grain exports from three Black Sea ports to ease shortages.

The following effects have been observed due to the war:

- The supply chain disruptions have increased freight charges, created container shortages, and lowered the availability of warehousing space
- Several ports have been closed and orders are being pulled back because of delays in shipments and congestion
- Ships had to be rerouted causing congestion and leading to delays in cargo flows which worsened the global supply chain condition
- In addition to this, the sanctions and restrictions led to a shift from rail transport to ocean transport, creating more pressure and resulting in deeper container scarcity



Suez Canal incident

In March 2021, a massive cargo ship completely blocked the Suez Canal, which is a vital trade passageway for as much as 12% of the world's seaborne trade.

The incident caused a significant disruption in global supply chains, leading to delays and increased shipping costs as companies were forced to reroute their vessels, which added extra fuel costs and caused delays, resulting in higher prices for goods.

5 Shipping

Variables affecting demand



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Political developments



U.S.-Europe tension



The Inflation Reduction Act has become an acute source of tension between the allies. The sweeping \$750 bn health care, tax and climate bill, which became law in August, includes billions of dollars in subsidies for electric vehicles made in North America.

Impact

Europe fears that generous tax breaks for US-made parts will put its companies at a disadvantage. Subsidies for car manufacturers who buy US-made parts, including EV batteries, will make it harder for European firms to compete and could divert investment away from the bloc, according to the European Commission. The EU answer on this bill is the Net-Zero Industry Act, de Critical Material Act and plans for a European hydrogenbank.



U.S.-China tension



The US - China bilateral relations took a nosedive when US imposed punitive tariffs on China. This was followed by restrictions on both China's access to high-tech U.S. products and foreign investments involving security concerns and by allegations of unfair Chinese commercial practices.

Impact

These tariffs have impacted the Shipping by reducing the volume of goods being transported. It further led to complex trade diversion phenomenon impacting the global shipping pattern. This increased shipping costs and disrupted supply chains, as companies had to reroute vessels to avoid US sanctions.



China-Australia tension



The China-Australian relationship deteriorated due to growing concerns of Chinese political influence in various sectors of Australian society including the Government, universities and media as well as China's stance on the South China Sea dispute.

Impact

China imposed restrictions on imports from Australia, including coal and barley, which impacted the Shipping. With reduced demand for Australian exports, there has been a decrease in the volume of goods being transported. Australian exporters have been forced to seek new markets, leading to rerouting of vessels. This has increased shipping costs and disrupted supply chain. Reduced demand for Australian exports has increased competition among shipping companies for the available business. This has led to lower freight rates, impacting the profitability of shipping companies.

6. VARIABLES AFFECTING SUPPLY

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Fleet

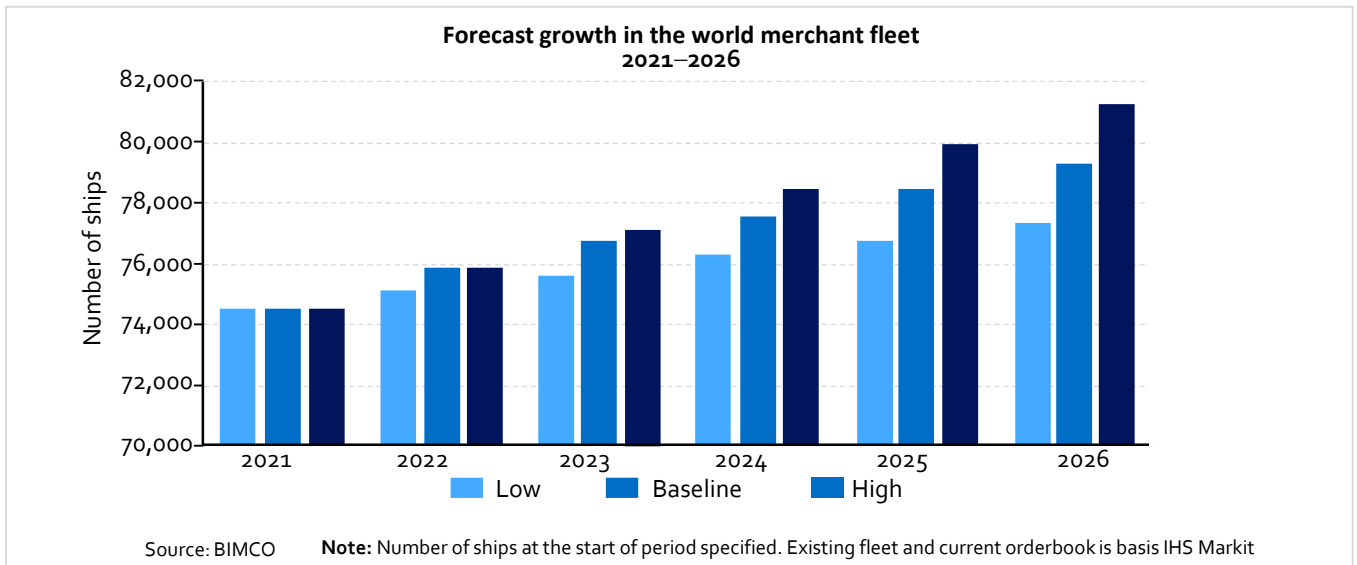
The global fleet's carrying capacity increased by 63 mn deadweight tonnage (dwt) to 2.2 bn dwt in January 2022. Except for general cargo carriers, tonnage has significantly increased in recent years across all segments. Bulk carriers recorded an especially rapid increase as their share of the total carrying capacity increased from 41% to 43% between 2012 and 2022, whilst the percentage of oil tankers decreased from 30% to 29% and the percentage of general cargo from 5% to 4%.



Growth of the world fleet

World fleet is expected to grow by 6.4% over 2021–2026, down from 7.4% in 2015–2020.

It is estimated that the total fleet is projected to reach 79,282 by the end of 2025 growing at a CAGR of 1.25%. The CAGR over 2015–2020 was 1.44%.



Adoption of new fuels and technologies

The industry is looking at alternative fuel sources such as liquefied natural gas (LNG), ammonia and methanol (under development).

According to classification society DNV GL, only 0.41% of the global shipping fleet has adopted alternative shipping fuels so far; LNG makes up the biggest segment at 0.34%. New contracts in 2022 showed the share of alternative fuels rises to 20.84% and that of LNG to 14.94%.

Despite growing interest in alternative fuels, experts expect gasoline and diesel to remain the dominant technologies for fleets for at least the next decade. The need for greater fueling infrastructure and increased capital expenses are common issues across all vehicle platforms.

6 Shipping

Variables affecting supply



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Fleet Productivity

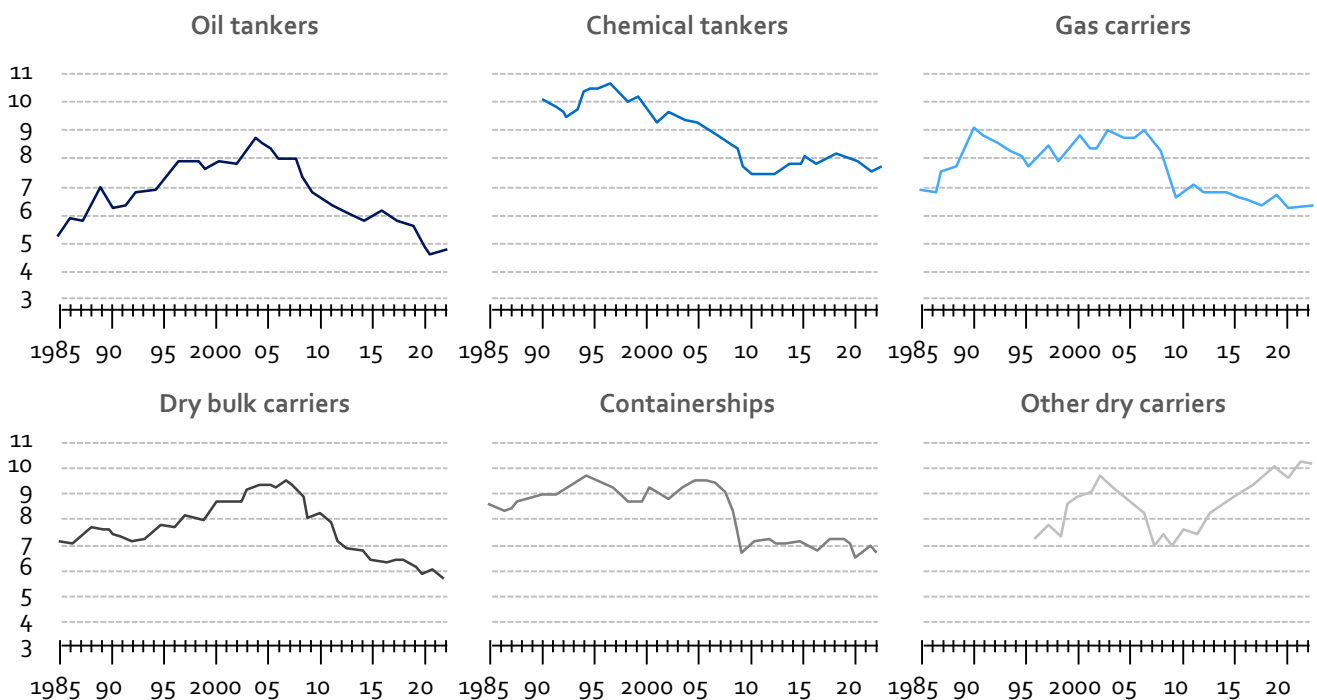


Operational productivity in terms of cargo carried per unit of fleet capacity

UNCTAD has estimated the operational productivity of the world fleet, in terms of cargo carried per unit of fleet capacity for the period 1960 to 2022. During the 1970s and early 1980s, deep recessions, such as those brought on by the 1973 and 1979 oil shocks, reduced shipping costs whilst the fleet productivity fell by more than one-third to about five tonnes per dwt of capacity.

- Productivity will further deteriorate as container ship capacity is predicted to increase by 7.9% in 2023
- However, fleet growth for dry bulk carriers is only expected to increase by 0.4% in 2023; thus, changes are most likely to be marginal
- Similar outcome for oil tankers with a fleet growth of less than 2%
- Although demand for bulk and oil tankers is recovering, which will lead to increased productivity, the outlook is uncertain due to the war in Ukraine

Operational productivity of the world fleet, by fleet sector, available for years 1985–2022, cargo carried per fleet capacity (tonne/dwt)



Note: Cargo carried in 2022 is forecast by Clarkson Research Services

Source: UNCTAD, based on data provided by Clarkson Research Services (Shipping Intelligence Network and several issues of Shipping Review and Outlook)

6 Shipping

Variables affecting supply



NEWSLETTER



Efficiency of the vessels

The productivity of the fleet may increase mainly due to the inelastic short-run supply curve in the maritime market. Other factors includes:

- Increase in demand for maritime transport due to revival in the economy
- Increase in short-term transport capacity by increasing ship speeds



Maintenance and downtime of the vessels

- Repair and unexpected maintenance activities may require the vessel to be taken out of service, resulting in downtime and leading to a loss of productivity, as the vessel is not generating revenue during this period
- Reduced operational efficiency can significantly reduce the operational efficiency of the fleet
- Regular inspections and maintenance can help identify potential safety hazards before they become critical, reducing the risk of accidents and incidents



Crew dynamics

- Crew members who communicate well with each other and with the management are better equipped to handle unexpected situations and prevent delays
- Crew members who work well together are more likely to support each other, share knowledge and skills, and identify opportunities for improvement
- Training and development programmes can help build a skilled and motivated workforce



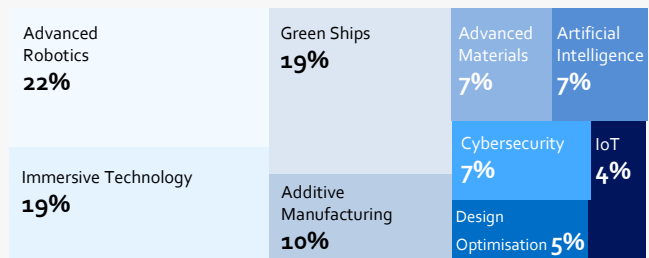
Shipbuilding Production



Technological innovation in shipbuilding

- Dual-fuel LNG vessels that can burn both traditional conventional heavy fuel oil (HFO) bunkers
- Exhaust gas cleaning equipment – also known as scrubbers
- Modifications or new-build designs to comply with decarbonisation rules such as EEXI/CII regulations
- Ammonia-ready ships / methanol-ready ships, built with the intention to be ready to switch to ammonia or methanol fuel once reliable supply becomes available
- Projects to install and retrofit sails on cargo ships to harness wind power to lessen reliance on mechanical propulsion

Impact of Top 9 Shipbuilding Trends & Innovations in 2023



This tree map illustrates the top 9 innovative trends & their impact on shipbuilding

Source: StartUs Insights

6 Shipping

Variables affecting supply



NEWSLETTER

Production costs affecting vessel prices



Contracting by vessel type

Vessel		2021	2022	+/- %
Tankers	(mn dwt)	22.9	8.3	-64%
Bulkers	(mn dwt)	51.6	23.9	-54%
Containerships	(mn TEU)	4.4	2.6	-40%
Gas Carriers	(mn m ³)	19.00	33.70	+78%
Offshore	(#)	85.0	67.0	-21%
Other	(#)	315.0	255.0	-19%
Total	(mn dwt)	137.5	83.4	-39%
Total	(#)	2178	1384	-36%

Contracting by building country (mn cgt)

Country	2021	2022	+/- %
China	26.2	20.8	-21%
South Korea	17.8	16.3	-9%
Japan	6.5	3.3	-50%
Europe	1.20	1.00	-17%
Total	53.3	42.8	-20%
% Alternative fuels	31%	61%	

Guidelines newbuild prices (in \$ mn, by the end of the year)

Vessel	Size	2021	2022	+/- %
VLCC	320,000 dwt	112.0	120.0	+7%
MR tanker	51,000 dwt	41.0	43.5	+6%
Capesize	180,000 dwt	60.5	60.5	0%
Kansarmax	81,000 dwt	34.75	33.50	-4%
Containership	15,000 dwt	155.0	153.0	-1%
LNG Carrier	174,000 m ³	210.0	248.0	+18%

Source: Clarksons Research

- In 2022 the total of new orders amounted to \$124.3 bn in value, an increase in of 6% with reference to 2021
- This was due to a higher pricing (up about 15% on average), because overall worldwide newbuild orders fell with 39% in dwt terms
- Furthermore, more complex vessels were built, like LNG vessels, 33.7 mn m³, which is a record number of 183 LNG vessels for \$39 bn
- And finally, alternative fuel vessel investment increased: 61% of tonnage ordered
- China (49%) and South Korea (38%) took the largest share in shipbuilding, though the output decreased compared to 2021
- Overall shipbuilding output fell by 8%, though it is expected to pick in 2023 (with LNG, container vessels to be delivered in 2023 and on)



Shipyard capacity is shrinking

- Shipyards were presented significant challenges and many had to adapt their operations to survive
- Shipbuilding industry witnessed a decline in the pandemic, owing to disturbances in the supply chain. This was leading to delays in the delivery of raw materials and equipment needed for shipbuilding. This has resulted in longer lead times and increased costs for shipyards
- With 131 shipyards able to build large ships, shipbuilding capacity is shrinking. According to Clarksons only marginal capacity increases are expected
- Furthermore, a group of about 80 yards, with a combined share of global yard capacity of over 60% are building more than 80% of the vessels on order
- The remaining group of yards are quickly running out of orders

Number of yards to take an order

Vessel size	2021	2022	+/- %
Vessels of 1,000+ gt	240	179	-25%
Vessel of 20,000+ dwt	105	85	-19%

Number of active* yards by the end of year

Vessel size	2021	2022	+/- %
Vessels of 1,000+ gt	425	353	-17%
Vessel of 20,000+ dwt	137	131	-4%

*: shipyards with at least one vessel on order

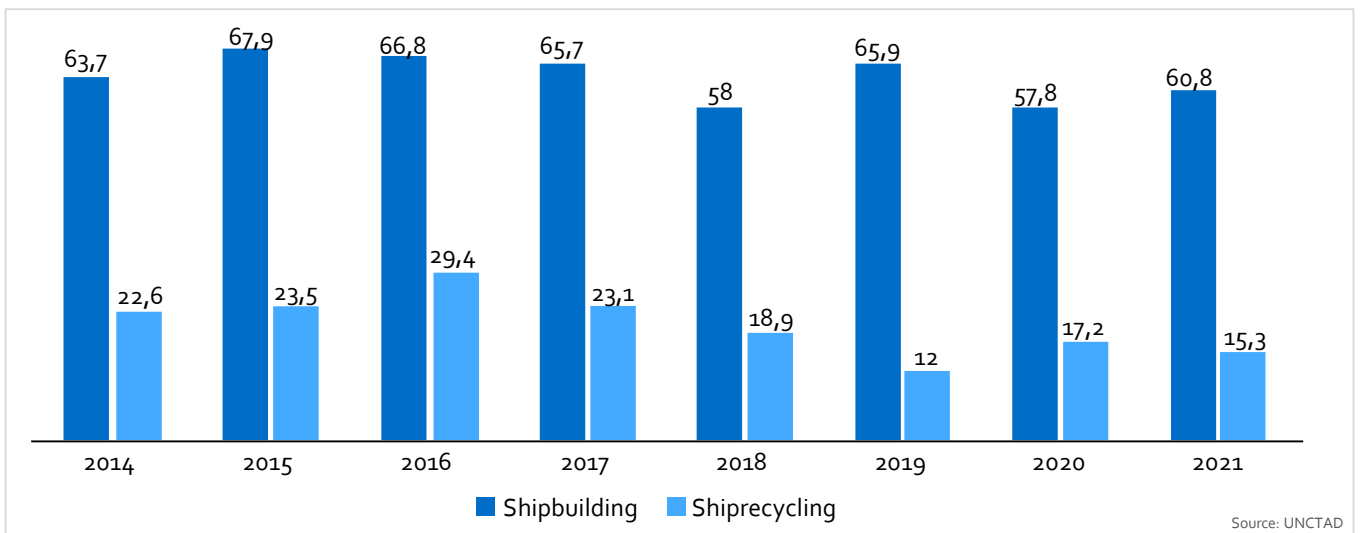
Source: Clarksons Research

- In 2022 only 155 yards secured new orders in 2022 and only 21 during the first four months of 2023.



Scraping and Losses

- According to the NGO Shipbreaking Platform in 2022 443 ocean-going commercial ships and offshore units were sold for scrapping in 2022; in 2021 763 vessels were sold for scrapping
- The South Asian shipbreaking yards experienced the lowest turnover in over a decade remained the preferred destination for end-of-life vessels, dismantling 80% of the global end-of-life gross tonnage
- The reasons for the plunge in the number of vessels scrapped in 2022 are multiple, with high ocean freight rates that made it profitable to continue operating older vessels and banks' shortages in providing credits to companies for the purchase of end-of-life assets identified as the main drivers



- Sale of old ships in return for a last profit: about 90% of a ship's structure is made of steel, which is recovered during the demolition process and provides millions of USD in profit.
- Obsolete vessels available for scrapping may also represent a useful source of supply for secondhand equipment and components.

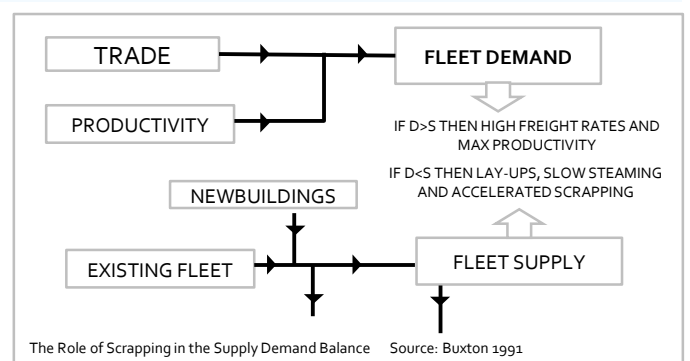


Fluctuations in demand for new vessels

Freight revenues are one of the most important factors that directly affect the vessel demolition process. Even the old and obsolete vessels can survive and carry out their operations profitably in the buoyant market with high freight rates.

Higher freight rate occurs when the increase in the number of ships going out is higher than the increase in the number of newly built ships.

Scrapping of vessels is triggered by overcapacity of vessels and, in the near future, compliance to new environmental regulations. Vessels have to comply to new environmental regulations, which will lead to massive investments for vessel owners. Consideration on the financial feasibility of deploy older ships is necessary.



6 Shipping

Variables affecting supply



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Scrap value influences vessel scrapping

- When the scrap value of a vessel is high, it becomes more economically feasible to scrap the vessel rather than continue operating and maintaining it.
- When scrap prices are high, it can make new vessels more attractive to purchase, as the scrap value can offset a portion of the purchase price, thereby influencing replacement demand for new vessels.



Freight Revenue



Freight revenue outlook

- As per S&P Global Market Intelligence, freight rates are expected to return to the pre-pandemic level in 2023, limited active supply growth driven by regulations (demolitions and speed) will likely help the market to recover in 2024 onwards.
- Fresh contracts were limited in 2022 due to high prices and limited yard capacity in top-tier yards whilst many owners took the options of existing contracts for much lower contract prices.
- The container sector is expected to face pressure from the supply side due to heavy investment in new buildings, whilst fresh new contracts are limited in other sectors, including the dry bulker and tanker.



Fuel costs

Ocean carriers charge surcharges as fuel constitutes a vast majority of their net transportation expenses.

Some carriers are also trying to counter the high prices by moving the ships at a slower speed. By reducing the speed of the vessels to 15 knots instead of 22 knots, they are seeking to lower the fuel consumption. However, this strategy to mitigate the rising expenses also has its drawbacks. It is leading to an enormously long shipping time, which often tends to become even longer because of the congestion in the ports.

Rising fuel expenses impact the entire industry since the forwarders also charge more to move the cargo and make up for the increased costs.

This increased the cost of commodities since rising rates translate to a higher price for the products. This cost tends to get even higher if the products are time-sensitive.



7. ENVIRONMENTAL REGULATIONS

NEWSLETTER



IMO

The International Maritime Organization (IMO) is a specialized agency of the United Nations that is responsible for taking measures to improve the safety and security of international shipping and to prevent marine pollution from ships.

The IMO Assembly, which meets every two years, adopted the Revised Strategic Plan for the IMO for the six-year period 2018 to 2023 (resolution A.1149(32)).

In its Revised Strategic Plan, IMO sets out the following strategic directions:

- 1 *Improve implementation*
- 2 *Integrate new and advancing technologies in the regulatory framework*
- 3 *Respond to climate change*
- 4 *Engage in ocean governance*
- 5 *Enhance global facilitation and security of international trade*
- 6 *Ensure regulatory effectiveness*
- 7 *Ensure organisational effectiveness*
- 8 *Address the 'human element' – the safety of life on ships, which has been a pivotal focus point for IMO since 1997.*

At its 20th session in November 1997, the IMO Assembly adopted resolution A.850(20) and laid out the following goals:

-  Structured approach for consideration of human element issues for the development of regulations & guidelines
-  Comprehensive review of selected existing IMO instruments
-  Promote a maritime safety culture, security consciousness & heightened marine environment awareness
-  Provide a framework to encourage the development of non-regulatory solutions
-  Have in place a system for identifying and disseminating maritime interest studies and research
-  Provide educational material for seafarers to increase awareness on human element issues on safe ship operations
-  Provide a framework, incorporating operational objectives, personal endurance concerns, organisational policies and practices, and environmental factors

Maritime Environment and IMO

Marine Environment Division – IMO's senior technical body regulates marine pollution-related matters through its various international instruments in its remit, namely:

- **OPRC Convention** – Regulates oil pollution preparedness, response and co-operation
- **AFS Convention** – Control of harmful anti-fouling systems on ships
- **Hong Kong Convention** – Safe and environmentally sound recycling of ships

- **BWM Convention** – Prevention of the spread of invasive harmful aquatic organisms carried by ships' ballast water amongst many others.

