

The Evolution of Mediterranean Shipping in an Era of Disruptions

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The Perfect Storm

In 2021-2022, international maritime-based logistics chains experienced a crisis that was probably unprecedented. Was this a paradigm shift or a temporary situation? Historically, the international logistics sector had been able to cope with the regular crises and challenges it had faced since the sector became one of the drivers of the globalization of countries, industries and companies in the second half of the 20th century. Until now. The challenges of the post-Covid era stopped this trend and major disruptions were blamed on shipping as one of the factors that had helped upset the global economy.

In a globalized and increasingly integrated world, in which logistics chains are long and complex, a catastrophic event anywhere in the world can have serious effects on the entire international trading system and can affect the supply of goods in far-flung areas. The wars in Iraq and Afghanistan, the 2004 tsunami, the 2008 financial crisis and the 2017 cyberattacks in the shipping industry are just a few examples of 21st-century events that could have had a serious impact on world trade. However, global supply chains responded to these disruptions swiftly and efficiently. The resilience, adaptability and flexibility of logistics chains ensured that there were no adverse impacts on industry or consumers. Even at the height of the Covid-19 pandemic, logistics chains responded effectively and prevented major supply problems. Goods continued to arrive at ports and were distributed to final consumers without obstructions. The world population was even supplied with millions of masks within a matter of weeks. When vaccines arrived, they were also relatively easy to deliver, even under extreme conditions.

However, the picture changed dramatically some months ago. A combination of factors external to logistics chains, coupled with internal tension in logistics and shipping, gave rise to the perfect storm. As a result, the transport and logistics sector is now struggling more than ever to deliver an efficient and predictable service.

Post-Pandemic Disruptions

Today's disruptions are wide-ranging and affect different economic actors. At global level, the surge in post-pandemic demand and the rise of e-commerce changed the quantities of products ordered and the characteristics of this demand. In a short time, fluctuating demand combined with shipping supply similar to pre-pandemic levels put a strain on logistics chains and the transport sector struggled to adapt.

Competition for shipping, especially container shipping, increased, thus allowing shipowners to increase freight rates to unprecedented levels throughout 2021 and 2022.

Changes in Freight Prices (2014-2022)



Source: Alphaliner, May 2022

In addition to rising freight prices, energy and raw material prices also increased substantially, ultimately leading to widespread inflation exacerbated by the outbreak of war in Ukraine. This coincided with severe shortages of certain economically important products, such as semiconductors for the automotive industry, metals and grain, mainly because supply is concentrated in a few hands. This also led to a sharp price rise. The most striking example is the manufacture of semiconductors used in the electronics and automotive industries, which is carried out on a massive scale, mainly in Taiwan (with minor exceptions, notably South Korea).

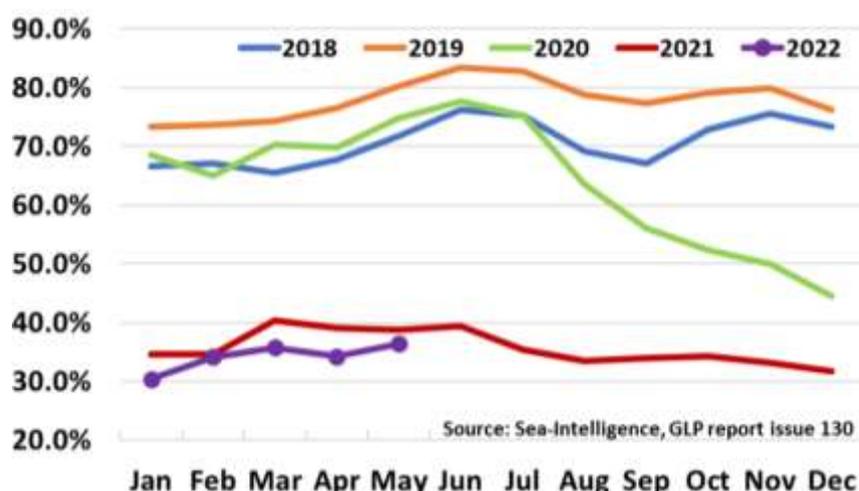
There were other disruptions in the transport sector. Covid-19 led several Chinese ports, among the world's most important, to close for weeks in 2021 and 2022. This resulted in hundreds of ships waiting for weeks off the coast of China. These same vessels then set sail for Europe and the United States, where they all arrived at the same time with a delay of several weeks.