Although IMO was originally mandated for maritime safety in 1958, it has over many years adopted a wide range of measures to prevent and control pollution caused by ships.

7 Shipping







Environmental regulations



NEWSLETTER

MARPOL – Maritime Pollution Control Measures by IMO

One of the key conventions under IMO's Marine Environment Division is MARPOL also known as International Convention for the Prevention of Pollution from Ships. It was adopted in 1973 by IMO to prevent and minimize pollution from shipping. It includes regulations aimed at preventing and minimizing both accidental and operational pollution from ships and currently includes six technical, which addresses pollution control measures under the following annexes:

<p>Annex I: Introduced regulations to ensure the safe construction and operation of oil tankers, reducing the amount of oil spilled during accidents and cutting operational pollution. These measures have been instrumental in the continuous decline of accidental oil pollution over the last 30 years (Entered into force in 1983)</p>  <p>OIL</p>	<p>Annex II: Categorised into different sections based on the level of hazard they present to marine resources and human health, and amenities regulations are imposed on their treatment & discharge (Entered into force in 1983)</p> <p>NOXIOUS LIQUIDS IN BULK</p> 	<p>ATMOSPHERIC POLLUTION</p>  <p>Annex VI: Adopted mandatory technical & operational energy efficiency measures & data collection system for fuel consumption data and other specified data to reduce CO₂ emissions to minimise airborne emissions from ships and their contribution to air pollution. It is also focusing its efforts on technical cooperation and capacity building to ensure smooth and effective implementation and enforcement of the new regulations worldwide (Entered into force in 2005)</p>
 <p>SHIP GARBAGE</p> <p>Annex V: It aims to reduce the amount of garbage discharged into the sea from ships. Garbage includes all types of waste generated during the normal operation of the ship, except fresh fish and parts thereof from fishing or aquaculture activities (Entered into force in 1988)</p>	<p>PACKAGED CHEMICALS</p>  <p>Annex III: Part A of SOLAS Chapter VII regulates the carriage of dangerous goods, including classification, packing, marking, labelling and stowage. MARPOL Annex III sets out regulations to prevent pollution by harmful substances in packaged form, and both SOLAS and MARPOL refer to the IMDG Code as a uniform international code for the transport of dangerous goods by the sea (Entered into force in 1992)</p>	<p>SEWAGE FROM SHIPS</p>  <p>Annex IV: It sets out regulations for the discharge of sewage from ships into the sea, including the required equipment and systems for the control of sewage discharge and the provision of port reception facilities (Entered into force in 2003)</p>

MARPOL is enforced by governments and national authorities of member states that are parties to MARPOL Annexes. However, a state can not take direct action against violations against MARPOL regulation; the state is expected to report the violation to the flag state of the vessel. The flag state then have the liability to investigate and take appropriate actions accordingly. Flag states (the state of registry of a ship) and port states have rights and responsibilities to enforce compliance.

Flag States and the recognized organization, for e.g., classification societies play the most significant factor in making the vessel-owners complying with international regulations. The concerned authorities must carry out surveys to make sure that the prerequisites of the conventions are complies with. The vessel owners and operators ultimately hold the responsibility for the seaworthiness of their vessels.

Port State Control (PSC) is an inspection regime to eradicate substandard shipping. The flag state of a vessel is primarily responsible for making sure that a vessel under their flag is seaworthy and complies with the provisions of all international conventions. If the flag states carry out their jobs flawlessly, there isn't a need of PSC. The PSC inspections differ from that conducted by flag state.. The surveyors of the latter indulge in surveys to issue the statutory certificates for a vessel, which might be done at a rendezvous port and time finalized by the vessel owner's and surveyors' consent. On the other hand, the PSC is forced to complete its inspection in the time the vessel is berthed at the port, without causing unnecessary delay to the vessel. Another prime difference is that the flag state's inspections are at owner's request, whereas PSC inspections are not a requirement for the owners to run their vessels, but a catalyst to motivate owners to keep their vessels deficiency free.

MARPOL – Annex VI: air pollution prevention from ships

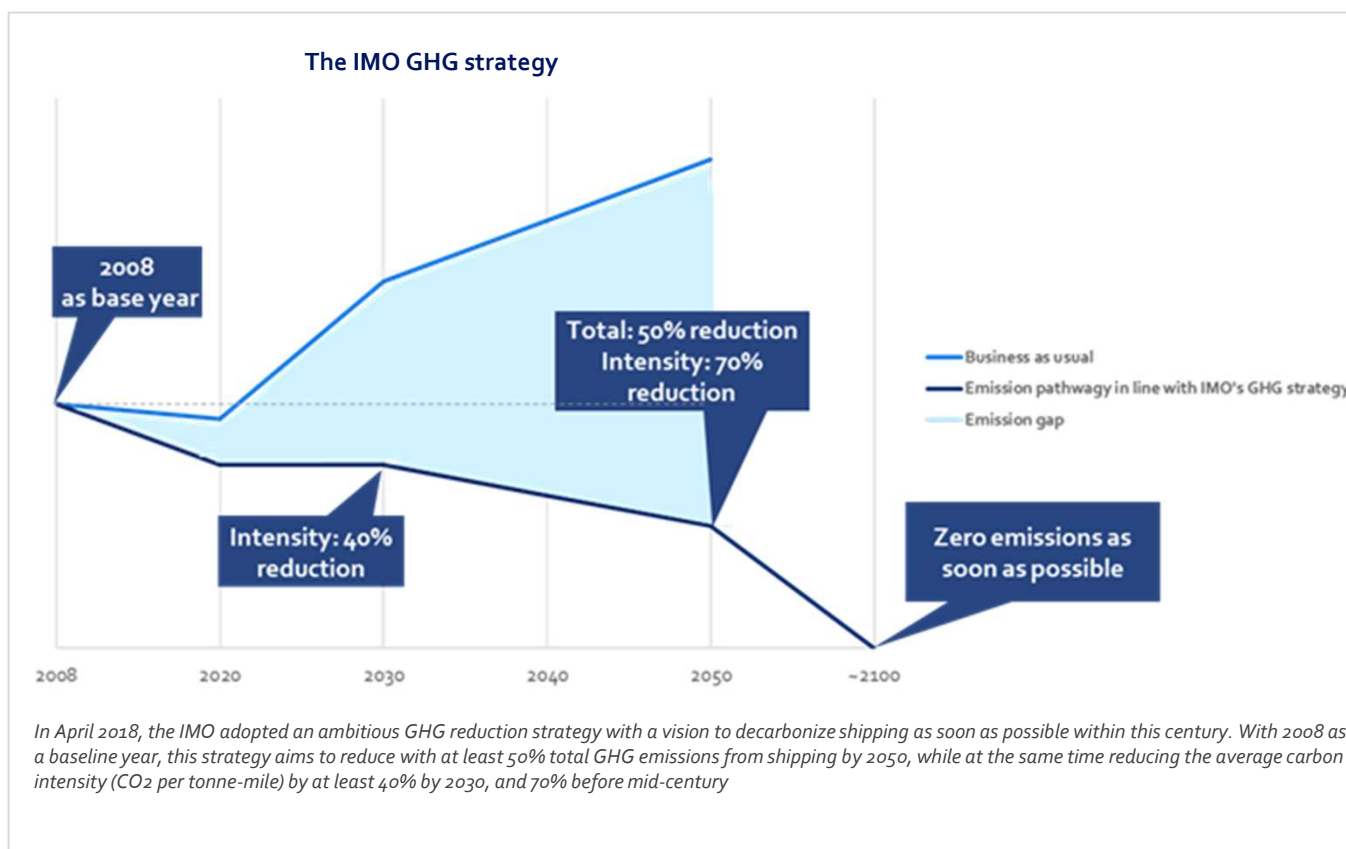
MARPOL Annex VI, as first adopted in 1997, and entered into force 19 May 2005, limits the main air pollutants contained in ships exhaust gas, including sulphur oxides (SOx) and nitrous oxides (NOx), and prohibits deliberate emissions of ozone depleting substances. MARPOL Annex VI also regulates shipboard incineration, and the emissions of volatile organic compounds from tankers.

The Paris Agreement is a global agreement to combat climate change. It was adopted by 196 Parties at COP 21 in Paris, on 12 December 2015. In this Agreement no reference to IMO was made in either the articles of the 2015 Paris Agreement or the decisions to implement the agreement, including on the pre-2020 ambition.

During the 69th session of the Marine Environment Protection Committee (MEPC 69) of IMO held in April 2016, the MEPC acknowledged the major achievement of the international community in concluding the Paris Agreement. agreement. The MEPC also recognized and commended the current efforts and those already implemented by IMO to enhance the energy efficiency of ships, widely recognized and agreed that further appropriate improvements related to shipping emissions can and should be pursued, and recognized the role of IMO in mitigating the impact of GHG emissions from international shipping.

MEPC 70 (October 2016) approved a Roadmap for developing a comprehensive IMO strategy on reduction of GHG emissions from ships, which includes a three-step approach consisting in: 1) collecting data on ships' fuel oil consumption, 2) analyzing this data and 3) make decision on what further measures to enhance the energy efficiency shipping, if any, are required.

MEPC 72 (April 2018) adopted resolution MEPC.304(72) on the Initial IMO Strategy on reduction of GHG emissions from ships. This important agreement represents the framework for further action of the Committee, setting out the future vision for international shipping. The Initial Strategy envisages for the first time a reduction in total GHG emissions from international shipping which, it says, should peak as soon as possible and to reduce the total annual GHG emissions by at least 50% by 2050 compared to 2008, while, at the same time, pursuing efforts towards phasing them out entirely.



7 Shipping

Environmental regulations

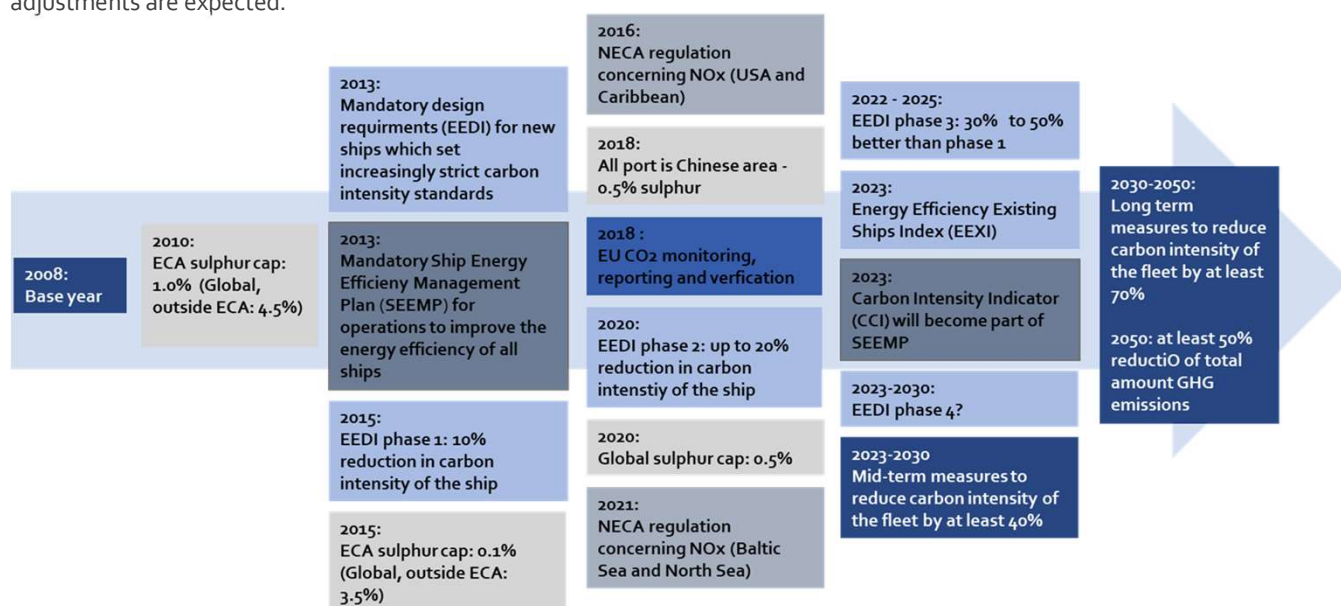


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MARPOL – IMO GHG Strategy

The shipping industry accounts for 2-3% of global emissions. The shipping industry increased its energy efficiency by almost 4% annually between 2008 and 2022. In the same period, seaborne trade volumes increased by 44%, while total emissions declined by 17%. Half of the improvement was achieved via slow steaming of vessels.

The IMO GHG strategy includes both technical (EEDI and EEXI) as operational (SEEMP and CII) requirements. The requirements become stricter over time. New vessels will need to be more energy efficient, and existing vessels will need to improve their energy efficiency by at least 2% annually in 2023-2026. The intention with the new regulation is clear, but upgrades and adjustments are expected.



EEXI and CII regulations

- Developed under the Initial IMO Strategy on Reduction of GHG Emissions from Ships agreed in 2018
- Technical and operational amendments require ships to improve energy efficiency to reduce greenhouse gas emissions
- From 1 January 2023, all ships must calculate their attained Energy Efficiency Existing Ship Index (EEXI)
- The Energy Efficiency Existing Ships Index measures a ship's energy efficiency
- Ships must also collect data for reporting their annual operational Carbon Intensity Indicator (CII) and CII rating

Requirements under MARPOL Annex VI

EEDI	EEXI	CII
Improved Hull Design	Power Limitation	Speed Optimization
Waste Heat Recovery	Wind Assistance	Biofouling Management
Reduced Electric Consumption	Propeller Optimization	Alternative Fuels

7 Shipping








Environmental regulations



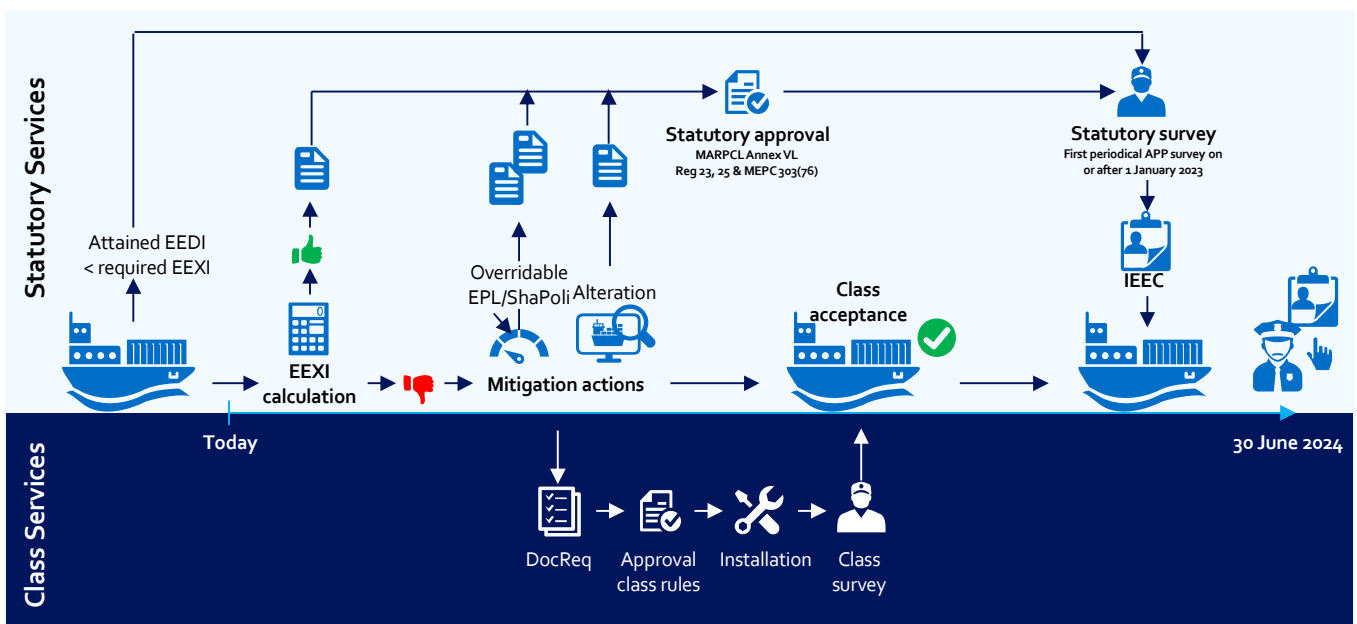
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Energy Efficiency Existing Ships Index

The EEXI is a one-time certification for existing ships targeting design parameters. The requirements for EEXI certification entered into force on 1st November 2022, stating all ships are required to calculate their attained Energy Efficiency Existing Ship Index (EEXI). In principle, the EEXI is a ship-design-based index, describing the CO₂ emissions per cargo tonne and mile.

<p>EEXI calculations are based on the power engine, fuel oil consumption and a conversion factor between the fuel and the corresponding CO₂ mass</p> 	<p>Ships designed & constructed today must be more energy efficient than the baseline, thus reducing their carbon intensity</p> 	<p>Performance targets are increasingly stringent over time, thus incentivising innovation in ship designing</p> 
<p>There are different goals for different types of ships, recognising the specificities of different types of ships</p> 	<p>For example, the largest container ships (>200,000 DWT) built after 1st April 2022 must be 50% more efficient than the baseline</p> 	
<p>There are a variety of technical means to improve the carbon intensity of existing ships & achieve the required EEXI</p> 	<p>A review clause requires IMO to review the effectiveness of the implementation of the EEXI requirements by 1st January 2026 at the latest and, if necessary, develop & adopt further amendments</p> 	

EEXI – Process and Timelines



7 Shipping

Environmental regulations



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Carbon Intensity Indicator

The requirements for CII rating entered into effect on 1st January 2023. The CII or the Carbon Intensity Indicator measures how efficiently a vessel above 5,000 GT transports goods or passengers and is given in grams of CO₂ emitted per cargo-carrying capacity and nautical mile.

IMO requires CII to be calculated and reported to the data collection system (DCS) latest by 31 March 2024 for 2023.

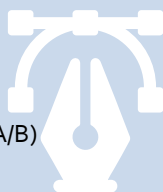
It is calculated as

$$\text{CII} = \frac{\text{Annual fuel consumption} \cdot \text{Co}_2 \text{ factor}}{\text{Annual distance travelled} \cdot \text{Capacity}} \cdot \text{Correction factors}$$

Each year, ships of 5,000 gross tonnage & above collect & report fuel consumption data. On the basis of this data, a carbon intensity rating is assigned to the ship from A to E



Poorly rated ships have to implement a plan of corrective actions and the company is regularly audited. Incentives may be provided to best-rated (A/B) ships

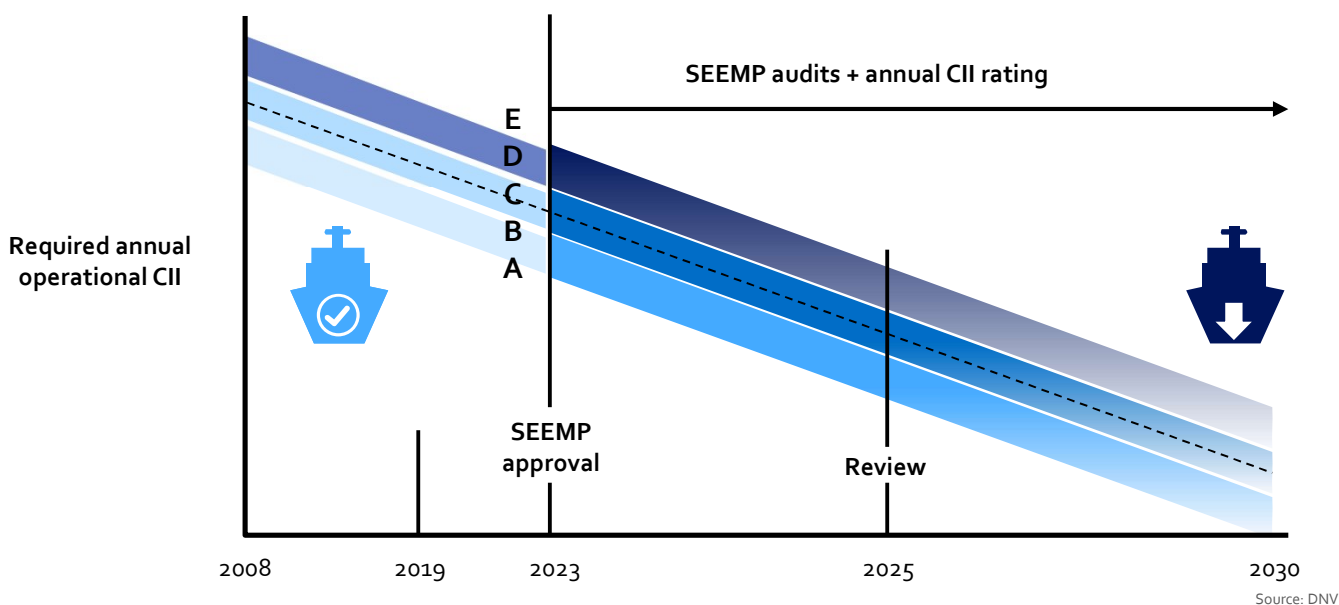


There are a variety of operational means to improve the carbon intensity of existing ships and achieve the required CII, e.g.:

- Ship speed optimisation
- Weather routing
- Just-in-time arrival
- Trim draft & ballast optimisation



CII – Process and Timelines



8. CONTRACT FORMS

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Various Contract Forms – Highlights



Commercial strategies to optimize revenue and mitigate risks

Shipowners and operators have to do with the commercial, strategic and technical management of their fleet. They can do this themselves or outsource some of the management tasks. **Strategic management** includes locating, purchasing, financing and selling vessels. **Technical management** involves the day-to-day management of vessels, including performing routine maintenance, attending to vessel operations and arranging for crews and supplies. Commercial management includes the negotiation of charters for vessels, managing the mix of various types of charters, such as time charters, spot market voyage charters and spot market-related time charters, and monitoring the performance of the vessels under their charters.

Related to **commercial management** ship owners and operators employ an active management strategy for fleet trading, with the objective of optimizing revenue performance and maximizing earnings on a risk-managed basis. There are various commercial strategies, mostly combined throughout the fleet, to employ the vessels:

- **Time Charter-Out:** Time charter-out describes a contract for the use of a ship for an agreed period of time, at an agreed hire rate per day. Commercial control of the vessel becomes the responsibility of the time charterer who performs the voyage(s). The time charterer is responsible to pay the agreed hire and also purchase the fuel and pay port expenses. Time charters can range from as short as one voyage (approximately 20-40 days) to multiple years
- **Voyage Chartering:** Voyage chartering involves the employment of a vessel between designated ports for the duration of the voyage only. Freight is earned on the volume of cargo carried. In contrast to the Time charter-out method, in a voyage charter, the owner maintains control of the commercial operation and is responsible for managing the voyage, including vessel scheduling and routing, as well as any related costs, such as fuel, port expenses and other expenses
- **Vessel + Cargo Arbitrage:** With this strategy, the owner contracts to carry a cargo on voyage terms (as described above) with a specific ship earmarked to cover the commitment. As the date of cargo loading approaches, the market may have moved in such a way whereby the owner elects to substitute a different vessel to perform the voyage, while assigning a different piece of business to the original earmarked ship. Taken as a whole, this strategy can generate increased revenues, on a risk-managed basis, as compared to the original cargo-vessel pairing
- **Time Charter-In:** Vessel is chartered for a certain period. The shipowner leases a vessel to a charterer, who is then free to sail to any port and carry any cargo, subject to legal regulations
- **Bare boat charters:** This is an arrangement for chartering or hiring of a ship or boat, whereby no crew or provisions are included as part of the agreement; instead, the people who rent the vessel from the owner are responsible for taking care of such things
- **Contract of Affreightment:** A Contract of Affreightment is a legal agreement between a ship owner or operator and a cargo owner, in which the ship owner agrees to transport a specified amount of cargo at a predetermined price or freight rate. The contract may be for a single shipment or for a series of shipments over a specified period of time
- **Spot market:** Spot market is a short term agreement for shipping one order within a narrow window of time; spot shipping tends to be a one-off transaction



Time Charter Equivalent

Time Charter Equivalent (TCE) is a shipping industry term that is used to measure the revenue performance of a vessel on a per-day basis. It is a measure of the average daily revenue that a vessel generates from its time charter or voyage charter after deducting voyage expenses, such as fuel costs, port charges, and commissions.

The TCE rate is calculated by dividing the total revenue earned by the vessel in a given period by the number of days the vessel was operated during that period. The result is expressed in terms of US dollars per day.

$$TCE = \left(\frac{\text{voyage revenues minus voyage expenses}}{\text{round trip in days}} \right)$$

TCE is a useful metric for comparing the revenue-generating performance of different vessels, as it takes into account the duration of the charter and the expenses incurred during the voyage. It is commonly used by ship owners, charterers, and shipping analysts to evaluate the profitability of vessel operations.

The largest voyage expenses include:

- Fuel
- Crew uptake (salary, food, quarters)

Speed influences the fuel consumption – slow steaming reduces fuel consumption

- Voyage charter – ship is laden with cargo
speed is agreed with the charterer during voyage charter negotiations
- Ballast voyage – the ship is empty of cargo
speed is determined by ship owner/charterer/operator

Laytime refers to the time that a charterer is allowed to complete the loading and unloading process at a port of call. Since the owner pays duties and berthing charges at the port, they expect the charterer to hasten the process.

- In case the charterer exceeds the laytime laid out in the contract, he is obliged to pay a penalty known as **demurrage**. This covers the extra costs incurred by the shipowner owing to the delay by the charterer

RESPONSIBILITY	VOYAGE CHARTER	TIME CHARTER	BAREBOAT CHARTER
Basis of charter hire	Cargo tonnage	Ship capacity	Ship capacity
Duration of charter party	Specific voyages	Period of time	Period of time
Geographic limits	Port to port	By area	By area
Maintenance of vessel	Owner	Owner	Charterer
Demise	Owner	Owner	Charterer
Employer of crew	Owner	Owner	Charterer
Master under direction of	Owner	Charterer	Charterer
Fuel costs, port & harbour fees	Owner	Charterer	Charterer
Hull & machinery insurance	Owner	Owner	Negotiable
P&I	Owner	Owner	Charterer
Payment to shipowner	End of voyage	Monthly	Monthly
Legal term of compensation	Freight	Hire	Hire

9. DRY BULK CARRIERS

NEWSLETTER



Design Features



About dry bulk shipping

The dry bulk shipping market involves the transportation of commodities such as iron ore, coal, grain, and other dry bulk goods. The market is highly cyclical and is influenced by a variety of factors, including global economic growth, commodity prices, supply and demand imbalances, and geopolitical events.

In recent years, the market for dry bulk shipping has been affected by a number of factors, including the COVID-19 pandemic, trade tensions between major economies, and changes in environmental regulations. These factors have contributed to fluctuations in shipping rates and overall demand for dry bulk carriers.

In general, the dry bulk shipping market tends to be highly volatile, with rates and demand changing rapidly in response to global economic conditions. However, there are also long-term trends that can affect the market, such as increasing demand for commodities from emerging economies and shifts in global trade patterns.

Dry bulk shipping is mainly tramp business. Tramp shipping refers to a type of shipping in which vessels are chartered on a voyage-by-voyage basis, rather than being part of a regular, scheduled service. Tramp ships are often used to transport bulk cargo, such as grains, coal, or iron ore, as well as non-bulk cargo, such as machinery or vehicles.

Tramp shipping is characterized by its flexibility, as the shipowner can respond quickly to changes in demand for shipping services. However, it also carries risks, as the shipowner may have to wait for an extended period to find a suitable cargo to transport. Additionally, tramp shipping rates can be volatile, as they are subject to fluctuations in supply and demand for shipping services.

Tramp shipping is an important part of the global shipping and plays a vital role in facilitating international trade.



Key features

A dry bulk carrier is a vessel designed to carry dry cargo in bulk

The design characteristics of a typical bulk carrier are as follows:

- Clear deck with a machinery room
- Large hatches with steel covers are designed to facilitate rapid loading and discharge of the cargo
- Large ballast capacity for adequate immersion of the propeller
- Shallow inner bottoms
- Bulk carriers are usually unloaded from shore with grabs or emptied by means of suction pipes
- When loading, they are filled up via a dumping pipe (shoot) or via a belt system (conveyor belt)
- Bulk carriers have large ballast tanks above and below in the hold to give the ship sufficient draft, so that the ship is also easily navigable without cargo
- Ships transporting ore are special in design, because ore is very heavy - therefore there is relatively small cargo space

9 Shipping

Dry bulk carriers



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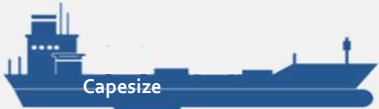


Vessel design and size (capacity in dwt)

The dry bulk fleet consists of vessels with diverse sizes .

The dry bulk carriers' market is very fragmented:

- According to IHS the fleet consists of about 14,000 vessels.
- The largest owner has a market share of ~4% of the fleet.

Bulk Carriers	Capacity (DWT)	Length (in m)	Draft (in m)
 Handysize	24k–35k	130–150m	10m
<p>Handysize: carrying capacity of 15k dwt to 35k dwt, length 130m to 150m, draught: 10m; about five cargo holds for diversified storage with four on-deck cranes</p>			
 Handymax	35k–50k	150–200m	11–12m
<p>Handymax: 35–48k dwt; measuring up to 150m to 200m and a draught of 11m to 12m; about five cargo holds and four on-deck cranes</p>			
 Supramax	50k–61k	150–200m	18–20m
<p>Supramax: 48–60k dwt; measuring up to 199m and a draught of 12; mostly geared</p> <p>Ultramax: 60–65k dwt; measuring up to 200m and a draught of 12 m; mostly geared</p>			
 Panamax	61k -80k	200–330m	13–15m
<p>Panamax: 65–80k dwt; 7 cargo holds, designed to fit the locks of the Panama Canal (l = max 366m, depth 15 m). These vessels are primarily used for transporting products in the Caribbean and Latin America</p> <p>Kamsarmax: 80–85k dwt, designed to fit both through the Panama Canal and within Port Kamsar in West Africa</p> <p>Post-Panamax: 85–110k dwt; post-Panamax ships are also designed to fit through the Panama Canal</p>			
 Capesize	80k–199k	230–270m	17m
<p>Capesize: 110–220k dwt; 230m to 270m long with a draught of 17m and nine cargo holds. Capesize vessels are used in the transportation of coal, iron ore and commodity raw materials—most commonly between Australia and China, and Brazil and China</p> <p>VLOC: over 220k dwt</p>			

In many shipping areas, there are size restrictions for bulk carriers. As a result, there are bulk carriers that are specially built to sail in these areas. These types are distinguished between the Chinamax, Dunkirkmax, Kamsarmax, Malaccamax, Newcastlemax, Seawaymax and Setouchmax.

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Dry bulk carriers



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Dry Bulk Cargo and Primary Vessel Type



Key cargo transported and typical vessels used



Iron ore

~28%
of total dry
bulk trade

Primary use

Steel production



Coal

~22%
of total dry
bulk trade

Primary use

Steel production
(metallurgical coal) and
power generation (thermal
coal)



Grain

~10%
of total dry
bulk trade

Primary use

Human consumption and
feed livestock



Minor bulks

~40%
of total dry
bulk trade

Primary use

Various building products
and raw materials



'Major bulk' and 'minor bulk' are terms commonly used in the Shipping to describe the quantity of cargo being transported. Those considered generally to be the major bulks (dry bulk commodities) are bulk commodities that move in high volume, such as iron ore, coal, soybeans, wheat and corn. The remaining bulk cargos, considered to be 'minor bulks', are those that move in bulk but in less volume than the majors. This might include other grains (barley, rye), bundled steel, bundled lumber, paper products on pallets, unusual ores such as manganese, and a host of others.

The distinction between major bulk and minor bulk cargo is important for shipping companies as it affects the type of ships they use, the way cargo is loaded and unloaded, and the shipping rates are charged to customers.

9 Shipping

Dry bulk carriers



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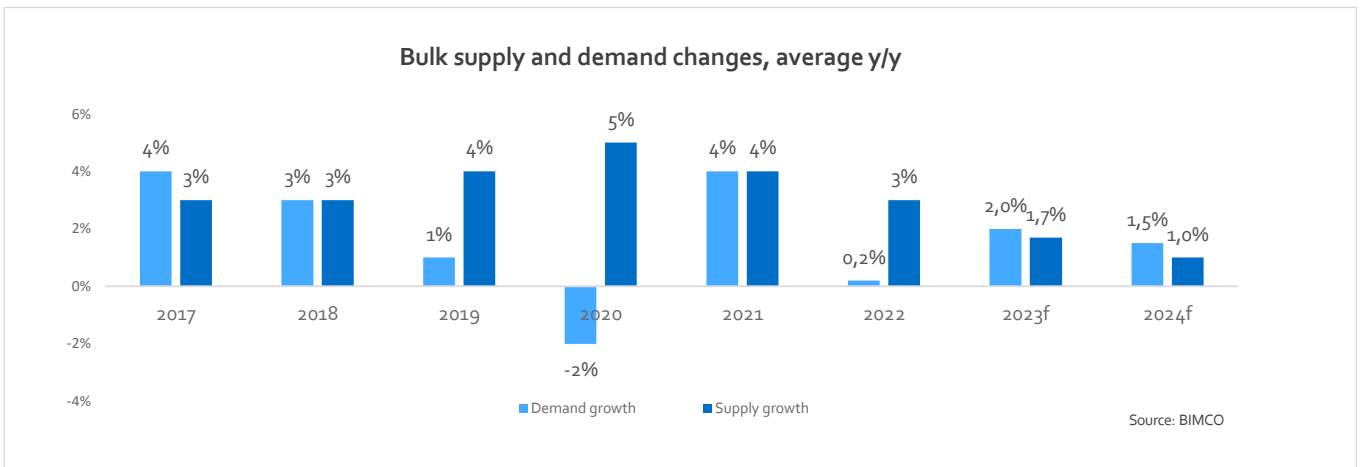


Demand & Supply



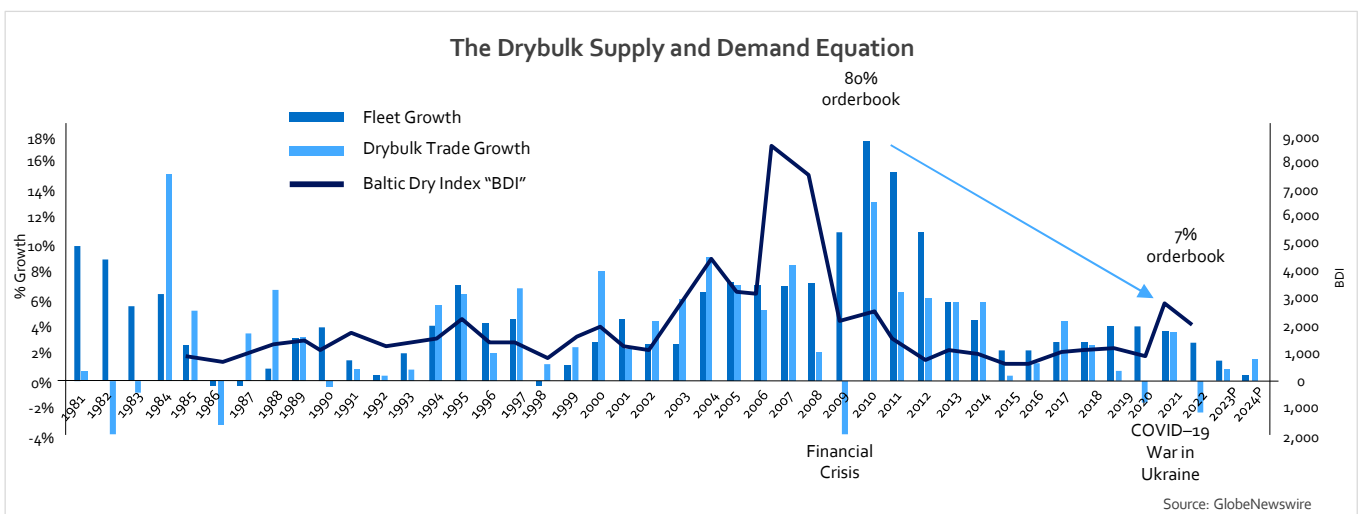
Dry bulk outlook and trade volumes trends for key materials under dry bulk trade

The demand and supply sides of the dry bulk market are moving into the right direction. Most dry bulk commodities are in great demand, keeping freight rates high across all sectors due to the low influx of new vessels.



The International Monetary Fund (IMF) estimates global economic growth of 2.9% in 2023 and 3.1% in 2024. The Chinese economy is estimated to grow by 5.2% in 2023. Demand is driven by China's economic recovery, though the real estate market still is in crisis. The dry bulk fleet is forecasted to grow, though due to new environmental regulations, speed will be limited and supply will be influenced by this. The orderbook is small, with just about 7.5% of the fleet.

The secondhand market continues to fly high, highlighting the market optimism. Since the optimism is widespread, there is cause for concern in the Capesize segment. Underlying demand drivers are weakening, whilst the fleet's ability to rebalance seems minimal. On the other hand, the projected fleet expansion of small and medium-sized ships is manageable, and there is potential for demand to increase due to shifting trade patterns and investments in renewable energy sources.



9 Shipping

Dry bulk carriers



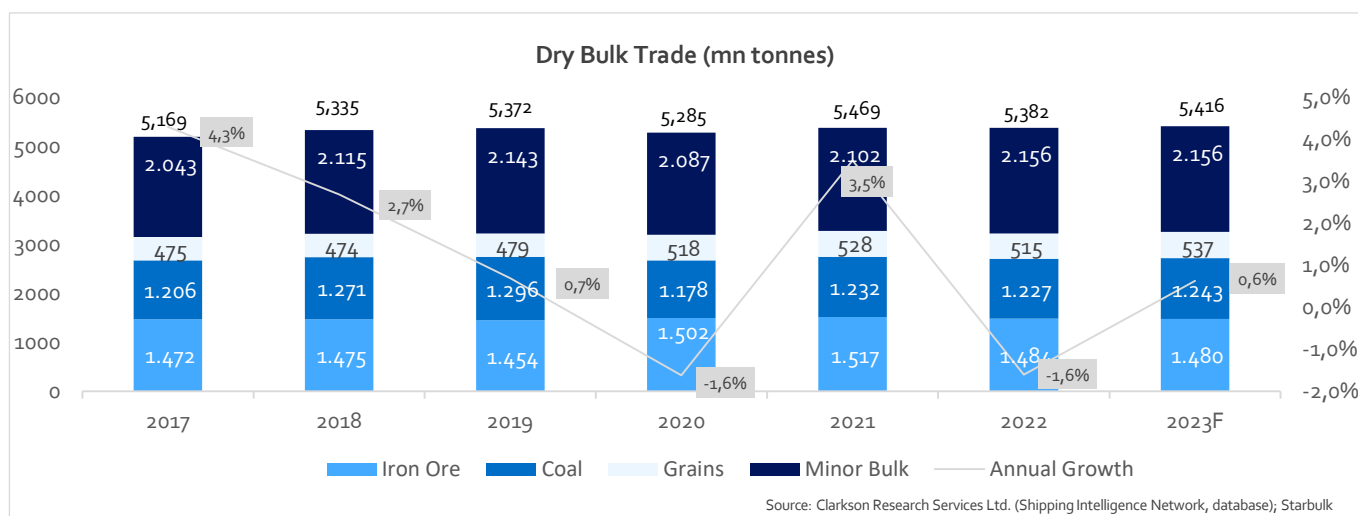
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Due to decreased growth rates for residential home sales and debt-ridden property owners, the Chinese real estate market is struggling. This is significantly affecting Chinese demand for construction steel along with iron ore imports to China. In the upcoming years, this will act as a headwind for the Capesize segment. The Capesize market is strongly dependent on Chinese steel production, with iron ore transport to China accounting for 70% of all vessel demand. Hence, it is anticipated that in 2023, demand for Capesize vessels will only increase by about 1%. However, depending on the speed of Chinese economic recovery and with president Xi Jinping 's promise to support the real estate sector, Chinese steel production, and with that iron ore import, will see an increase by the end of 2023.

It is expected that the mid-sized and small vessels will benefit from a strong year for grain trade (approximately ~15% of sub-Capesize vessel volumes are derived from grain shipments, as observed over the last decade). Since grain shipments across the Black Sea are restricted due to the war in Ukraine, an increase in grain exports is anticipated from the Americas to the Middle East and North Africa. As a result, tonne-mile demand will increase; however, volumes may decrease as a result of rising freight prices.

~65% of the demand for Handymax and Panamax ships comes from coal and minor-bulk trade. Coal is expected to find strong demand in Asia. However, domestic mining in India and China will decrease import demand. Meanwhile, in Europe the energy crisis has accelerated the shift to renewables, resulting in a decrease for need of coal. Coal needed for the production of steel, steam coal or coking coal, will see an increase, mainly due to the Chinese economic recovery. Countries with low or zero coking coal exports, such as Indonesia, will be among the first to feel the decline in demand.

Minor bulks will suffer from the restrained market conditions in advanced economies. Advanced economies are key drivers of demand and account for 37.5% of minor bulks tonne miles. If global economy will stabilize in 2024 or even regain some momentum, demand for minor bulk will see an increase as well.



Outlook

→ Demand will outpace supply by about 0.5% in 2023 and 2024, meaning that the supply/demand balance is quite marginal

→ Quite some uncertainties could affect the dry bulk trade: the Chinese economic recovery is uncertain, the further uncertain course of the war in Ukraine impacts the demand and supply, political and economical tensions between countries and regions are also make their mark on the dry bulk trade

9 Shipping

Dry bulk carriers



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Trading lanes dry shipping

Major bulks

Iron ore

~28%

of dry bulk trade:

Main importer



Main exporters



Coal

~22%

of dry bulk trade:

Main importer



Main exporters



Black Sea

Grains

~10%

of dry bulk trade:

Main importer



Main exporters



Black Sea

Minor bulks

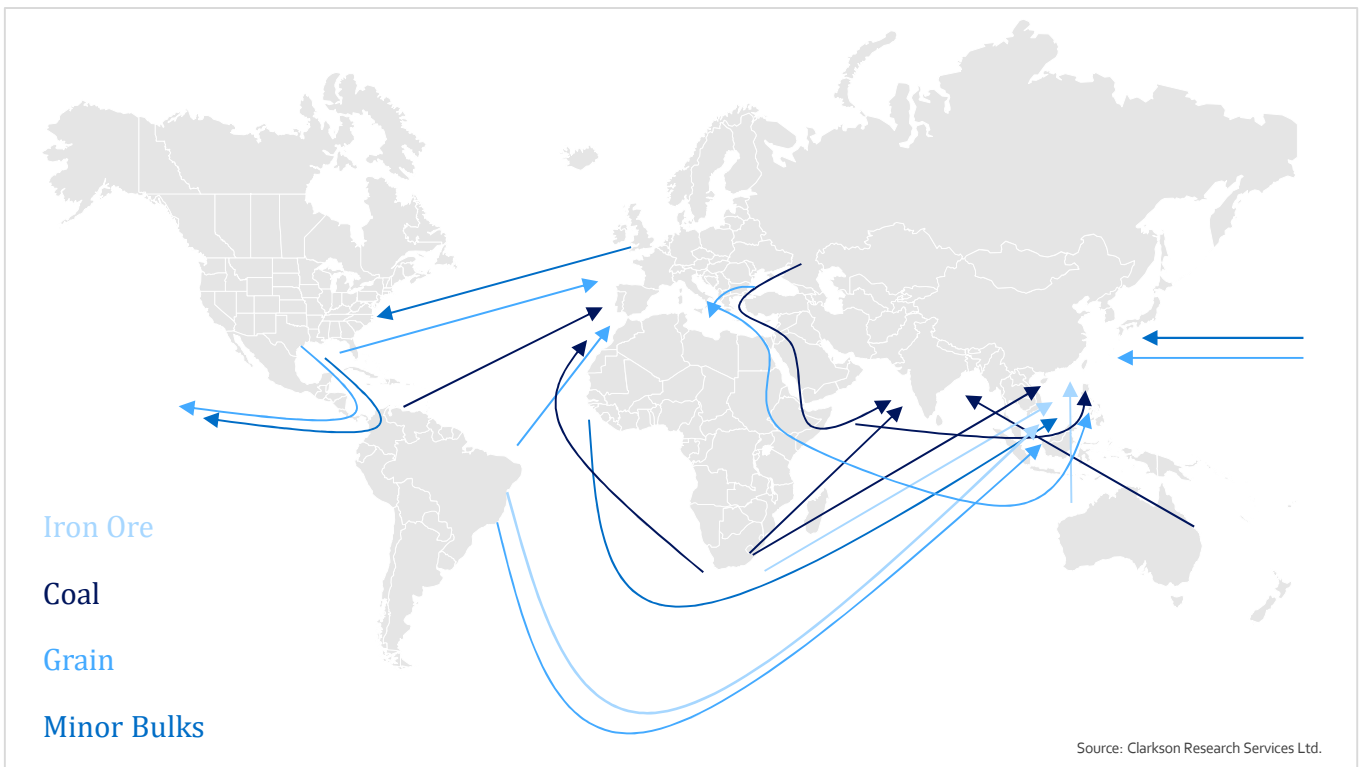
~40%

of dry bulk trade:

Main importers



Main exporters



9 Shipping

Dry bulk carriers



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Major dry bulk shipping companies

OLDENDORFF

Oldendorff Carriers

- HQ: Lübeck, Germany
- Founded in year: 1921
- Revenue: USD 1.5 bn
- Vessels: 750
- DWT: 65 mn

STAR BULK

Star Bulk Carriers

- HQ: Athens, Greece
- Founded in year: 2006
- Revenue: USD 1.4 bn
- Vessels: 128
- DWT: 14.2 mn



GOLDEN OCEAN™

Golden Ocean Group Ltd

- HQ: Hamilton, Bermuda
- Founded in year: 1996
- Revenue: USD 1.1 bn
- Vessels: 92
- DWT: 13 mn

Ultrabulk

Ultrabulk

- HQ: Gentofte, Denmark
- Founded in year: 1960
- Revenue: USD 1.8 bn
- Vessels: 165
- DWT: 11.6 mn



Pacific Basin Shipping

- HQ: Hong Kong
- Founded in year: 1987
- Revenue: USD 3.3 bn
- Vessels: 256
- DWT: 6.5 mn



Navios Maritime Partners

- HQ: Piraeus, Greece
- Founded in year: 1992
- Revenue: USD 255 mn
- Vessels: 83
- DWT: 10.1 mn



Diana Shipping

- HQ: Athens, Greece
- Founded in year: 1999
- Revenue: USD 290 mn
- Vessels: 42
- DWT: 4.5 mn



Genco Shipping & Trading

- HQ: New York, USA
- Founded in year: 2004
- Revenue: USD 537 mn
- Vessels: 44
- DWT: 4.3 mn

9 Shipping

Dry bulk carriers



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Trends, Developments and Drivers



Dry bulk shipping market

Main factors influencing the need for dry transportation materials are industrialisation, urbanisation and economic growth. The worldwide energy transition will shift industries away from fossil fuels towards other raw materials. With the electrification of transport and greening of industries, new dry bulk commodities will come into the picture: lithium, cobalt and nickel and other rare earth elements are essential for battery technologies, windpower and electrification. Furthermore, countries and regions are securing energy independence. Which means a great interest in green energy.