In the aftermath of the pandemic, shipowners took a number of measures to adapt to the sharp decline in demand caused by mass lockdowns and curfews. The most important of these is a policy known as

“blank sailing”, when a ship does not call at one or more of its scheduled port stops. This practice continued and led to a significant decline in schedule reliability. Before the pandemic, delays in the expected time of arrival (ETA) were an exception. With the pandemic, the situation was turned on its head. Being on time became the exception. Ships on east-west routes needed an average of 101 days to complete a round-trip voyage. This meant that they were now arriving in China to start a new voyage an average of 20 days late, compared to the pre-pandemic situation. This delay increased over the course of 2022, from 17 days in February to 20 days in May. One example was the case of the container ship *MOL Triumph*, with a capacity of 20,170 TEU (twenty-foot equivalent unit), which set sail from the Port of Qingdao on 16 February and was expected to arrive in Algeciras on 25 March and Antwerp on 7 April, before continuing on to the Port of Hamburg. In actual fact, it arrived in Algeciras on 2 April, in Antwerp on 26 April and in Hamburg on 18 May. The ship completed its journey with a 41-day delay (Port Congestion in North Europe, 2022).

These delays forced shipping companies to systematically add three ships to each route to maintain the weekly service. On the east-west route, this meant adding 51 ships to 17 direct routes connecting Central China to Northern Europe. However, shipping companies could not feasibly organize such a large fleet, so they were forced to cancel scheduled port calls, which is known as blank sailings. For example, in the first half of May 2022, a total of 27 ships called at Chinese ports from Northern Europe, compared to the 34 that would have arrived under normal circumstances (Port Congestion in North Europe, 2022).

Overall Reliability of Port Calls (2018-2022)



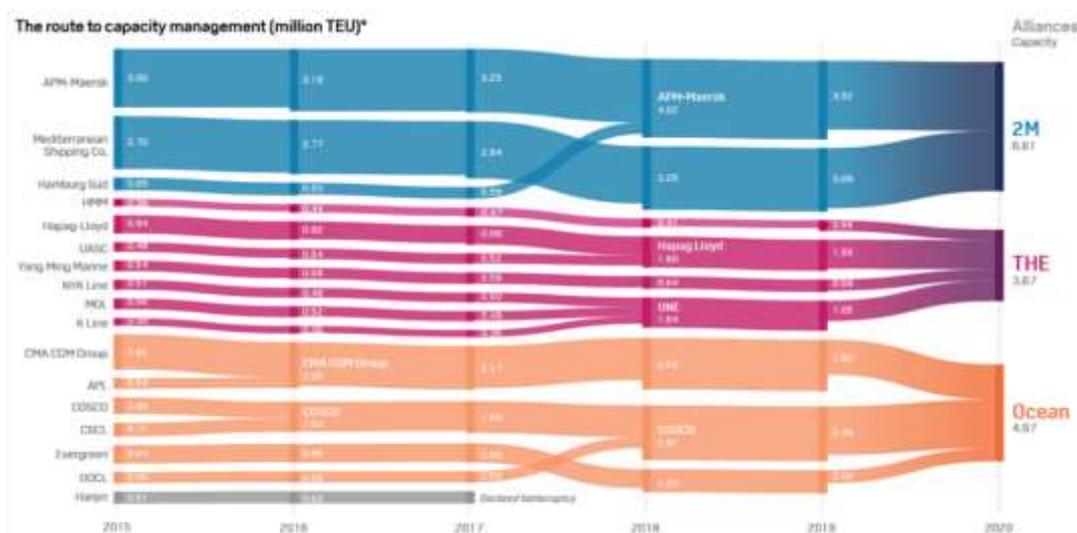
Source: SeaIntelligence

Other Factors

No analysis can be complete without factoring in the low level of diversification in the maritime sector, especially container shipping. In recent decades, many shipping companies have disappeared as a result of mergers and takeovers by larger companies. This market concentration began in the 1990s and has

become more pronounced in recent years. In 2012, the top 10 shipping companies accounted for 62% of the market. By 2022, this market share had increased to 85% (Alphaliner Monthly Monitor, February 2022). The concentration process was especially strong in 2017 and 2018, when the number of shipping companies decreased, until 2020 when shipping companies fell into three major groups (2M, THE and Ocean) in a clearly oligopolistic market.