Industries are greening their processes as well. Cleaner ways of producing (e.g. using hydrogen in stead of coke), energy efficiency, waste re-use or moving industries closer to the mines or resources will influence dry bulk movements. Trade volumes, cargo types, patterns and even parcel sizes will change alongside the changing production landscape.

It is likely that visionairs of the dry bulk transport will partner with their customers to jointly rethink the most efficient trade patterns, volumes and ship sizes.

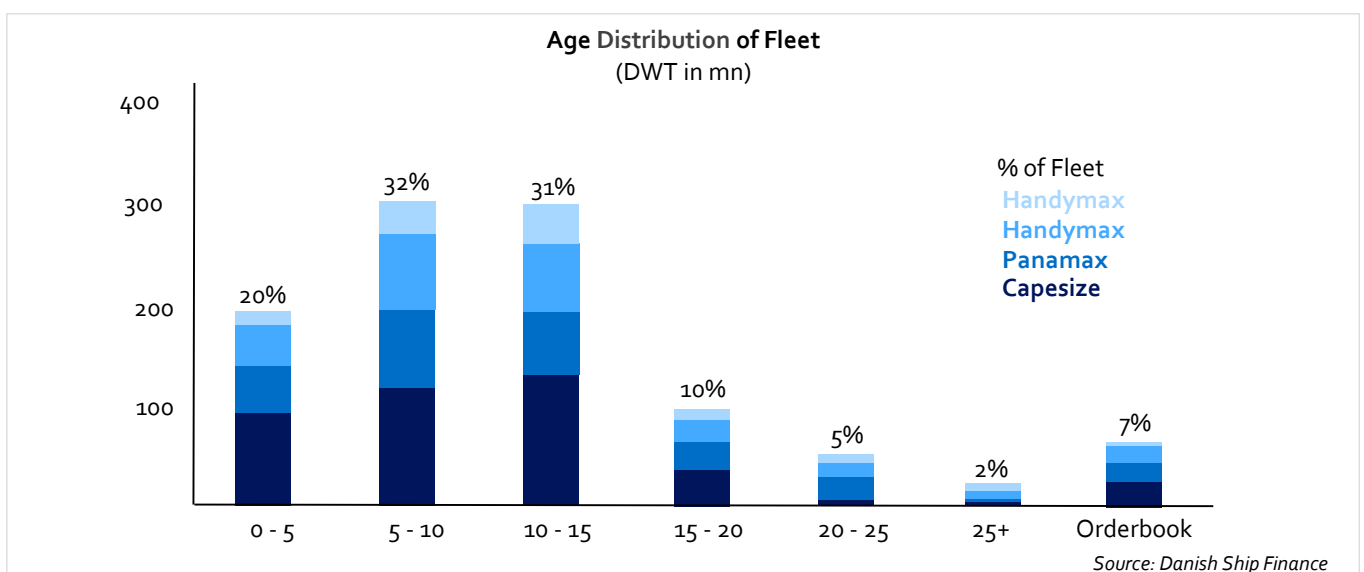
Urbanization can have a significant impact on the dry bulk transport industry. As cities grow, so does the demand for raw materials such as coal, iron ore, and grain. Additionally, urbanization can lead to changes in trade patterns and supply chains as new markets emerge. Furthermore, when insulation and energy efficiency of buildings improves, and when renewable energy sources for power generation are introduced, the demand for seaborne transportation will be reduced.

When the economy is growing, there is an increase in demand for raw materials. Conversely, when the economy is not doing well, there is a decrease in demand for raw materials which will lead to a decrease in demand for dry bulk shipping.



A marked uptick in upper mid-sized capacity

In the coming years, fleet expansion will be driven by the Ultramax and Panamax segments (60–100,000 dwt). In terms of capacity, vessels in these segments make up around half of the orderbook. These vessels can carry a variety of commodity and dock in most ports, which contributes to their adaptability and appeal. This fleet of upper mid-sized ships will represent 85% of vessel orders by the end of 2023, with a gross fleet growth of about 8%. Importantly, realising the scrapping potential could limit net fleet expansion if demand does not follow pace.



9 Shipping

Dry bulk carriers

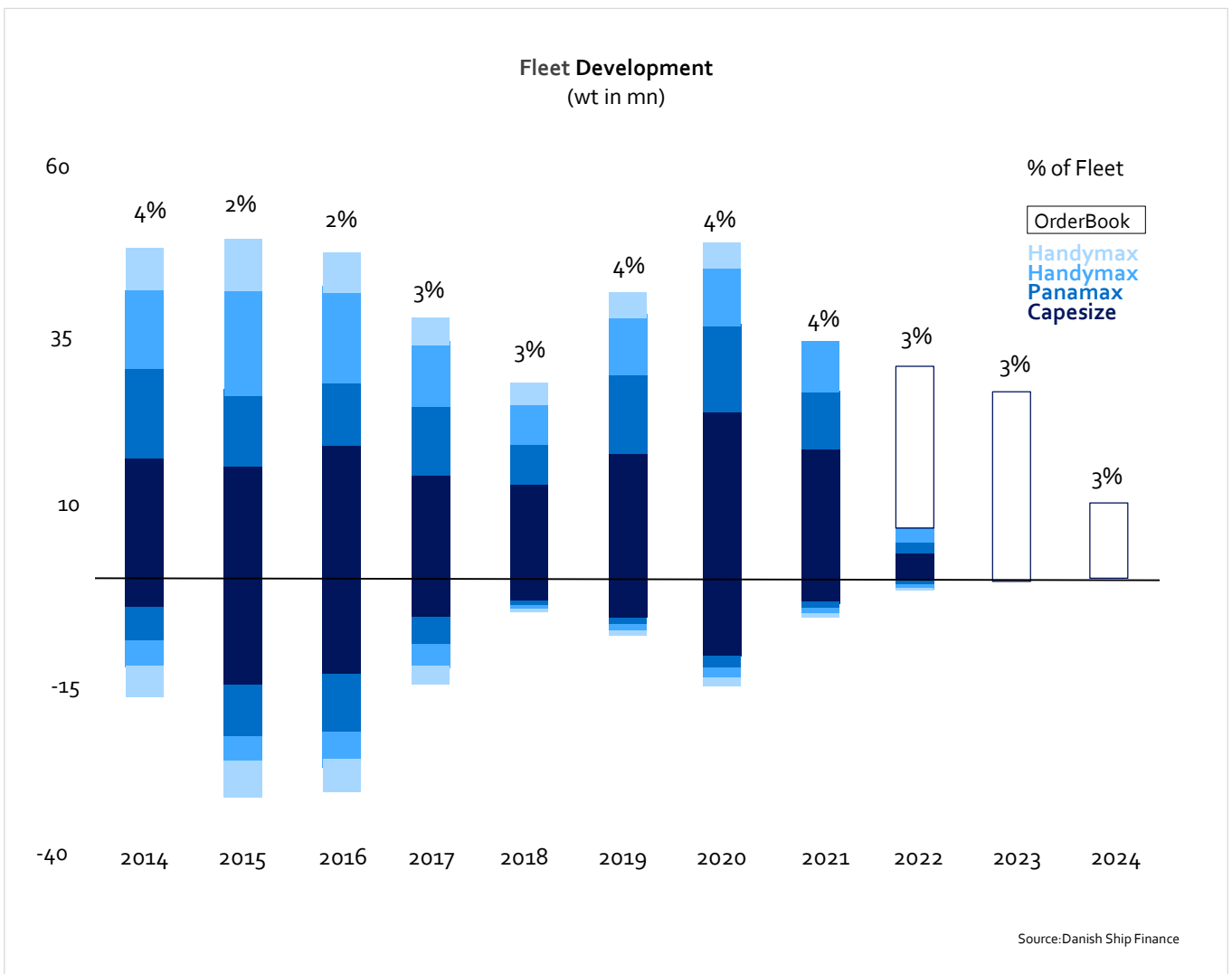


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Large growth in LNG-fuelled Newcastlemax vessels

Capesize tonnage account for almost the whole of the rest of the orderbook. By 2023, there will be an annual increase in Capesize capacity of about 10 mn dwt, corresponding to 3% gross fleet growth. The Newcastlemax design predominates with 116 of the 129 vessels on the Capesize orderbook, corresponding to 6% of the current Newcastlemax fleet. Around 35% of these vessels is equipped with LNG-compliant engines that were developed in response to mining firms' requests for transportation with fewer emissions.



10. TANKERS

NEWSLETTER



Design Features of Tankers



About tanker shipping

Tanker shipping refers to the transportation of liquid cargo, such as crude oil, refined petroleum products, chemicals, liquefied natural gas (LNG), and other liquid bulk commodities, via specially designed ships called tankers.

Tanker shipping is a vital part of the global Shipping and plays a crucial role in the movement of energy and other liquid commodities across the world. Tanker ships come in various sizes, from small coastal tankers to giant VLCCs (Very Large Crude Carriers) and ULCCs (Ultra Large Crude Carriers) that can transport millions of barrels of oil. Crude oil tankers have a vital role to play within the energy value chain. Their main role is to transport crude oil from production point to refinery, although they are also sometimes used for storing crude oil post production. Crude tankers can also be used for carrying oil products such as fuel oil. Any clean products that come out of the refinery are carried on 'clean' or 'product' tankers, which are smaller in size due to the smaller parcel sizes in which these products are traded.

The tanker market is cyclical. Like many industries, the tanker market experiences regular cycles of boom and bust, driven by a combination of supply and demand factors. In periods of high demand for oil and other liquid commodities, such as during times of economic growth, tanker rates tend to rise due to increased shipping activity. On the other hand, during periods of low demand, such as during economic downturns or when there is an oversupply of oil, tanker rates tend to fall.

The tanker industry is highly regulated, to ensure that all vessels are safe to use for the crew, the cargo and the environment.



Key features

A tanker is a vessel designed to carry liquid cargo in bulk. Overall tankers have the following equipment:

- Tankers have several cargo tanks in which cargo is laden; crude oil tankers have a limited number of cargo tanks, while product tankers and chemical tankers have more cargo tanks
- Crude oil tankers only ship crude oil on their voyage, while product tankers and chemical tankers can ship different products in different cargo tanks at the same time
- Tankers have a piping system, though the piping system for crude oil tankers is different than for product tankers or chemical tankers. Cargo tanks on crude tankers are interconnected on deck by pipes, while cargo tanks on product and chemical tankers each have their own fill-and-discharge line and pump
- While loading, oil or refined product is pumped on board through a hose which is temporarily connected to the pipes on deck
- Unloading happens by sucking oil or other liquid out of the cargo tanks




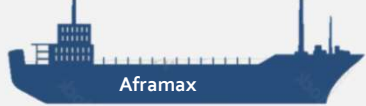
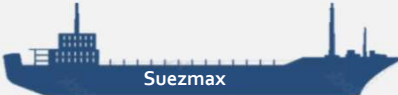




Vessel design and size (capacity in dwt)

The tanker fleet consists of vessels with diverse sizes.

The tanker market is very fragmented:

- According to IHS the fleet consists of about 12,000 vessels.
- Just about 50 companies own more than 50 tankers

Tanker	Capacity (dwt)	Length (in m)	Barrels
 <p>Handysize</p> <p>Handysize: vessels are smaller vessels with a carrying capacity generally between 10,000 and 40,000 dwt. Due to their smaller size, Handysize ships can access ports of all sizes.</p>	10k–40k	130–150m	190,000
 <p>MR</p> <p>MR: MR (Medium Range) vessels are medium-sized vessels with a carrying capacity generally between 40,000 and 55,000 dwt. MR vessels are often used to transport cargo shorter distances. For example, between Europe and the East Coast of the United States.</p>	25k–50k	150–200m	345,000
 <p>LR1</p> <p>LR1: LR1 (Long Range 1) vessels are medium-sized vessels with a carrying capacity generally between 55,000 and 80,000 dwt. LR1 vessels are extremely common vessels because they are used to carry both refined products as well as crude oil.</p>	50k–80k	200m	500,000
 <p>Aframax</p> <p>Aframax: Aframax vessels are roughly 245m in length. Their carrying capacity of 80,000 to 120,000 dwt makes them ideal for short- to medium-haul crude oil transport. Common routes include South America to the U.S. Gulf region through the Caribbean, North Africa to Southern Europe through the Mediterranean, the former Soviet Union to Northern Europe through the Black Sea and the North Sea, and Southeast Asia.</p>	80k–120k	245m	750,000
 <p>Suezmax</p> <p>Suezmax: Suezmax vessels are typically 285m in length and are the largest vessels able to pass through the Suez Canal, with a carrying capacity between 120,000 to 200,000 dwt and beams of roughly 50 to 77.5m. Before recent canal upgrades, the maximum-allowed draught was 18.90m, but ships built after 2017 have a draught of 21.95m.</p>	120k–200k	285m	1 mn
 <p>VLCC</p> <p>VLCC: VLCC (Very Large Crude Carriers vessel dimensions are 300 to 330m in length, 58m width, and 31m in depth. With a carrying capacity of 160,000 to 320,000 dwt, VLCCs can carry huge amounts of crude oil in a single trip and are sometimes referred to as Supertankers. They are commonly used for long-haul crude transportation from the Persian Gulf to Europe, Asia, and North America and can traverse the Suez Canal. This means they are also used frequently around the North Sea, Mediterranean, and West Africa</p>	160k–320k	330m	2 mn
 <p>ULCC</p>	320k–550k	415m	3.7 mn



Liquid Bulk Cargo and Primary Vessel Type



Key cargo transported and typical vessels used



Crude oil

Crude oil tankers: 2,100 vessels, transporting 2 billion tonnes, being 16% of total seaborne trade volume



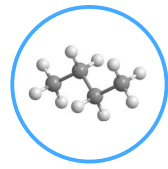
Refined products

Product tankers: 3,100 vessels, transporting 1 billion tonnes, being 8% of total seaborne trade volume



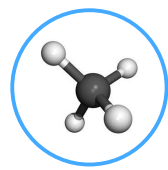
Chemicals

Chemical tankers: 4,000 vessels, transporting 0.4 billion tonnes, being 3% of total seaborne trade volume; Oceangoing chemical tankers range from 5,000 tonnes dwt to 35,000 dwt in size, due to the specialized nature of their cargo



LPG

LPG carriers: 1,500 vessels, transporting 125 million tonnes, being 1% of total seaborne trade volume



LNG

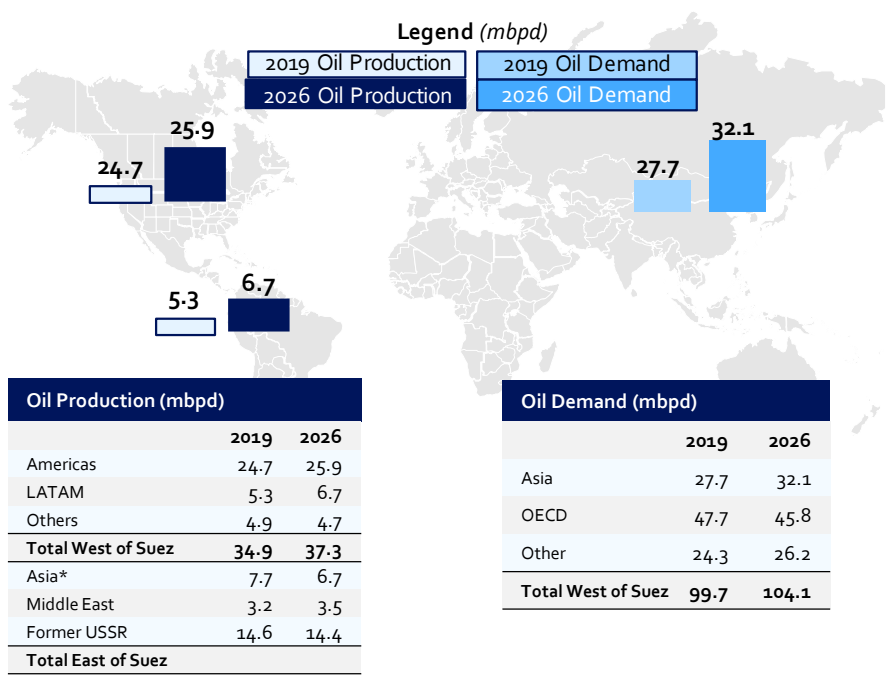
LNG carriers: 600 vessels, transporting 0.4 billion tonnes, being 3% of total seaborne trade volume



Demand

Regional Imbalances in Oil Impact demand for Tankers

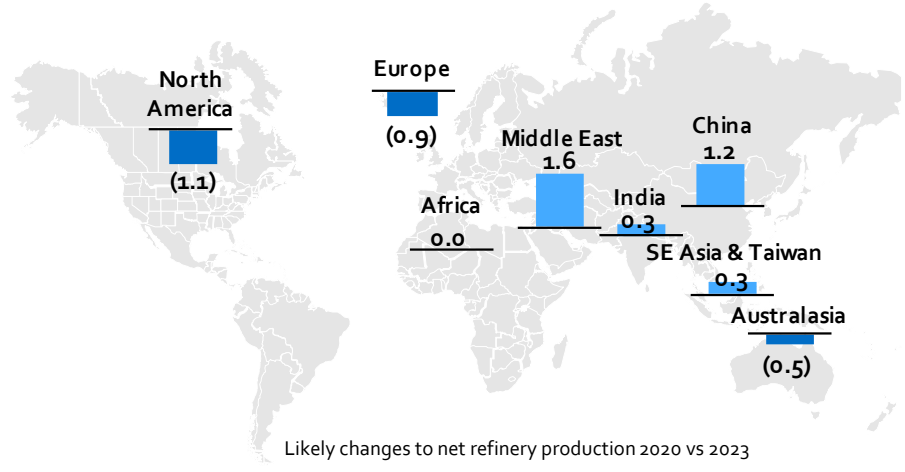
Growing disconnect between oil production growth and oil consumption growth should lead to greater demand for tankers



Source: IEA

Changes in Refinery Capacity

Refining landscape is likely to shift product trade patterns as expansion largely in the East is partially offset by smaller, less upgrading capacity in the West



Source: IEA, Braemar

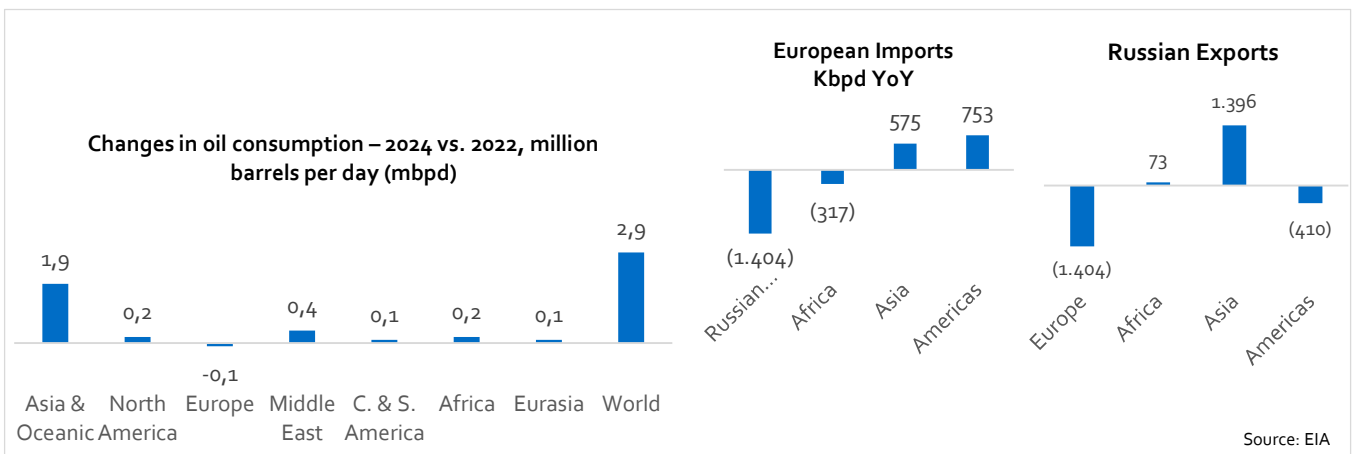
Bimco predicts that demand will grow faster than supply during both 2023 and 2024, despite the fact that the crude tanker market as well as the product tanker market have faced challenges during 2022.

The US EIA predicts an increase in liquid fuels consumption of 1.1 mbpd (1.1%) in 2023 and 1.8 mbpd (1.8%) in 2024. With these estimations consumption will reach 102.3 mbpd by the end of 2024. The end of the COVID-19 restrictions in China and the expected economic growth within this country and the end of travel restrictions to, from and in China are expected to be key drivers of growth.

The EIA predicts that China will account for 38% of the growth in oil demand between 2022 and 2024, with India accounting for 18%. The Middle East will account for another 15% of growth. The remainder is split across other regions.

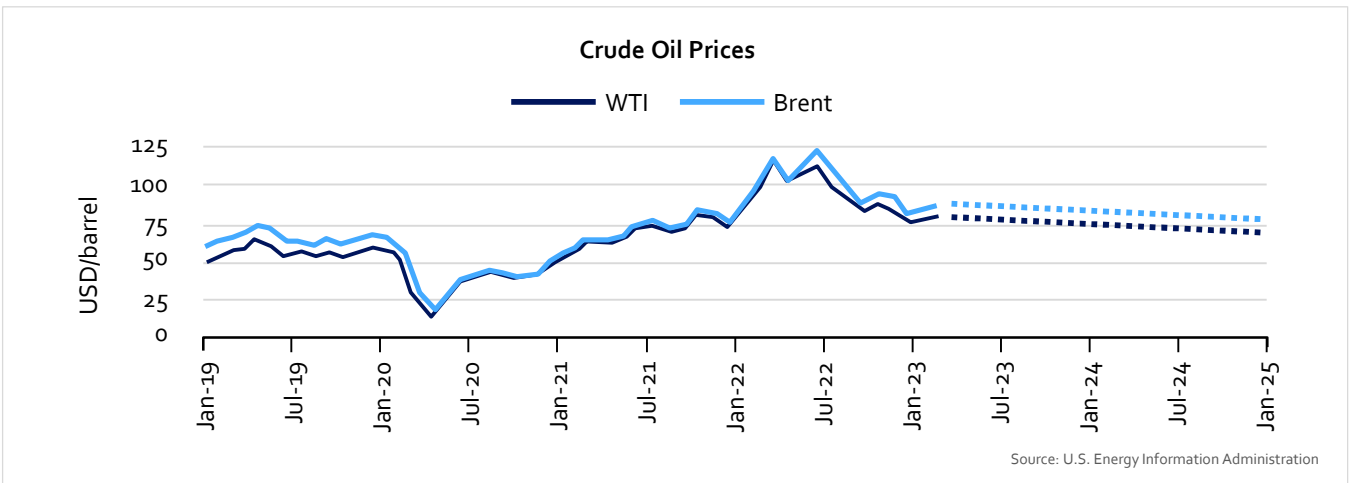
Global production is forecast to be 2.0 mbpd higher in 2024 than in 2022, with an increase by 1.8 mbpd in North American. Russian production will reduce by 1.1 mbpd. This is a smaller reduction than previously predicted as it appears that Russia has become more successful in finding new buyers for its oil. Russian crude exports have been shifted to India (since October 2022 India imports about 1.1 mbpd from Russia), China, and destinations in the Mediterranean.

Oil prices have fallen quite significantly since 2022 and until recently the EIA predicted that prices will continue to slide, with prediction of an average Brent price of USD 84/barrel in 2023 and USD 78/barrel in 2024, down from an average of USD 101/barrel in 2022. However, on April 3, OPEC and partner countries announced they would cut crude oil production by 1.2 million barrels per day through the end of 2023. The next Monday, oil prices were up by 6%. Russian oil prices were not spared and reached above the imposed price cap of \$60/barrel.

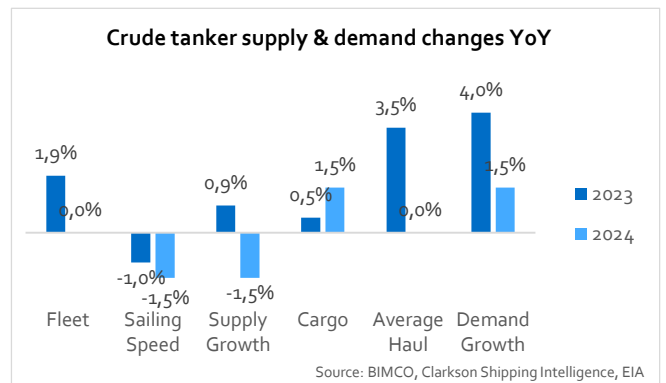
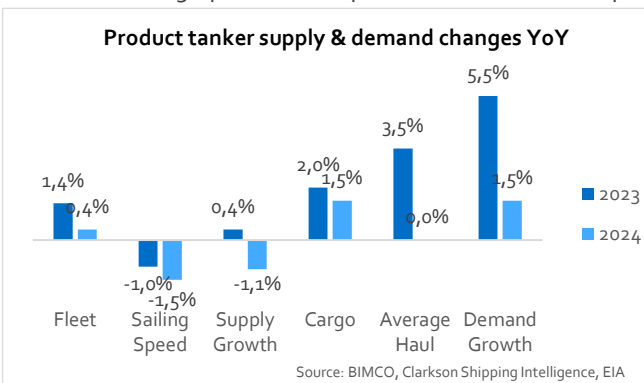


Demand is expected to grow faster than supply during both 2023 and 2024

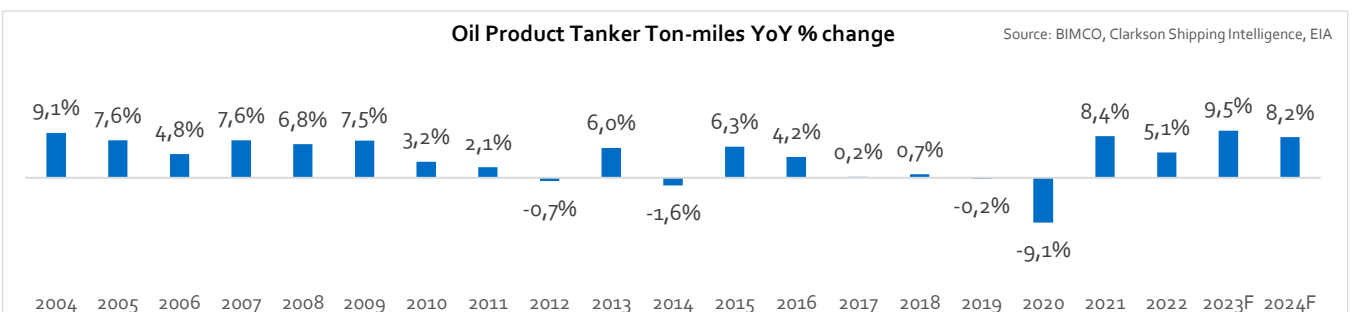
- Freight rates, time charter rates, and second-hand ship values will all see gains throughout 2023 and 2024
- In addition, an increase of 3–4% in average sailing distances following the EU’s ban on Russian oil and oil products will add to ton-miles demand; however, it is unsure what the the latest OPEC+ production cut will do with the Russian oil gap
- According to Clarkson Research Services, the number of ton-miles is expected to increase next year by 9.5%
- European imports of oil & products from Russia is down 1.4 mbdb YoY, which is to a great degree replaced by imports from the US, LATAM and Asia, adding significant distances to the global trade & shipping routes
- It is predicted that from 2022 to 2024, the demand for crude tanker and product tanker will go up by 4.5–6.5% and 6–8%, respectively



- Oil prices have fallen quite significantly from the highs of 2022 and the EIA predicts that prices will continue to slide. The average Brent price is expected to end at USD 84/barrel in 2023 and USD 78/barrel in 2024, down from an average of USD 101/barrel in 2022. This should support an increase in demand
- In the above graph the consequences of the OPEC+ oil production cut are not included

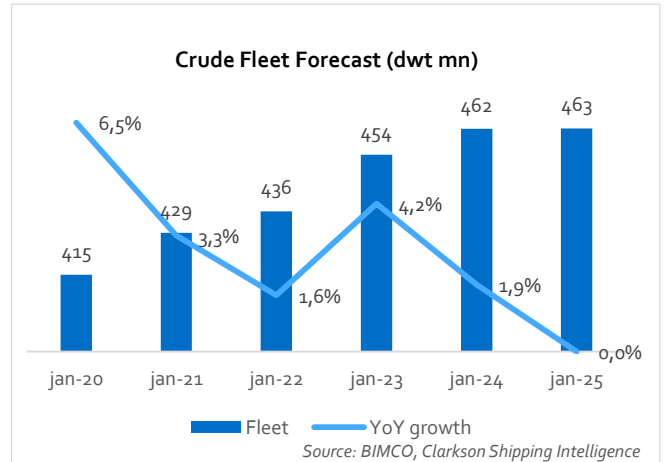
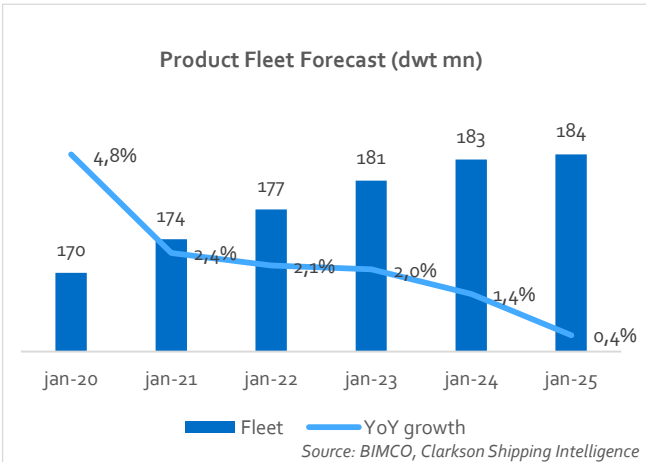


- The US Energy Information Administration (EIA) predicts an increase in liquid fuels consumption of 1.1 mbpd (1.1%) in 2023 and 1.8 mbpd (1.8%) in 2024, ending next year at a record high of 102.3 mbpd. The International Energy Agency (IEA) predicts faster growth, and that consumption will hit 101.9 mbpd in 2023
- Increased growth in China and the end of the country's COVID-19 and travel restrictions are expected to be key drivers of growth. Increased jet fuel demand is predicted to account for at least half of new demand
- The EIA predicts that oil prices will fall throughout 2023 and 2024 and that Brent will dip below USD 80/barrel in 2024
- The IMF predicts global GDP growth of 2.9% in 2023 and 3.1% in 2024 but highlights that the balance of risks remains weighted on the downside





Supply

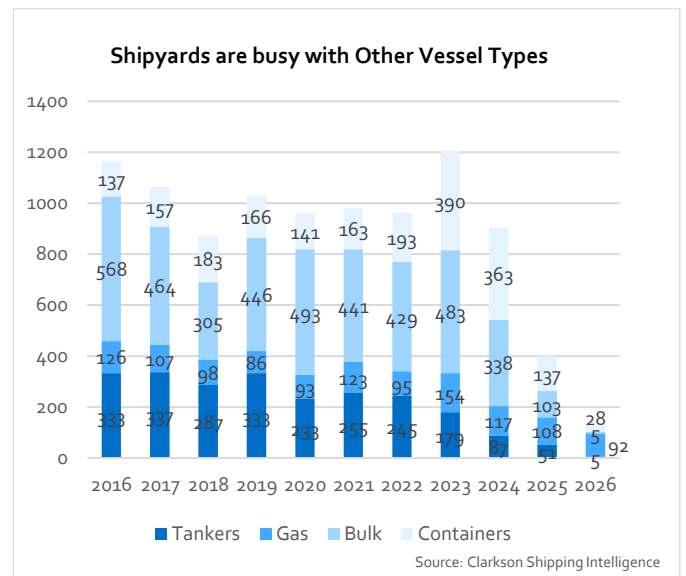
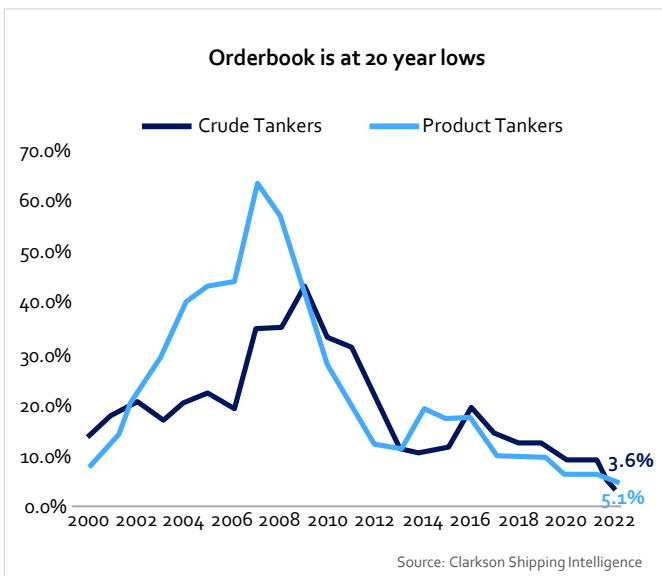


Bimco expects the tanker fleet to increase with 1.9% for crude tankers and 1.4% for product tankers in 2023, with respective figures of 0.0% and 0.4% for each fleet in 2024. The small orderbook of 5.4% and 4.4% and recycling of vessels will limit fleet growth. Moreover, sailing speed will reduce in order to comply with EEXI and CII regulations, resulting in a reduced fleet productivity. These developments will have its effect on the supply-demand balance, with demand growing faster than supply. Freight rates, time charter rates, and second-hand ship values will all see gains throughout 2023 and 2024.

Shipowners enjoy profits, which will have its effect on newbuilding orders. With yards delivering the already ordered vessels to its owners, in the near future yard capacity will become available – tanker owners might take the opportunity to contract new ships that are designed to comply with the decarbonization regulations to come.

All in all, actual crude tanker supply is estimated to grow by 0.9% in 2023 and decline by 1.5% in 2024. Product tanker supply should grow by 0.4% in 2023 and fall by 1.1% in 2024.

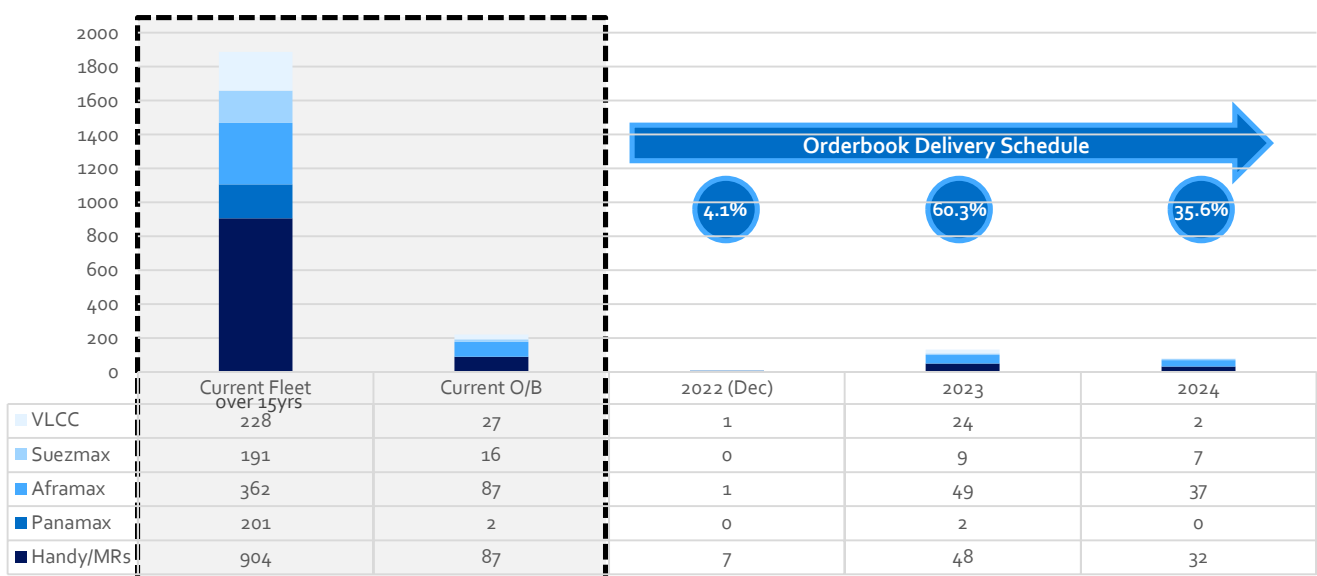
Tanker Supply: Limited Capacity for newbuilds Shrinking orderbook compounded by limited shipyard capacity



Momentarily 9.8% of the current tanker fleet is over 20 years old and 24% is over 15 years old. In the next three years there will be a net decrease in the number of vessels in the fleet. This is because the total number of newbuilt orders, which is 219, is significantly lower than the number of vessels that are expected to depart the fleet, which is 1,886 vessels aging over 15 years. This does **not** include 1,585 vessels in the 10-14-year age bracket most of which will be around the 15-year age mark by 2023-25.

The orderbook is very low, compared to previous years: in December 2022 the orderbook was 4.1%, compared to 10.2% in 2018 and 22.3% in 2010.

Fleet growth is limited by very small order books. Combined with predicted reduction in sailing speeds of 2-3% due to decarbonisation regulations, overall supply will fall.



Source: Clarkson Research Studies, Oil & Tanker Traders Outlook – Dec 2022

Outlook

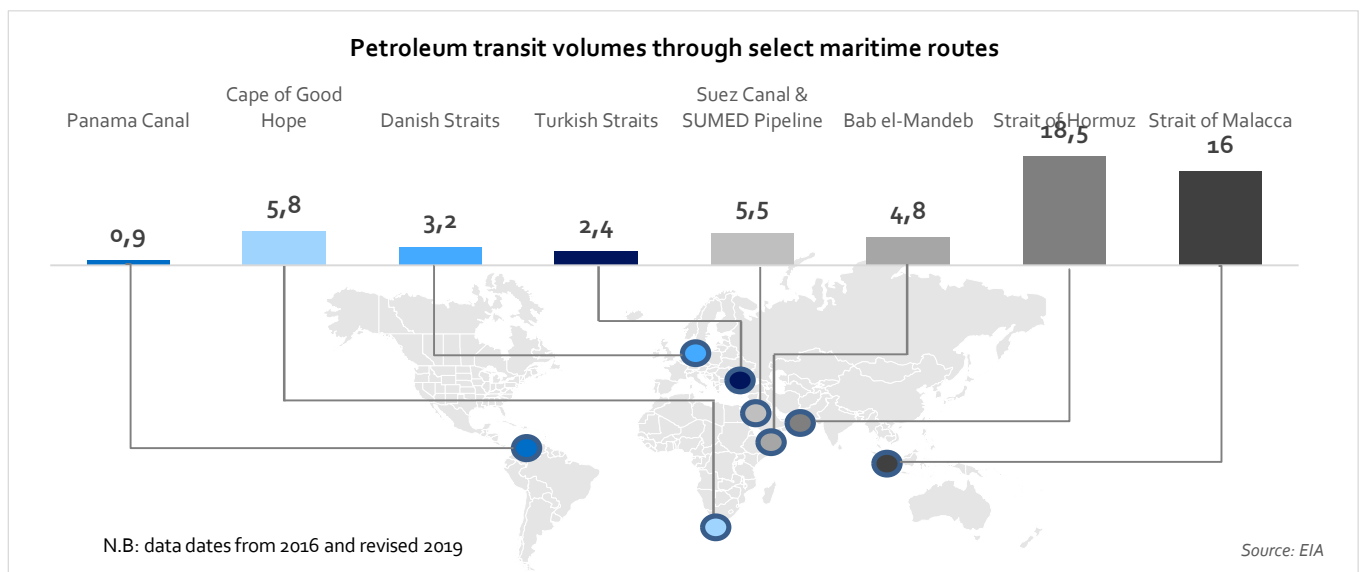
- The average age tanker fleet continues to grow; at this moment is 9.8% of current fleet over 20 years old and 24% is over 15 years old
- Uncertainty on regulations and technology concerning decarbonization is an obstacle for amongst others newbuilt orders; furthermore, there is limited capacity at shipyard: the orderbook is very low with ~4% in December 2022
- Upcoming regulations and discussions for alternative propulsion fuels should further propel scrapping activity
- The balance has tipped to the supply side, resulting in gains for freight rates, time charter rates, and second-hand ship values throughout 2023 and 2024



Global Tanker Ships Route Density



Every day 18.5 mn barrels transit through the Strait of Hormuz between Iran & Oman & 16 mn barrels go through the Strait of Malacca between Indonesia & Malaysia.

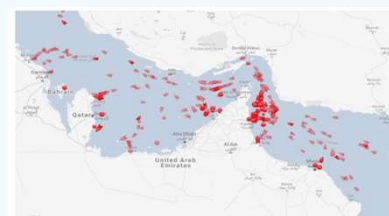


Strait of Malacca



This strait is vital to get oil from the Persian Gulf to the South China Sea, otherwise a big ship must detour thousands of miles around the Indonesian islands of Sumatra and Java to find the next suitable waterway.

Strait of Hormuz



The Strait of Hormuz is considered the most important oil chokepoint in the world because of the significant amounts of oil that pass through the Strait. It connects the Persian Gulf with the Gulf of Oman & the Arabian Sea.



Changing Landscape

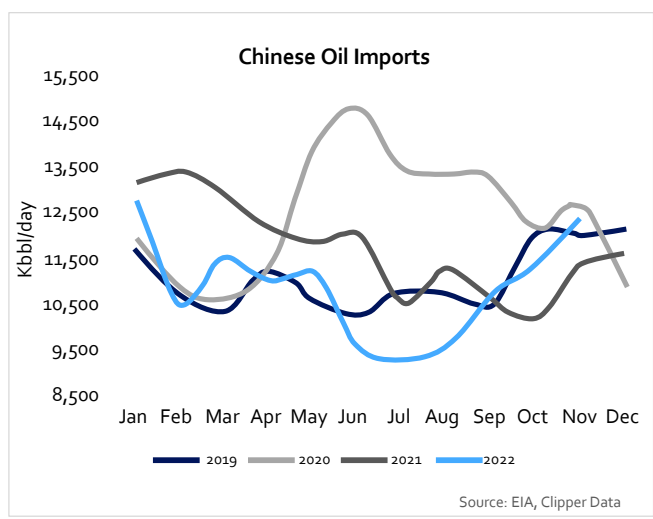
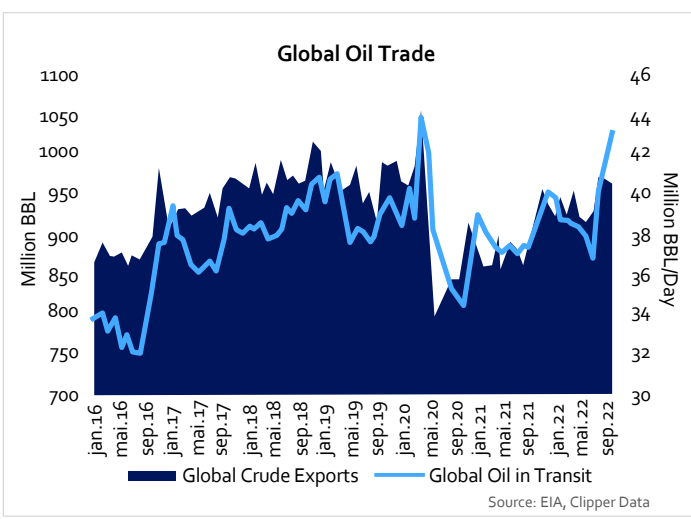
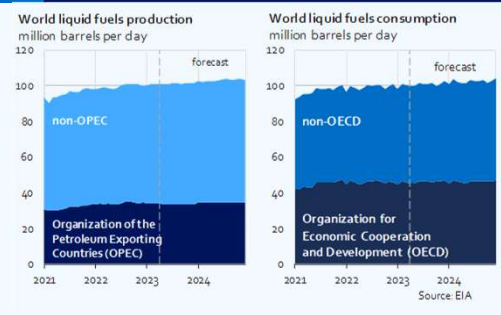
Global oil demand has reached a record in 2022 of **102 mbpd** thanks to rebounding air traffic and Chinese demand

Global crude oil exports reached **~40 mbd** during the 3rd quarter of 2022

Total tanker fleet growth to turn negative in 2024. Change in trade dynamics may accelerate this, and will influence the fleet age; **~10%** of fleet above 20 years

World seaborne trade to grow **6-7%** annually next two years

Non-OPEC oil supply growth continues to rise, supporting long hauls; the growth in consumption will mainly come from non-OECD countries



Refinery & capacity changes:

During the period 2020-2022, 2.4 mbpd of refining capacity has been closed down permanently and a further 0.6 mbpd is set to be closed down during 2023. In addition, 1.1 mbpd of capacity is at risk of closure and a further 0.4 mbpd of refining capacity will be temporarily closed to be converted into biorefineries. These 4.1 mbpd of actual and potential closures compare with planned global capacity expansion of 4.4 mbpd during 2020-2023. Most of the capacity which has been shut down is in net importing regions, while new capacity comes online mainly in the Middle East and Asia.

- Amongst countries, China, India and Pakistan would be the top three countries globally for CDU capacity additions during the 2023 to 2027 outlook period. China is expected to add 3.0mmbd of CDU capacity by 2027, whilst India and Pakistan are expected to add 1.7mmbd and 1.6mmbd, respectively
- Asia's crude distillation unit (CDU) capacity is expected to reach 45.8mmbd in 2027, the highest amongst all the regions globally. North America and the Middle East follow with 24.5mmbd and 14.9mmbd, respectively

Environmental Regulations: the imposed regulations on the maritime industry to reduce the adverse effects on the environment & surroundings has led to:



Strong potential of India & China with a population of over 1 billion



Decrease in vessel speed



Increased scrapping



Older ships becoming less competitive



Decreased vessel utilization as a result of drydocking for installation of energy saving devices



Selected Players

Teekay Corp



- HQ: Hamilton, Bermuda
- Founded in year: 1973
- Revenue: USD 2 bn
- Vessels: 53
- DWT: 7.3 mn

Euronav NV



- HQ: Antwerp, Belgium
- Founded in year: 1989
- Revenue: USD 1.4 bn
- Vessels: 71
- DWT: 18 mn

Scorpio Tankers Inc



- HQ: Monaco, Monaco
- Founded in year: 2009
- Revenue: USD 958.1 mn
- Vessels: 113
- DWT: 7.8 mn

Frontline Ltd



- HQ: Hamilton, Bermuda
- Founded in year: 1985
- Revenue: USD 957.3 mn
- Vessels: 66
- DWT: 13 mn



Navigator Gas

- HQ: London, UK
- Founded in year: 1997
- Revenue: USD 405 mn
- Vessels: 57
- DWT:

Tsakos Energy Navigation



- HQ: Athens, Greece
- Founded in year: 1993
- Revenue: USD 512 mn
- Vessels: 58
- DWT:

Torm



- HQ: Piraeus, Greece
- Founded in year: 1889
- Revenue: USD 485 mn
- Vessels: 78
- DWT: 5.3 mn

Odfjell



- HQ: Bergen, Norway
- Founded in year: 1914
- Revenue: USD 1.4 bn
- Vessels: 70
- DWT: 2.7 mn

Stolt Tankers



- HQ: London, UK
- Founded in year: 1959
- Revenue: USD 1.5 bn
- Vessels: 166
- DWT: 3 mn

MOL Tankers



- HQ: Tokyo, Japan
- Founded in year: 1936
- Revenue: USD 1.2 bn
- Vessels: 180 tankers
- DWT: 66mn



Trends, Developments and Drivers



Liquid bulk shipping market

The main driver for the tanker market is global demand for crude oil and petroleum products.