Evolution of Mergers and Acquisitions in the Shipping Company Market (2015-2020)



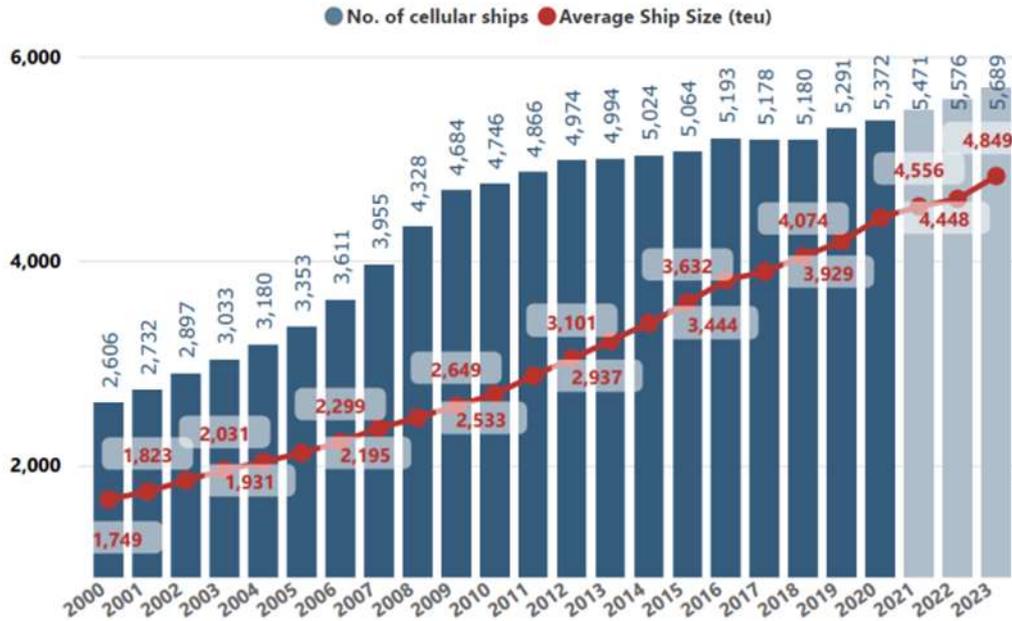
Source: Alphaliner

Concentration in the maritime transport sector is driven by the investment and operating costs involved in increasing the size of ships, whose dimensions have grown considerably in the 21st century. Not all market players can survive this trend and afford the investments required to increase economies of scale. A vessel with a larger capacity can carry more containers and reduce the unit transport cost per container, but this involves a greater investment in building and operating the vessel, which results in considerably higher costs for shipping companies.

The average capacity of container ships increased from 1,749 TEU in 2000 to 4,556 TEU in 2022. What appeared to be the maximum capacity in the 1990s was repeatedly surpassed in subsequent decades. The construction of large container ships began in 2006, with the launch of the 11,000 TEU capacity *Emma Mærsk*. January 2022 saw the completion of the largest container ship to date, the *Ever Alot*, with a capacity of 24,004 TEU, a length of 400 metres (equivalent to three football fields) and a beam of 61.5 metres. The *Ever Alot* needs a minimum draught of 17 metres to enter port.

Container ships are expected to reach a capacity 30,000 TEU in a relatively short period of time. However, any disruptive technology could accelerate this process significantly (Garrido, 2019).

Evolution of Average Container Ship Capacity (2000-2023)



Source: Alphaliner. September 2021

Problems that occurred on the ocean side of logistics chains coincided with problems on the land side, thereby creating a perfect storm.

Firstly, there was a chronic shortage of road transport drivers, which recently began to include train drivers. The logistics and transport sector had lost some of its appeal and generational renewal was far from guaranteed. This could be considered a mere anecdote, but it affected the day-to-day operations of transport companies, which could see no short-term solution and were forced to cancel services, thus contributing to a build-up of containers in ports. Ports suffered from congestion that was chronic in some cases. Some regions in the West, especially the west coast of the United States, had entered a dynamic of chronic congestion. Unlike in Europe, there was a limited number of ports there (the west coast has just two major port hubs, Long Beach - Los Angeles and Vancouver - Seattle - Tacoma) and operating hours were short.