- With the reopening of the Chinese economy it is expected that oil demand will increase

Western sanctions on Russian oil exports in response to the Russian invasion of Ukraine in February 2022 have completely reshaped global oil markets. More Russian oil is now heading to nations including India and China. The war is causing a profound and permanent shift in the world's oil markets, creating new geopolitical alliances.

In India a new major tankowner has emerged. The company has acquired over 55 vessels since March 2022, placing it to the top tankerowners in the world. The tankers are old vessels, and previously, before becoming part of the Indian company fleet, transporting oil all over the world. However, once acquired by the Indian company, they only transported oil from Russia to India. In doing so, the company was the catalyst of the most significant shifts in oil flows in decades. Before the Ukraine war, Russia supplied less than 1 per cent of India's crude. It now accounts for about 30 per cent, according to official trade statistics. Through such deals, India has imports most of Russia's oil that previously went to the EU market.

A dubious fact is that none of the vessels was insured by any of the recognized mutual P&I companies. Western insurance is a condition adhered to the G7 price cap on Russian oil sales.

Some parties suspect that Rosneft, the Russian oil giant, is behind this company.

The tanker market is also influenced by global economic conditions, as well as trends in oil production and refining, which can impact the volume and direction of trade flows.

- Refinery capacity is likely to relocate, towards Asia and the Middle East, having its effect on tonne-mile performances

Additionally, the availability of tanker capacity and shipping rates can also impact the market, as these factors can influence the cost of transporting crude oil and petroleum products.

Volatile market conditions remain, but key underlying drivers to support strong rates in the tanker market

EXTERNAL FACTORS

MACROECONOMIC

- | | |
|---|---|
| <ul style="list-style-type: none"> • The end of interest rate increases is coming in sight • Slow economic growth ahead, but adjusted up by IMF • China opens up and has set a 5% growth target for 2023 | <ul style="list-style-type: none"> • Tight long-term energy supply in Europe, but currently eased due to the mild 2022-2023 winter • High geopolitical tension remains • Embargo and price cap for Russian CPP • OPEC+ production reduction for the remaining of 2023 |
|---|---|

DEMAND

- Oil
- Oil prices
- Refined products



SUPPLY

- Tanker fleet growth
- Tanker fleet age
- Tonne-miles performance
- Average fleet speed



11. CONTAINER SHIPS

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Design Features of Container Ships



About container shipping

Container shipping is a method of transporting goods in large, standardized containers using ships designed for this purpose. The containers used in container shipping are generally made of steel and come in various sizes, including 20-foot, 40-foot, and 45-foot lengths.

Container shipping has become a popular method of transporting goods due to its efficiency, cost-effectiveness, and ability to accommodate a wide variety of cargo types. The standardized nature of the containers allows for easy loading and unloading at ports, as well as smooth transfer between different modes of transportation, such as ships, trucks, and trains. Meaning that container transport has the special feature that the cargo can be transported from customer to customer, of which water transport is only part of the entire transport chain. This in contrast to dry or liquid bulk shipping in which the cargo is shipped from port to port.



Key features

A container ship is designed to carry containers. The geometry of a ship's hull is its primary and most prominent design feature. A container ship's hull has a finer form. In other words, the forward and aft sections of a container ship are streamlined, and not fuller like that of a bulk carrier or oil tanker (as can be seen in the images below).

Container



Bulk



Oil



Containers come in standard sizes, however the exact dimensions vary from container to container. The most common container sizes are the 20 feet container and the 40 feet container.

Type	Exterior Dimension (L*W*H) in feet	Exterior Dimensions (L*W*H) in meter
20-Foot Container	19'10.5" * 8' * 8'6"	6.10*2.44*2.59
40-Foot Container	40' * 8' * 8'6"	12.20*2.44*2.59

TEU - twenty-foot equivalent unit

A twenty-foot equivalent unit (TEU) is a standard unit of measurement in the Shipping that refers to the size of a container. It is used to measure a ship's cargo-carrying capacity and is based on the volume of a standard 20-foot-long container. One TEU is equivalent to a single 20-foot container. Larger containers, such as 40-foot or 45-foot containers, are counted as two or more TEUs, respectively. This standardized system makes it easier for shipping companies to calculate cargo volumes and plan their operations efficiently.

11 Shipping

Container ships



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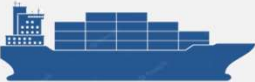







Fleet Characteristics



Different sizes in container vessels

Grouped by size, the smaller ships are used for short hauls, while the large container vessels are deployed in the intercontinental trade

Container ship	Capacity (TEU)	Length (in m)	Containers
 Panamax Max (from 1985-)	3,400-4,500	290m	Containers across → 13 Containers high on deck → 8 Containers high below deck → 6
 Post Panamax (from 1988-)	4,000-6,000	300m	15 9 17 bays 5
 Post Panamax II (from 2000-)	6,000-8,500	340m	17 9 20 bays 6
 VLCS (from 2006-)	11,00-15,000	397m	22 10 23 bays 8
 New Panamax (from 2014-)	12,500	366m	19-20 10 22 bays 6
 ULCS (from 2013-)	18,000-21,000	400m	23 11 24 bays 10
 MGX-24CS (from 2019-)	21,000-25,000	400m	24 13 24 bays 12

11 Shipping

Container ships



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Market Dynamics












Alliances

In Shipping, low pricing and wide service coverage are two important elements that carriers must offer to make their business profitable.

To facilitate this, three major shipping alliances (2M, THE Alliance and Ocean Alliance) were formed. By forming alliances, carriers were able to increase their customer base globally and offer low prices.

During the pandemic, this proportion fell slightly as non-alliance members entered the profitable Asia–North America route, but the three main alliances continued to control 84% of the market.

Recently, two major carriers, Maersk and MSC have called off their 2M alliance after working together for seven years. According to the terms of the deal, they would separate all their operations by 2025.

		2M		
 		Capacity	Vessels	Routes served
		2.1 million TEU	185	44
To be discontinued from 2025				
 		Ocean Alliance		
 		Capacity	Vessels	Routes served
		3.8 million TEU	330	38
		THE Alliance		
		Capacity	Vessels	Routes served
		3.5 million TEU	249	31

Source: Container-Xchange

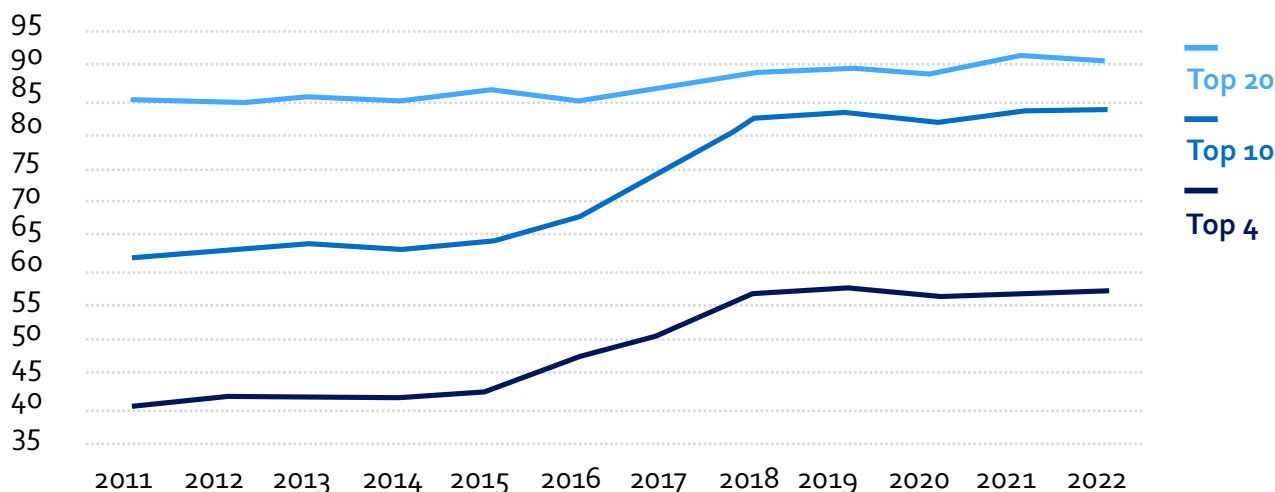


Market consolidation

Over recent decades, the container shipping sector has seen a continuous process of consolidation and restructuring of relationships. This includes horizontal consolidation, through mergers and acquisitions; vertical integration, through carriers investing in terminal operations and other logistics services; and strategic cooperation agreements in the form of carrier consortia and alliances.

Often in response to capacity oversupply, container shipping lines have long been consolidating horizontally through mergers, acquisitions and bankruptcies at times. Since 2017, the top four carriers with container-carrying capacity have controlled more than half of the global capacity. Since 2018, each has had a market share of >10%. The largest carrier in 2022 was MSC with 17.3% of the market, followed by Maersk (16.5%), CMA CGM group (12.7%) and COSCO Group (11.2%). The fifth largest, Hapag-Lloyd, had 6.8%.

Market shares of top 4, top 10 and top 20 carriers, 2011–2022 (percentage)



Source: UNICTAD, based on data provided by Alphaliner, <http://public.alphaliner.com>

Container shipping lines have also been integrating vertically. They have extended their operations to:

Terminals – The four largest carriers are now among the top ten terminal operators, competing with port companies such as PSA, Hutchison and Dubai Ports. The two largest container terminal operators are associated with major shipping lines, China COSCO Shipping and APM Terminals, associated with Maersk, both had terminal throughput share of over 10%. Other liners operating terminals, include Mediterranean Shipping Company (MSC), via a subsidiary Terminal Investment Limited, and CMA CGM.

Logistics – In addition to operating ports and terminals, shipping companies have been buying warehouses and freight-forwarding and other logistics companies. In 2021, MSC expanded its logistics arm MedLog by buying the Brazilian company Log-In Logística Intermodal, as well as Bolloré Group Africa division. CMA CGM bought back Fenix Marine Services, a Los Angeles terminal it had sold four years earlier, and acquired Bolloré Transport & Logistics to strengthen its position in Africa. Hapag-Lloyd bought a 30 per cent stake in the German deep-water port Wilhelmshaven. A.P. Moller-Maersk has acquired B2C Europe as well as Visible Supply Chain Management, a leading US-based B2C/e-commerce logistics and parcel delivery company.

Air freight – In 2021, Maersk acquired the freight forwarder Senator International and ordered five freight airplanes. CMA CGM ordered six air freighters for the launch of its airline. MSC has started developing a new MSC Air Cargo solution, to be available from early 2023, following the delivery of the first of four aircraft that will be operated by Atlas Air.

Rail – To cater for fast-changing customer needs, strengthen supply chains and offer alternatives to ocean and air services, A.P. Moller-Maersk has launched a rail-sea Asian-Europe service connecting China to Romania through Kazakhstan, Azerbaijan and Georgia.



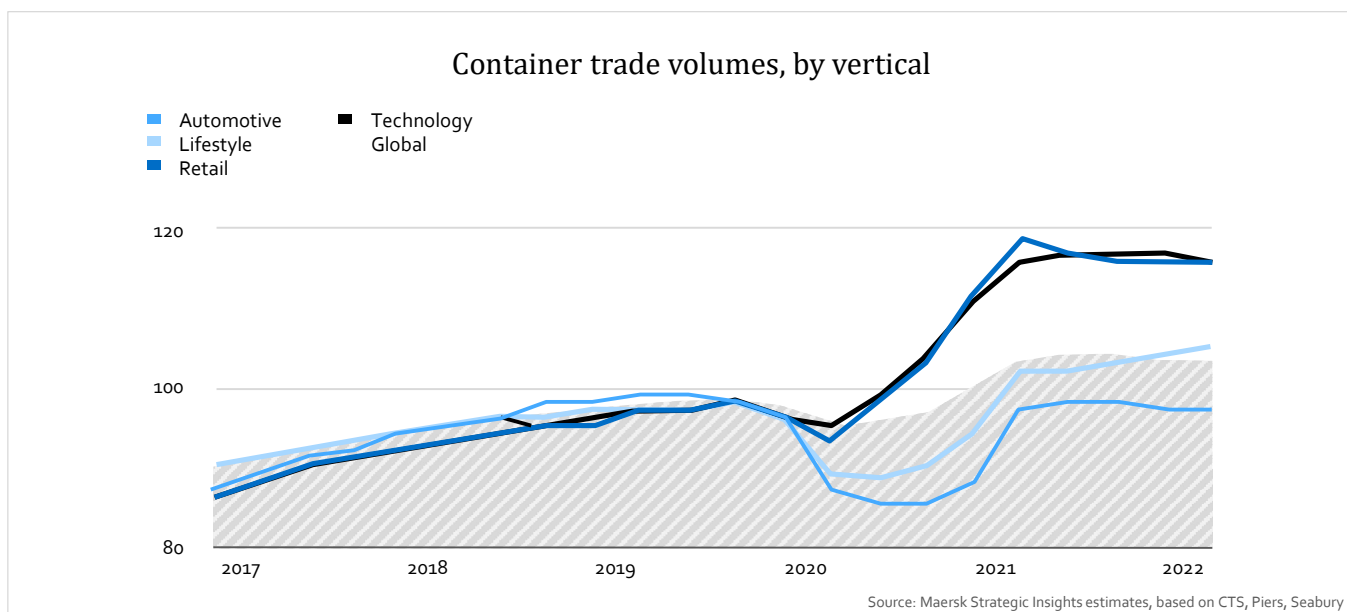
Demand



Economic growth is the major driver for container transport growth

Container shipping went through an extraordinary boom after the first wave of the Covid-19 pandemic in 2020, with the industry making more money in three years than in the previous six decades. However, times have turned and in 2023, economic and trade growth are expected to be weak. Despite high inflation and increasing interest rates, retail sales volumes in both the US and the EU have remained remarkably resilient. Retail sales adjusted for inflation have only fallen marginally compared to the peak during 2021/2022. However, demand for consumer goods is now slowing, because savings built up during 2020 and 2021 are now spent. Probably consumer sentiment may improve during 2023, when inflation recedes. This could be positive for container volumes and could fuel a rebound in container volumes.

Demand for logistics services followed the macroeconomic environment during 2022. Global container sea freight volumes declined by 4.3% in 2022, and by the third quarter of 2022, they were below 2019 Q3 levels.



Retail and technology experienced growth whilst the automotive sector is impacted by supply chain problems

Demand developments were not uniform across customer products.

- The main shift occurred in retail and technology products where demand was exceptionally strong during the pandemic, pushing container volumes well above their pre-pandemic trend
- During 2022, consumers reduced their spending on these products and container volumes began to normalise
- By contrast, other verticals such as lifestyle products did not experience the same overconsumption and container volumes progressed in line with the pre-pandemic trend
- The automotive sector continued to be impacted by supply chain problems and a shortage of semiconductors as well as consumer hesitancy, resulting in container volumes being well below trend

The normalisation of demand was felt most keenly in the ocean freight rate market during H2 2022

The adjustment across other transport modes was more subdued, reflecting differing demand and supply dynamics

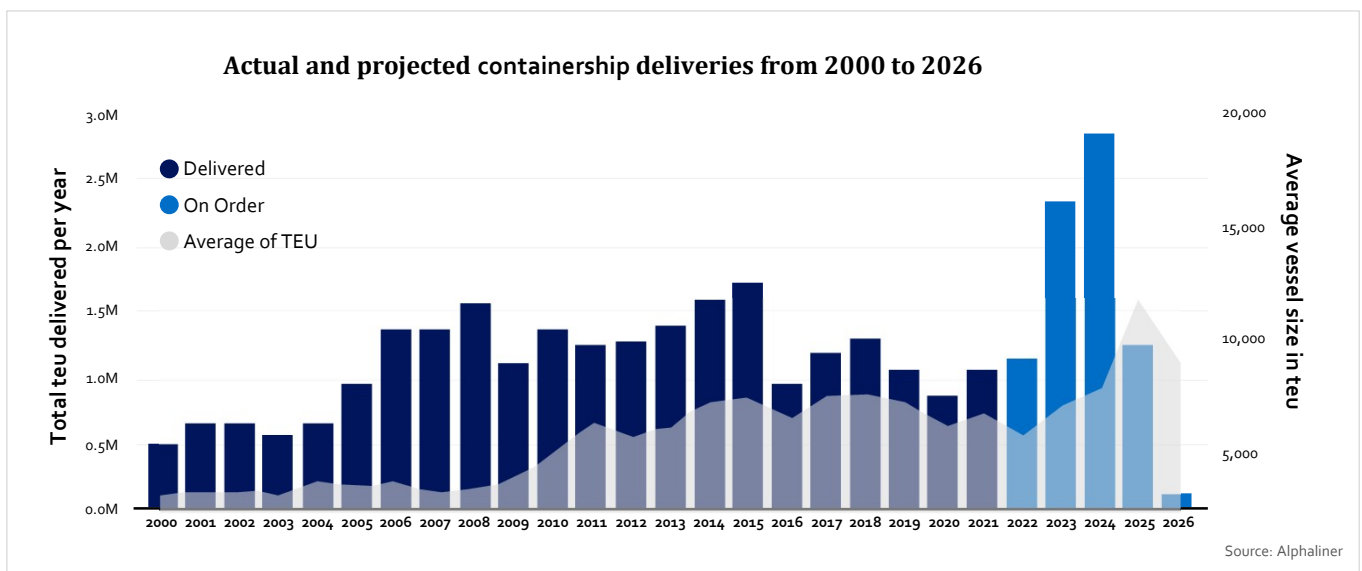


Supply



Container fleet

The container industry has experienced the most profitable two years in the shipping history in 2021–22. Even as the freight rates tumble, the owners are still ordering more container ships. The imbalance in the container shipping sector is increasing as global demand recedes after a two-year surge. Despite the efforts of carriers by blanking sailings and combining routes, overcapacity is only expected to increase due to further declines in shipping volumes due to weak economies and the record orderbook for new containerships.



The container-ship orderbook now stands at 7.1 mn TEU.

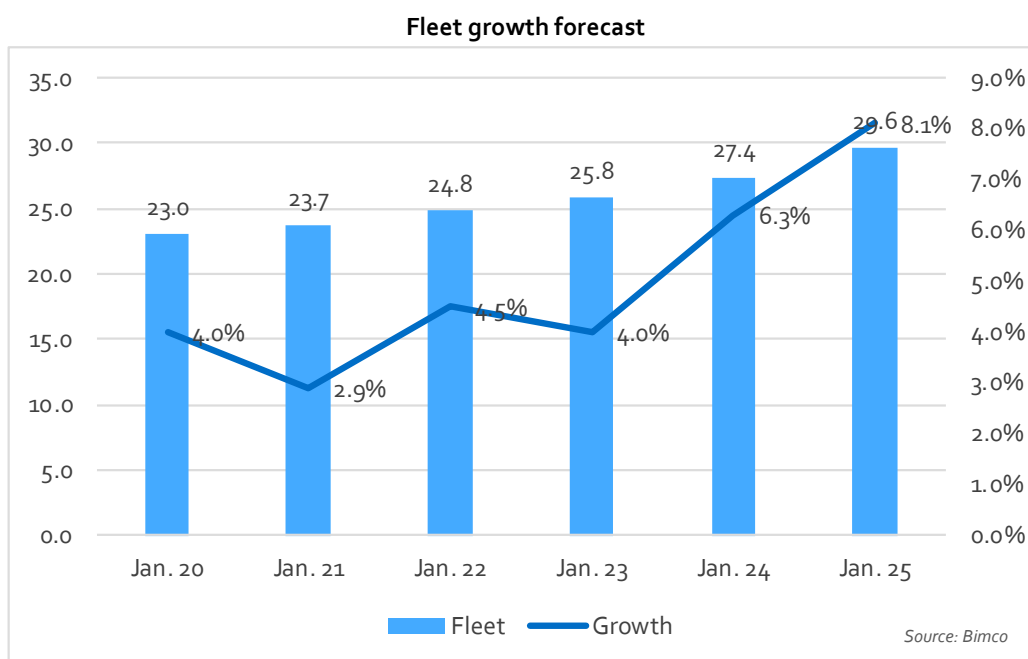
Most of the tonnage on order will be delivered the next two years:

- 2.34 million TEU in 2023
- 2.83 million TEU in 2024
- Compared to around 1.1 million TEU in both 2021 and 2022

If carriers idle tonnage to compensate for demand weakness in the years ahead, idled ships that are owned would still incur capital costs and idled chartered ships would still incur lease payments. One way to offset this is for carriers to scrap older vessels.

- Virtually no container ships were scrapped in 2021-22 because freight rates were so high

Carriers will look to offload as many older, more polluting ships from the market as quickly as they can. According to Alphaliner 'it is unlikely that the quantity of 'scrap-able' ships will be enough to offset the supply and demand imbalance. Most certainly, younger vessels will likely need to be scrapped, to alleviate the over-supply'.



- After growing by 4.0% in 2022, the container fleet growth will increase by 6.3% in 2023, and by 8.1% in 2024. Supply is expected to grow by 11.3% in 2023 and by 3.1% in 2024 as fleet productivity will be impacted by changes in congestion and sailing speed
- Deliveries will accelerate due to the larger orderbook built up during the past two years; 4.9 million TEU will be delivered during 2023 and 2024, equivalent to an additional 19% of the fleet size at the beginning of 2023
- 65% of fleet growth will be concentrated in the segment of ships larger than 15,000 TEU, while the fleet of ships smaller than 3,000 TEU will reduce; the 3,000-8,000 TEU and 8,000-15,000 TEU segments will each account for 18% of growth
- Fresh contracts will decrease with high prices and limited yard capacity in top-tier yards whilst demolition volume will increase with reduced earning and replacement demand
- The Carbon Intensity Indicator (CII) regulation, which will be assessed yearly with stricter emission limits, will start to reduce sailing speed from 2024 and the impact may become significant in scrap activities from 2025 onwards with favourable age profile. The CII rating issue would incentivise higher demurrage to reduce idling time and prevent further upside risk in congestion in the coming years
- Whilst significant drop in freight rates with high bunker prices has already reduced sailing speed, Energy Efficiency Existing Ship Index (EEXI)–Engine power limitation (EPL) will prevent potential speed recovery. However, with the next few years still in the transitional period, it is unlikely to see major impact in speed and scrap from the 2023 regulation with the ongoing energy crisis

Outlook

- A large amount of scheduled newbuilding deliveries of container vessel capacity starting from the end of 2022 and expected further softening in port congestion would put the container shipping rates under further pressure. Since a significant part of the newbuildings will be in the larger segment, oversupply will occur in the interregional trade. This is likely to drive a further cascading of large ships into trades that are handled by smaller ships and increase the ratio of the ships deployed in the regional trade lanes



Trading Lanes and Container volumes

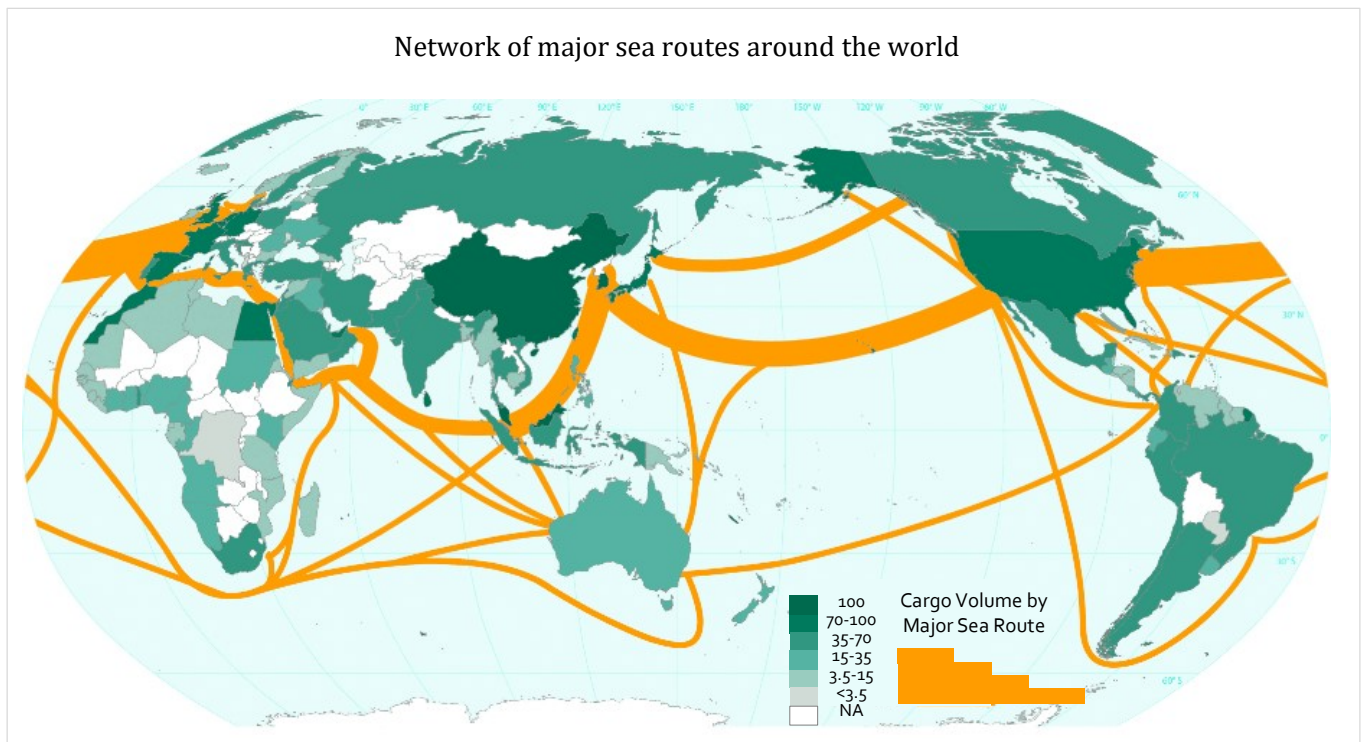


Sea lanes for container ships

There are various types of sea lanes, from large sea lanes such as the trans-Pacific where ships can freely navigate wide waters to narrow artificial routes made by dredging.

Sea lanes are further classified according to their distance from the coast, i.e., sea lanes far from the coast are called marine routes whilst those closer to the coast are called coastal routes.

The world's largest sea lane is the North Atlantic Route linking Europe and North America, which accounts for two-thirds of the world's ocean traffic. Other important routes include the South Atlantic Route, the North Pacific Route, the European Asian Route and the Arctic Route.



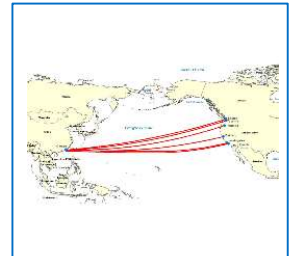
World's major sea lanes

The Atlantic Route: It is the world's largest sea route and amongst the three main sea routes used in the North Atlantic, Africa and South America (including via the Panama Canal).

- The North Atlantic Route – connecting Western Europe to North America, it has the world's largest traffic volume, accounting for more than two-thirds of the world's total in terms of both the number of ships and cargo volume
- The South Atlantic Route – route connecting Western Europe to South America, with agricultural and livestock products such as wheat, meat and wool from South America and industrial products from Europe being transported between the two continents

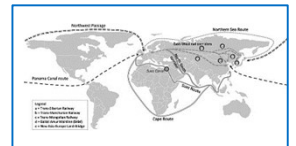
The Pacific Route

- The North Pacific Route – there are two routes: the northern route passing near the Aleutian Islands and the southern route passing through Hawaii. It takes 9 days for container-only ships to pass through the southern route, i.e., from Yokohama, Japan, to San Francisco
- The South Pacific Route – it is a route connecting the west coast of North America with countries in Oceania such as Australia and New Zealand via the Pacific Ocean. Using this route, wool, iron ore, machinery and sugar from Australia, wool and hides from New Zealand and machinery, automobiles, aircraft, steel, cotton fabrics, precision machinery, metal products, etc. from North America are transported between the nations



The European Asian Route

- It is a route that goes from Europe to East Asia via the Indian Ocean
- After the opening of the Suez Canal in 1869, the travel time and distance of the route were greatly reduced. After World War II, the tanker route from the Persian Gulf to Europe and Japan became more important as the demand for oil from the Middle East increased



The Arctic Route

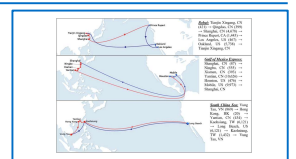
- It is a route connecting Asia to Europe through the Arctic Ocean
- It is divided into the following: the Northwest Passage connecting North America to Europe in Canadian waters and the Northeast Passage connecting Asia to Europe in Russian waters
- The Arctic Route through the Arctic Ocean is shorter than the currently used route through the Suez Canal, so it has the advantage of significantly reducing the transit time and logistics costs. In particular, the transit time from Busan, South Korea, to Northern Europe can be shortened by up to half by using this route



Major shipping characteristics of routes between continents

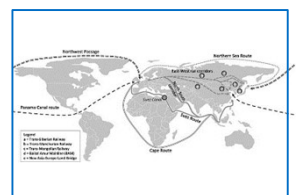
Asia/North America Routes

- It is the route with the largest container cargo volume. Shipping lines in the Far East usually operate around 20 lanes whilst those in other regions operate about 10 lanes
- Main items transported: electric/electronic products, clothing, shoes, automobiles, etc.



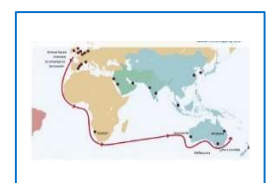
Asia/Europe Routes

- A route boasting the second-largest container cargo volume. Most of the shipping companies that regularly operate on this route have opened or operate in more than 10 lanes
- Main items transported:
 - In the East: chemicals, dairy products, machinery, etc.
 - In the West: electric/electronic products, automobile parts, textiles, etc.



Asia/Oceania, Middle East, Far East Routes

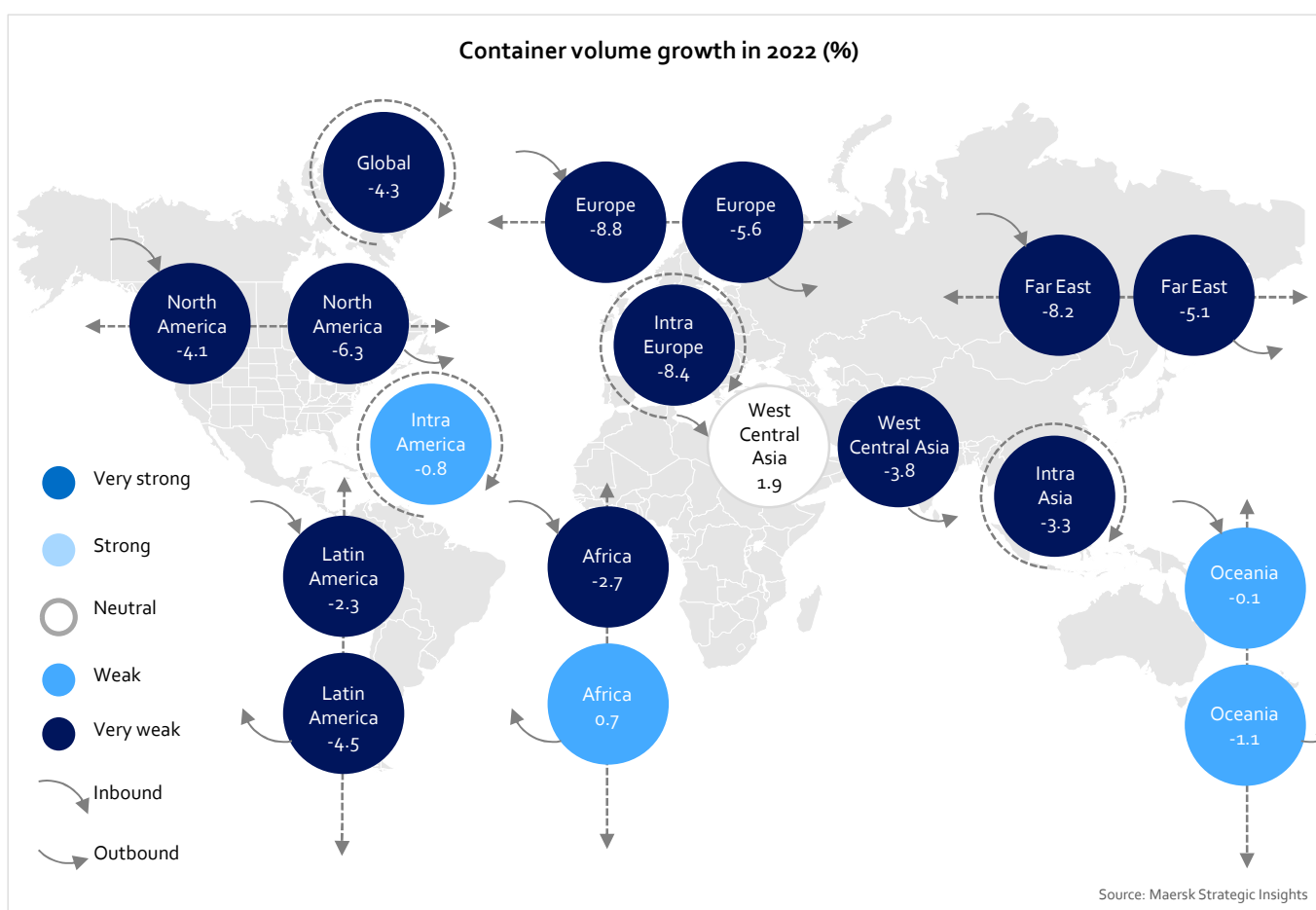
- Most shipping lines have opened or operate in about 20 lanes.
- Main items transported:
 - In the South: automobile parts, textiles, electric products, etc.
 - In the North: meat, hides, non-ferrous metals, etc.





Contraction of container volumes across ocean routes

- Container volumes contracted across most ocean routes in 2022 compared to 2021
- Volumes into and out of Europe weakened because of the Russian invasion of Ukraine that resulted in a direct loss of trade with Russia and deterioration of the European economic environment
- Volumes into Far-East Asia deteriorated because of weak domestic demand and COVID-19 policy in China
- North America import volumes also declined together with the economic slowdown, shifting consumer demand and the inventory correction
- Yet, container volumes remained above 2019 levels in several regions, including Latin America, Oceania, intra-Asia and intra-America



11 Shipping

Container ships



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Main Companies in the Sector

MSC – Mediterranean Shipping Company



- HQ: Geneva, Switzerland
- Founded in year: 1970
- Revenue: USD 26.4 bn
- Vessels: 746
- TEU: 4.9 mn



MAERSK

A.P. Møller - Mærsk A/S

- HQ: Copenhagen, Denmark
- Founded in year: 1904
- Revenue: USD 81.5 bn
- Vessels: 689
- TEU: 4.2 mn

CMA-CGM



- HQ: Marseille, France
- Founded in year: 2009
- Revenue: USD 63.4 bn
- Vessels: 608
- TEU: 3.4 mn



China COSCO Shipping Corporation Ltd

- HQ: Shanghai, China
- Founded in year: 2016
- Revenue: USD 91.3 bn
- Vessels: 465
- TEU: 2.9mn



Hapag-Lloyd

Hapag-Lloyd

- HQ: Hamburg, Germany
- Founded in year: 1847
- Revenue: USD 37.2 bn
- Vessels: 245
- TEU: 1.8 mn



OCEAN NETWORK EXPRESS

Ocean Network Express

- HQ: Singapore
- Founded in year: 2017
- Revenue: USD 30 bn
- Vessels: 205
- TEU: 1.5 mn



EVERGREEN LINE

Evergreen Marine Corporation

- HQ: Taipei, Taiwan
- Founded in year: 1968
- Revenue: USD 20.4 bn
- Vessels: 213
- TEU: 1.7 mn



ZIM

- HQ: Haifa, Israel
- Founded in year: 1945
- Revenue: USD 12.6 bn
- Vessels: 140
- TEU: 586,000



Trends, Developments and Drivers

Underlying trends and developments that are expected to influence the container Shipping

Schedule reliability of container liners

Container carriers' schedule reliability has been an issue for a long time and unreliability reaching a peak during COVID-19 period.

COVID-19 disruptions and consequent unreliability have manifested into exponentially higher costs and historically low schedule reliability levels, which have affected shippers and carriers differently. Whilst shippers and end consumers have been forced to pay premiums for shipping space and thus ensure that their supply chains are at least partly functional, carriers have booked record profits.

Momentarily, reliability is showing progress, according Sea-Intelligence. In November 2022 MSC was the most reliable liner, with 63% of its ships arriving on time. A year before it was just one third of its ships arriving on time. All liners in the graph show progress. Less disruptions with scarcity of containers and congested ports are the underlying reasons for these improvements.



Congestion at ports

One of the contributory factors behind the disrupted transport chains was the unprecedented levels of congestion that afflicted major ports worldwide.

The congestion initially started at US West Coast ports, as a consequence of increased American consumer demand (on account of changed spending and trading patterns, fuelled by a lockdown-induced shift from services to goods). As vessels started queuing up and congesting US West Coast ports, shippers and carriers started substituting with East Coast ports. This, however, has caused congestion at East Coast ports as well.



The vessel capacity and containers tied up at the congested American and European ports meant that there was a corresponding scarcity at origin ports across Asia, thus making it a global phenomenon.

In the course of 2022 global ports congestion started to ease but remained as a substantial level. Driven by a lower demand supply chain congestion started to recover. Still, labour issues (shortage and strikes) and landside bottlenecks still has its influence on congestion. During the first months of 2023 supply chain congestion has progressively declined. While in January 2022 100 container ships were stuck waiting off the ports of Los Angeles and Long Beach, California, nowadays waiting time is back to normal.

11 Shipping

Container ships



NEWSLETTER

Environmental focus and green supply chains

As environmental awareness grows over the world and consumers and corporates become progressively aware of their responsibilities in reducing the overall carbon footprint, we are witnessing enhanced focus on environment-friendly business and commercial practices.

Whilst selecting transport vendors (including shipping companies and inland hauliers), shippers and manufacturers around the world are laying greater emphasis on reduction of emissions and lowering carbon footprints to the extent that higher weightage is being given to these aspects in the annual tendering process.



Liners are investing in and developing vessels running on alternative fuels, some examples:

- Maersk: "Maersk has set an ambitious end-to-end net-zero goal for 2040 and the availability of green methanol at scale is critical to [our] fleet's transition to sustainable energy."
- MSC has set decarbonization goals, including a net zero carbon emissions capable ship in service by 2030 and complete net decarbonization in 2050
- CMA CGM creates a USD 1.5 billion Fund for energies to accelerate the energy transition in shipping and logistics

Digitisation and automation

The unpredictability and chaos caused by the black swan events over the past couple of years have significantly added to the complexity of planning the transport. The shipping process, for both carriers and shippers alike, has compelled carriers to consider investing in sophisticated transport planning systems and laying greater emphasis on digitisation and automation in internal processes.

The biggest players in the industry have been for a few years now exploring blockchain technology and the increased usage of Big Data, AI and ML, with market leaders even forming partnerships to adopt these technologies in the maritime sector. Examples of this would include the ability the sale of spot shipments online, the emergence of a significant range of supply chain visibility tools, AI-based predictive tools related to cargo arrival and the emergence of more detailed carbon footprint calculators just to mention a few.



Post the participation of the bigger players, medium-sized carriers and ports too have joined the partnership, thus rapidly creating the core mass that would be necessary for such technology to be widely adopted and becoming the industry standard.

However, digitisation costs money and shippers and other parties will only want to invest if it is clear that these investments will drive up efficiency and sustainability, for them and in the chain. For the near future the container lines, and also a range of logistics providers, are clearly committing to path of providing better electronic opportunities to their customers.

12. OTHER SHIP TYPES

NEWSLETTER



A Brief Introduction

- The world's oceans and waterways are home to a wide variety of ships and vessels, each designed to serve a particular purpose
- From cargo ships that transport goods across the ocean to passenger ferries that carry people and vehicles between ports, there are many different types of vessels in use today
- Each of these vessels is designed with a specific purpose in mind, and they vary in size, shape, and capabilities depending on their intended use
- Understanding the different types of vessels can help us appreciate the complexity and diversity of the maritime industry, which plays a critical role in global trade, transportation, and exploration



Various Other Types of Ship Vessels



Roll-on/Roll-off (RoRo)



Auto-Carrier



Cattle Transport



Ferry's- RoRo and Passengers



Multi-purpose cargo



Heavy Lift

Different Areas of Focus

- Understanding the usage, demand, and supply of various types of vessels is crucial to appreciating the critical role they play in global trade, transportation, and exploration
- The industry is influenced by various key drivers, such as geopolitical developments, trade, technological advancements
- Several companies specialize in the design, construction, and operation of these vessels, and their expertise is essential to keeping global commerce flowing

12 Shipping

Other ship types



NEWSLETTER



Roll-on/Roll-off (RoRo)

- Roll-on/Roll-off (RoRo) shipping refers to a type of vessel designed for the transportation of wheeled cargo, such as cars, trucks, and trailers, that can be driven onto and off the ship via a ramp
- Based on the type of operation there are few RoRo ship types. Pure car carriers or PCC are used to carry cars only, whereas pure car truck carriers or PCTCs are not only cars but also used to carry any kind of wheeled vehicles
- Large numbers of autos and other rolling freight can be transported using this technology at a reasonable price
- These ships have expansive open decks and specific equipment for securing and loading the cargo



Usage

- There are several benefits of RoRo ships over conventional ships including straight operation from origin to destination, speed advantage, and the possibility of integrating with other cargo such as containers.
- The capacity of a RoRo vessel is measured by 'CEU' which stands for Car Equivalent Unit. One CEU is equal to a single car or a light vehicle. Generally, a CEU measures in 5 meters in length and 2 meters in height

Demand and Supply

The demand for RoRo vessels is driven by the demand for trucks and trailers driving to regions overseas

The supply of RoRo vessels is determined by factors such as shipbuilding capacity, technology, and market conditions and the market is cyclical, with fluctuating based on economic conditions

Key Drivers



Government regulations related to emissions



Infrastructure development



Energy sector for transportation of equipment



Demand for road transport to regions separated by sea

Key Players



12 Shipping

Other ship types



NEWSLETTER



Auto-Carrier

- Auto carriers, also known as pure car carriers or car transporters, are specialized ships designed to transport vehicles from one location to another
- These vehicles can include cars, trucks, vans, and other types of motorized vehicles
- Auto carriers are typically large vessels that can carry hundreds or even thousands of vehicles at once.
- They often feature multiple decks and ramps that allow vehicles to be loaded and unloaded efficiently
- Some auto carriers have equipment, such as hydraulic lifts, that can transport vehicles up-down between decks



Usage

- Auto carriers are used to transport new cars from manufacturing plants to dealerships around the world
- They are also used to transport used cars and other vehicles, such as trucks and buses, to different locations
- Auto carriers are an essential part of the global automotive supply chain, ensuring that vehicles are delivered to their intended destinations safely and efficiently

Demand and Supply

The demand for auto carriers is closely tied to the global automotive industry

As the production and sale of vehicles increase, the demand for auto carriers also increases

The supply of auto carriers is driven by shipbuilders, who design and construct these specialized vessels according to the specifications of shipping companies and automotive manufacturers

Key Drivers



Global trade and economic growth



Changes in consumer preferences for vehicles



Cost efficiency



Regional production and distribution

Key Players





Livestock Carriers

- Cattle transport vessels are specialized ships designed to transport live cattle and other livestock from one location to another
- These vessels typically feature specially designed compartments and facilities to ensure the safety and well-being of the animals during transport
- Cattle transport vessels vary in size, but they are generally large ships that can carry thousands of cattle at once
- They may also have separate compartments for different types of livestock, such as sheep or pigs



Usage

- Cattle transport vessels are used to transport live animals from one country to another for breeding, fattening, and slaughter
- They are also used to transport animals for breeding purposes and for exhibitions and competitions
- Cattle transport is an essential part of the global livestock industry, ensuring that animals are transported safely and efficiently across long distances

Demand and Supply

The demand for cattle transport vessels is driven by the global livestock industry, which is growing as demand for meat and other animal products increases worldwide

The supply of cattle transport vessels is driven by shipbuilders, who design and construct these specialized vessels according to the specifications of livestock transportation companies and other stakeholders in the livestock industry

Key Drivers



Changes in global demand for meat and other animal products



Fluctuations in the prices of livestock



Regulations related to animal welfare and food safety



Improved ventilation and monitoring equipment

Key Players



12 Shipping

Other ship types



NEWSLETTER



Ferry's- RoRo and Passengers

- Ferries are specialized ships designed to transport passengers and vehicles, including cars, trucks, and other types of transportation, across bodies of water
- RoRo ferries are designed to transport vehicles, which can be driven onto the ship and secured in designated areas
- Passenger ferries, as the name suggests, are designed to transport people across bodies of water
- Both RoRo and passenger ferries may vary in size, capacity, and speed depending on their intended use and route



Usage

- Ferries are used for both commuter and tourist transportation, providing a convenient and efficient mode of transport for people traveling short distances across waterways
- RoRo ferries are also used for the transportation of goods, particularly vehicles, across waterways
- In addition, ferries can provide emergency transportation in cases of natural disasters, such as hurricanes or floods

Demand and Supply

The demand for ferries is driven by the need for efficient and convenient transportation across waterways, particularly in densely populated areas and in areas with significant tourism industries

The supply of ferries is driven by shipbuilders and shipyards, who design and construct these vessels according to the specifications of ferry operators and other stakeholders in the transportation industry

Key Drivers



Changes in population demographics



Shifts in tourism demand



Need for alternative transportation options



Technology that improve the efficiency and safety

Key Players





Multi-purpose cargo

- Multi-purpose cargo ships, also known as general cargo ships, are specialized vessels designed to transport a wide range of goods, including dry bulk cargo, containerized cargo, project cargo, and breakbulk cargo
- These ships are designed to be versatile and flexible, allowing them to transport different types of cargo on the same voyage.
- Multi-purpose cargo ships are typically equipped with a variety of cargo handling equipment, such as cranes, conveyor belts, and cargo holds, to accommodate different types of cargo