How Exporters and Importers Adapted

Changes in Production and Logistics

How did exporters and importers and their logistics agents react to this situation? How did they adapt to the disruptions in maritime transport and the impact they had on production and supply chains? They opted for different solutions, depending on the characteristics of their logistics chains and the products they manufactured.

Some companies diversified their suppliers and looked for them in areas closer to the company's headquarters. Many even moved production from China and other Asian countries to Eastern Europe, Morocco and Turkey. In other cases, they repatriated production to the company's country of origin, as in the case of Ikea and Buff. Shortening logistics chains protected companies from many disruptions, including unreliable port calls and exorbitant freight rates. The new destinations could not offer the same advantages as manufacturing in Eastern Asia, but shipping times and transport complexity were reduced and, as a result, reliability was enhanced.

In other cases, companies chose to regain control over their logistics chains. Large international companies, such as Lidl, Coca-Cola, Amazon and Walmart, opted to manage their logistics chains themselves by buying or chartering ships and/or planes to transport their products from production sites to consumption areas. This involved major investments and was indicative of producers' lack of confidence in the actors managing logistics chains.

This situation also forced companies to change their stock management strategies. There was a shift from a just-in-time to a just-in-case approach, in which inventories were increased to deal with irregular deliveries and the unreliability of logistics chains. Stockpiling was cheaper than stockouts, which were much more common in this context.

Finally, it is worth noting that some companies, especially in the chemical sector, decided to give up shipping their goods by container. Although they were accustomed to transporting their products by container, they abandoned this practice and went back to transporting them by conventional ship, which they often chartered themselves, thus avoiding the difficulties associated with container logistics chains

The Search for Alternatives to Maritime Transport

Some companies had to search for alternatives to maritime transport. In some cases, air transport replaced sea transport, especially for high-value and time-sensitive goods. Thus, despite the fact that air transport was much more expensive than maritime transport, air freight closed the 2021 financial year with its best result since 1990. According to data from the International Air Transport Association (IATA), demand in 2021 recorded year-on-year growth of 6.9% compared to pre-pandemic levels and 18.7% compared to 2020 (Blanco, 2022).

Rail freight traffic between China and Europe also increased until the outbreak of war in Ukraine. Rail services between China and Europe have undergone rapid development. By the end of January 2022, more than 50,000 trains between China and Europe had transported more than 4.55 million TEU worth USD 240 billion. The Yiwu – Madrid line, inaugurated in 2014, is the longest rail transport service in the world; it covers 13,052 km in 16 days. This cross-border train has offered a reliable alternative for value-added products that require immediate shipping. However, the war between Ukraine and Russia

has affected operations of this form of transport. Although trains passing through Ukraine accounted for just 2-3% of the total volume, the sanctions against Russia have created uncertainty on the main routes through Ukraine. The uncertainty of the war has caused some customers to seek alternative services to rail transport and has reduced demand for the first time since its implementation (Garcia; Gu, 2022).

Paradigm Shift or Temporary Situation?

These are all still isolated reactions and constitute a small volume of trade flows in the world, especially between Asia and Europe. Do they represent a trend reversal or are they one-off solutions adopted at a time of crisis? It is difficult to predict. Only time will tell. Looking back over the last 70 years, the trends that have driven the growth of container shipping in Europe, especially with Asia and China, do not seem to have been completely reversed.

For a start, it is highly unlikely that Eastern Asia will cease to be the world's factory. It is difficult to compete globally with more populous countries that are just as or more technologically advanced and have less stringent labour conditions. There are clearly sectors where this is possible, especially if the European Union aims to become an alternative for the production of certain goods (such as semiconductors and solar panels). However, there is every indication that Eastern Asia will continue to manufacture most of the products consumed in Western countries, and it will therefore continue to be necessary to transport these goods from production sites to consumption areas.

Maritime transport is the most efficient means of transport for inter-ocean freight and will be used on a massive scale for some time. At present, there is no alternative. Trains, planes and any other means of transport currently being tested (hyperloop, zeppelin, etc.) are unable to compete with it on a massive scale.

As for companies, they have had to adapt to increasingly more frequent global disruptions and have had to do so by finding imaginative solutions and, above all, by being flexible in terms of diversifying suppliers, production sites and means of transport. They must accept the fact that shipping disruptions are here to stay and will soon become the new paradigm of logistics chains.

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