Usage

- Multipurpose cargo vessels are used to transport a wide range of goods, including manufactured goods, raw materials, and equipment, across domestic and international trade routes
- They are often used to transport cargo to and from remote or underdeveloped regions that may lack specialized port infrastructure for handling specific cargo types

Demand and Supply

The demand for multipurpose cargo vessels is driven by the global economy, with fluctuations in demand for manufactured goods, raw materials, and project cargo impacting the industry

The supply of multipurpose cargo vessels is driven by shipbuilders, who design and construct these specialized vessels according to the specifications of cargo transportation companies and other stakeholders in the logistics industry

Key Drivers



Changes in global trade patterns



Fluctuations in commodity prices



Advancements in logistics technology



Regulations related to environmental sustainability

Key Players





Heavy Lift

- A heavy lift vessel is a specialized ship designed for transporting extremely heavy and oversized cargo that cannot be carried by regular cargo ships
- These vessels have a large open deck and strong cranes capable of lifting and moving heavy loads onto and off the vessel
- Heavy lift vessels are typically used for transporting items such as large industrial equipment, oil drilling rigs, offshore platforms, wind turbine components, and other heavy items that cannot be disassembled for transportation



Usage

- Heavy lift vessels are used to transport oversized and heavy cargo across domestic and international trade routes
- They are often used for the transportation of large and heavy equipment required for infrastructure projects, such as power plants, wind farms, and oil and gas platforms
- Heavy lift vessels can also transport large pieces of machinery used in manufacturing, construction, and mining

Demand and Supply

The demand for heavy lift vessels is driven by the global economy, with fluctuations in demand for infrastructure and equipment impacting the industry

The supply of heavy lift vessels is driven by specialized shipbuilders and shipyards, who design and construct these vessels according to the specifications of cargo transportation companies and other stakeholders in the logistics industry

Key Drivers



Changes in global infrastructure investment patterns



Shifts in energy demand and production



Advancements in heavy lift technology



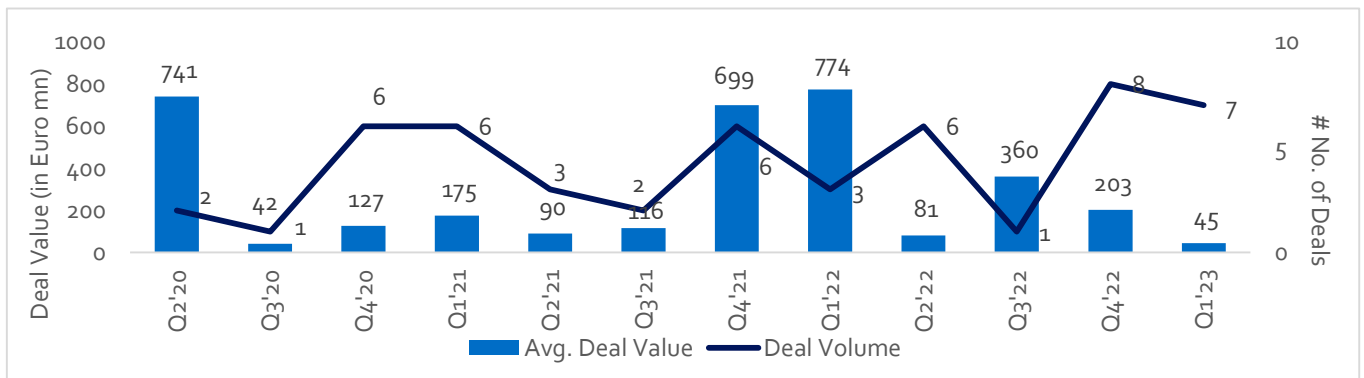
Improve the efficiency of cargo transportation

Key Players



13. M&A ACTIVITIES IN THE INDUSTRY

NEWSLETTER



- Q4' 2022 saw a significant drop of 71% in deal value but 33 % increase in deal volume on quarter-on-quarter basis

Note that the average has been calculated based on the deals in recent quarters as some deal values are undisclosed

Source: Capital IQ, Pitchbook

Recent M&A Deals (€ million)

Date	Target	Country	Description	Buyers	Deal Value	EV	EV/ Revenue (x)	EV/ Ebitda (x)
Mar-23	Seaway 7		Engages in the provision of marine services worldwide	Subsea 7	16	383	0.6	15.8
Feb-23	2GO Group		Provides shipping, logistics, and distribution services	SM Investments Corporation	95	739	2.2	19.8
Feb-23	Attica Holdings		Provides passenger shipping and ferry services	Piraeus Financial Holdings	-	-	1.8	21.0
Feb-23	Atlantska Plovidba		Engages in the maritime business globally	-	-	-	1.8	3.7
Feb-23	PT Mitra Investindo		Engages in the exploration and production of crude petroleum	PT Inti Bina Utama	6	39	9.7	49.2
Jan-23	Thome & Co		Offers ship and offshore management services	OSM Maritime Group	-	-	-	-
Jan-23	Nam Hai Dinh Vu Joint Stock Company		Owns and operates seaport	-	-	-	-	-
Dec-22	TraPac		Provides port terminal services to the West Coast of USA	Ocean Network Express	-	-	-	-
Dec-22	United Shippers Limited		Engages in the business of lighterage and stevedoring	Oricon Enterprises Limited	1	32	-	-
Dec-22	Tankerska Next Generation d.d.		Engages in sea transportation of refined petroleum	Tankerska Plovidba d.d.	2	152	-	-

13 Shipping

M&A activities in the industry



NEWSLETTER

Date	Target	Country	Description	Buyers	Deal Value	EV	EV/ Revenue (x)	EV/ Ebitda (x)
Dec-22	Ohnami Corporation		Engages in logistics business in Japan and internationally	SENKO Group Holdings	-	-	-	-
Dec-22	HBC Hamburg Bulk Carriers		Offers marine carrier services	Asia Maritime Pacific	-	-	-	-
Nov-22	National Bitumen Corporation		Provides maritime freight transportation services	DNA Link	7	30	-	-
Nov-22	ForSea Management		Provides ferry services	Molslinjen	-	-	-	-
Nov-22	Global Feeder Shipping		Engages in marine transportation of freight	Abu Dhabi Ports Company	800	1,000	-	-
Jul-22	Tangshan Caofeidian Port		Provides marine port services	Hebei Port Group.	-	-	-	-
Jun-22	Ferry business of Doolin		It Engages in Ferry business	Baid Faratoireachta	-	-	-	-
Jun-22	Northern Supply		Owens and operates platform supply vessels	S.D. Standard ETC	-	-	-	-
May-22	Shapoorji Pallonji Forbes Shipping		Provides chemical tankers transportation services	G.S. Enterprises	3	14	-	-
May-22	Transportation and Trading Services		Provides marine transportation services	Transimex Transportation	-	-	0.4	-
May-22	JFE Container		Manufactures and sells drums and pressure gas containers	JFE Steel Corporation	55	92	-	-
Apr-22	Terminal division of Boluda		Shipping Business located in Spain	DIF Capital Partners	-	-	-	-
Mar-22	RTC Luka Leget		Engages in operating port and transships and exports cargo	FCG	1	7	2.1	NM
Feb-22	China Champion Shipping		Provides shipping services in Singapore	Chinese Maritime Transport	11	11	-	-
Feb-22	NTS		Engages in the arming, wellboats, service vessels	SalMar	2,911	3,607	4.7	14.9
Dec-21	Cosmos Agencia Maritima		Provides logistic services in the areas of maritime, port	Andino Investment Holding	-	-	-	-
Nov-21	Adria Ferries		Maritime connection service between Italy and Albania	Eurizon Capital.	-	-	-	-
Nov-21	Fenix Marine Services.		Has terminals with handling equipment and systems	CMA CGM	1,986	-	-	-
Oct-21	Argo Yachts Development		Engages in the operation of water recreation activities	Li Ming Construction	98	66	12.2	24.6
Oct-21	Changmyung Shipping		It offers dry bulk and tanker transportation services	Korea Shipping Corporation	12	50	-	-

13 Shipping

M&A activities in the industry



NEWSLETTER

Date	Target	Country	Description	Buyers	Deal Value	EV	EV/ Revenue (x)	EV/ Ebitda (x)
Oct-21	Servisni centar Trogir		Provides maintenance, repair, servicing for a range of vessels	EMMA CAPITAL	-	-	-	-
Aug-21	SEA.O.G Offshore		Provides logistics solutions for WTG handling and transport	Crosby Tugs	-	-	-	-
Jul-21	Teras Sunrise		The company offers ship chartering services	ZhongXie (HK) Industrial	68	68	-	-
Jun-21	Industrial Holding Bulgaria		Maritime transport, ship building, repair, port operations	Bulls	32	65	1.0	2.6
May-21	Ogasawara Kaiun		Provides marine transportation services for passengers	Tokai Kisen	-	20	-	-
Apr-21	Tianjin Port Euroasia		Develops and operates container terminal in China	Tianjin Port	34	115	-	-
Feb-21	Chang Jiang Shipping Group Phoenix		Provides shipping logistics enterprise services in China	Changzhi Nanye Industrial Group	19	347	3.4	30.2
Feb-21	Rand Logistics		A bulk shipping company that offers domestic port services	Oaktree Capital Management	-	-	-	-
Jan-21	PT Latitude Inti Mitra Abadi		Maritime transportation services in Indonesia & Malaysia	Latitude Shipping	3	6	-	-
Jan-21	Chongqing Zesheng Shipping Affairs		Provides oil products and chemicals shipping services	Yuanli Chemical Group	10	102	-	-
Jan-21	Ship-Pac		Manufactures shipping supplies and packaging equipment	Lindenmeyr Munroe Corporation	-	-	-	-
Jan-21	Rotterdam Shortsea Terminals		Container shipment company that offers freight services	Crestline Investors, Inc.; Blue Ocean Capital	-	-	-	-
Sep-20	Hansen Shipping		Transportation of construction & mining equipment	N.M.T. Holding	-	-	-	-
Sep-20	Wallem Shipping Vietnam		Operates as a shipping and logistics agency	-	-	-	-	-
Aug-20	Shreyas Shipping and Logistics		Comprises coastal container and feeder shipping business	Unifeeder	16	16	-	-
Aug-20	Arkstar Unicorn		Operates an offshore utility support vessel	Phoenix International	2	2	-	-
Aug-20	International Transportation Service		Provides container terminal services ,offers on-dock services	Macquarie Infrastructure and Real Assets	-	-	-	-
Jul-20	Kitanihonkaiun		Provides regular passenger liner car ferry and domestic shipping	Kuribayashi Steamship	16	16	-	-
Jun-20	Dain Ferry .		Provides passenger, roll-on, roll-off terminal and logistic	COSCO Shipping Dalian Investment	1	6	-	-
May-20	H-LINE Shipping		Provides maritime freight transportation services	Hana Financial Group	1,881	1,817	-	-
				Mean			3.7x	18.8x
				Median			2.1x	17.8x

Key M&A Transactions



Apr -23: Subsea7 acquisition of shares in Seaway7 and voluntary offer to acquire the remaining shares in Seaway7



Merit Corp Sa, the France based personal holding company, through its subsidiary CMA CGM SA, the local container shipping company, has entered into exclusive negotiations to acquire Bollore Logistics SAS, the local transport and logistics company, from Bollore SE, the local industrial holding company with subsidiaries engaged in logistics and transportation services including freight forwarding and port handling services. The preliminary value is €5bn on the cash free / debt free basis.



Mar -23: NYK Line takes control of Mitsubishi Ore Transport Co



NYK acquires all the shares of Mitsubishi Ore Transport Co., Ltd. (MOT) from Mitsubishi Corp. (MC), Tokio Marine & Nichido Fire Insurance Co., Ltd. (Tokio Marine & Nichido), and Mitsubishi Heavy Industries, Ltd. (MHI), making MOT its wholly-owned subsidiary. MOT is a operating vessel management and ship-owning businesses with 17 ships consisting of bulkers, pure car and truck carriers, and wood-chip carriers.



Nov-22: AD Ports Group Acquires 80% Stake in Global Feeder Shipping, Creating World's Largest Independent Feeder Carrier



GFS operates a fleet of container vessels that connect major ports in Europe, the Mediterranean, and North Africa. The acquisition of €800 million will enable AD Ports Group to offer a wider range of container shipping services to its customers and enhance its position in the global container shipping market. It is valued at €1.000 mn.



Nov- 22 : TMI succeeds with Grindrod takeover offer to create 57-ship bulker fleet



Taylor Maritime Investments Limited acquires Grindrod Shipping Holdings Ltd., a global provider of maritime transportation services in the drybulk sector, for approximately \$506m. Grindrod Shipping is the owner and operator of a diversified fleet of owned, long-term and short-term chartered-in drybulk vessels, mainly in the categories of handysize and supramax/ultramax.



Sep - 22 : CLdN buys Seatruck Ferries from bulker owner Clipper Group



European RoRo ferry operator CLdN has entered into an agreement to acquire all shares in Seatruck Ferries Holding Ltd. from Clipper Group. With 8 purpose-built vessels, Seatruck Ferries is the leading RoRo operator on the Irish Sea, transporting close to 20% of the region's seaborne cargo volumes.

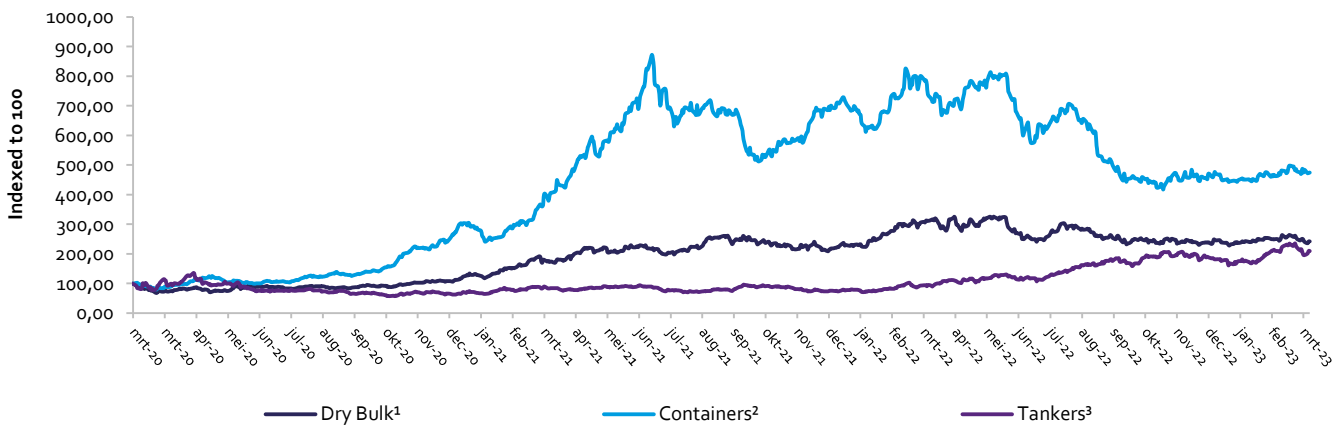
14. SHARE PRICE PERFORMANCE

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Share Price Performance

(% Change)	Dry Bulk	Containers	Tankers
3Y	225.0%	456.4%	168.6%
1Y	(21.0%)	(39.5%)	123.7%
6m	(7.4%)	(4.1%)	13.9%



Source: FactSet as of 22 March, 2023

Note:

1. **Dry Bulk** includes Star Bulk Carriers, Great Eastern Shipping, Pacific Basin Shipping, Golden Ocean Group, Matson Inc. and Navios Maritime.
2. **Containers** includes A.P. Moller – Maersk, Orient Overseas, Evergreen Marine, Cosco Shipping, Hapag-Lloyd AG and HMM Co.
3. **Tankers** includes Euronav, Frontline, Tsakos Energy Navigation, International Seaways, Scorpio Tankers and Teekay Corporation.

Stock Performance

The shipping industry witnessed a growth spike post February 2021 benefitting from pent-up demand and high freight rates, with many companies reporting record profits. However, towards the end of the year, supply chain bottlenecks due to global political instability and rising costs heavily impacted the industry, leading to a rapid plunge in share prices. While market conditions are improving having adjusted to global supply shocks, market prices are yet to breach July 2021 levels.

The container industry has been the best performer in the whole market in the past year. Since other industries have grown in an organic manner, the container industry surged ~5x since March 2020. The overall volatility in the container market is also owed to rapid adjustment to spot rates that have heavily fluctuated in the last year with the Russia–Ukraine war, lockdowns in China and other global challenges. On the other hand, the demand for dry bulk and tankers is largely locked in directly by the manufacturers.

15. PEER ANALYSIS

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Company Names	Country		Share Price (€)	% of 52-week High	Cap (€m)	EV (€m)	EV/ LTM Rev (x)	EV/LTM EBITDA (x)	Net Debt/ EBITDA (x)
Dry bulk									
Star Bulk Carriers	Greece	GR	19.40	61.6	1,995	2,962	2.2x	4.1x	1.3x
Great Eastern Shipping	India	IN	6.84	82.8	969	888	1.4x	2.8x	0.3x
Pacific Basin Shipping	Hong Kong	HK	0.38	66.4	1,972	2,097	0.7x	2.5x	0.0x
Golden Ocean Group Ltd	Bermuda	BM	8.71	57.6	1,746	2,788	2.6x	5.5x	2.0x
Matson, Inc.	United States	US	57.92	51.6	2,091	2,892	0.7x	1.9x	0.4x
Navios Maritime Partners LP	Monaco	MC	22.41	69.9	677	2,335	2.0x	3.8x	2.7x
Mean							1.6x	3.4x	1.1x
Median							1.7x	3.3x	0.9x
Containers									
A.P. Moller - Maersk A/S	Denmark	DK	2,166.27	74.1	38,236	45,576	0.6x	1.3x	0.1x
Orient Overseas	Hong Kong	HK	15.44	44.5	10,057	2,143	0.1x	0.2x	Net Cash
Evergreen Marine	Taiwan	TW	4.90	39.9	10,315	10,608	0.5x	0.8x	Net Cash
COSCO SHIPPING Holdings	China	CN	1.03	58.8	16,798	4,042	0.1x	0.2x	Net Cash
Hapag-Lloyd AG	Germany	DE	299.80	65.7	52,763	40,135	1.2x	2.1x	Net Cash
HMM CO.,LTD	South Korea	KR	14.38	57.3	7,065	10,112	0.7x	1.3x	Net Cash
Mean							0.5x	1.0x	0.1x
Median							0.6x	1.1x	0.1x
Tankers									
Euronav	Belgium	BE	16.48	84.1	3,303	4,754	5.8x	12.3x	3.7x
Frontline	Cyprus	CY	16.23	90.6	3,613	5,667	4.2x	na	na
Tsakos Energy Navigation	Greece	GR	18.80	81.2	538	1,718	2.1x	4.5x	3.1x
International Seaways, Inc.	United States	US	41.40	83.0	2,034	2,767	3.4x	5.4x	1.4x
Scorpio Tankers Inc.	Monaco	MC	53.28	90.0	3,183	4,841	3.3x	4.8x	1.4x
Teekay Corporation	Bermuda	BM	5.61	92.7	563	1,357	1.2x	4.3x	0.2x
Mean							3.3x	6.3x	2.0x
Median							3.3x	4.8x	1.4x
Overall Mean							1.8x	3.4x	1.4x
Overall Median							1.3x	2.8x	1.4x

Source: FactSet as of 22 March, 2023

16. GLOBAL M&A PARTNERS

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Ben Vree

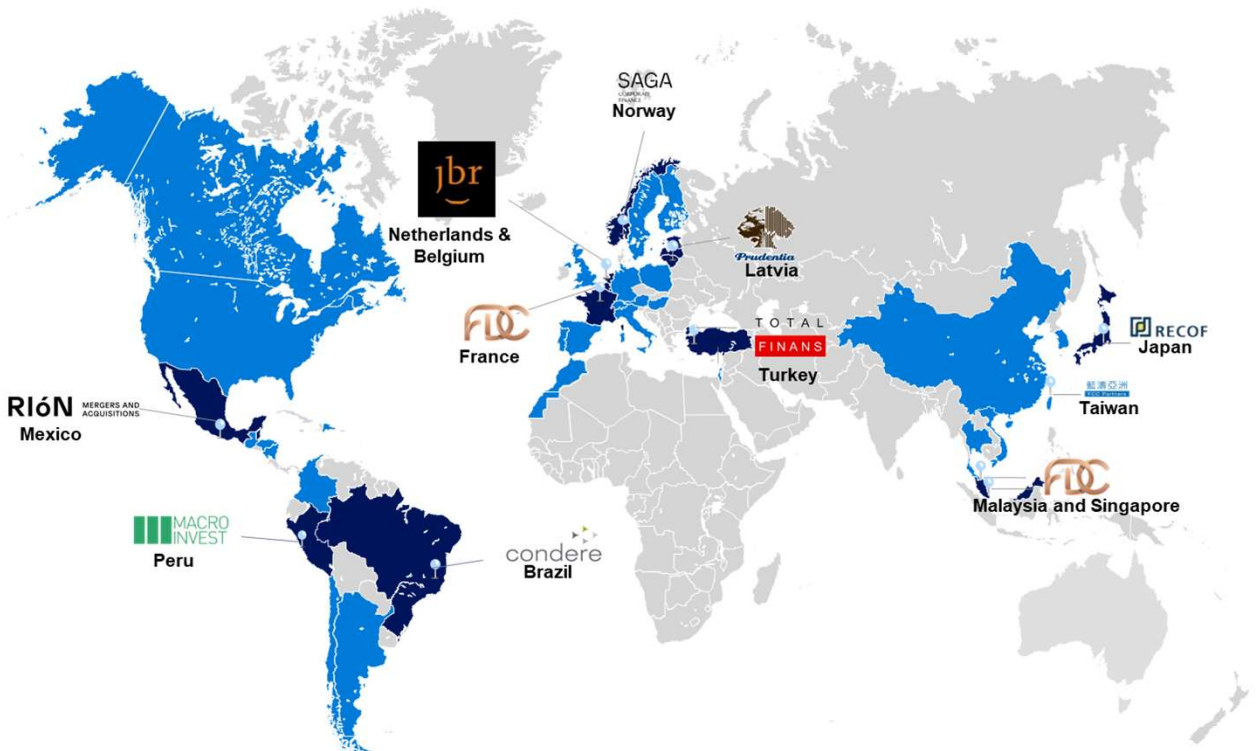
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Within the GMAP M&O Sector members work together to achieve premium results. Each transaction requires specific cooperation between members to combine in-depth knowledge with the specialist's network within the maritime and offshore sector.



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Global M&A Partners

Recent transactions





Oman International
Container Terminal



رَكِيزَة
Rakiza

Rakiza fund acquires a minority stake in Oman International Container Terminal



JBR

Advisor to the seller





INCHCAPE



epiris

Zeus assisted Epiris with their acquisition of Inchcape Shipping Services



Zeus

Advisor to the buyer





ECOSERV

— acquired by —

CoLaTenTex

CoLaTenTex

Ecoserv, LLC acquired by CoLaTenTex



Brown Gibbons Lang & Company

Advisor to the seller





SeaSecure



howden

Insurance broker specialised in marine & transport

France

United Kingdom



Financière de Courcelles

Advisor to the buyer



16 Shipping

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ABOUT Global M&A Partners

Established in 1999, Global M&A Partners is a partnership of independent investment banking firms gathered together to offer to their respective client's premium services for their goals completion. Operating through over 200 M&A advisors, the company serves sectors including Consumer Products, Business Services, Energy & Mining, Healthcare & Pharmaceuticals, Industrials, Packaging, Leisure & Retail and IT. The company operates in over 50 countries and has completed over 1,500 transactions with a combined value in excess of €4.2bn over the last 5 years