

# Global Shipment



## How Covid-19 Disrupted the Global Shipping Industry

by Group 7

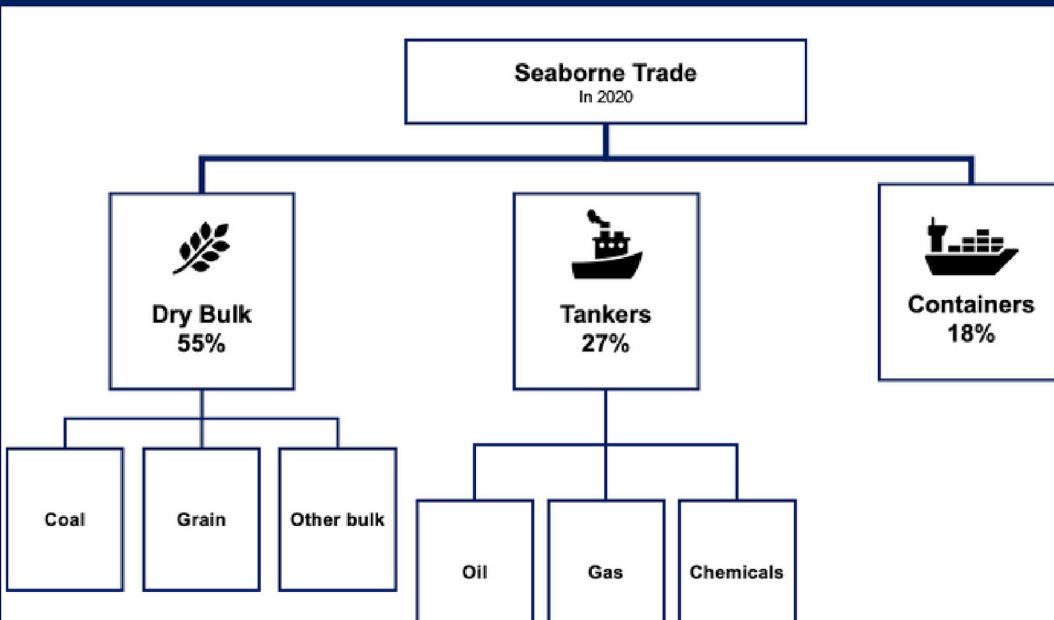
**Background:** We wanted to understand the trends and impact of Covid-19 on global shipments, and brainstormed the main areas of interest before starting our research. We looked at numerous articles to understand the industry and nuances of factors and impact.

### Data sources:

- UN: Data on international trade
- WorldBank: Economic indicators and trade data
- Bloomberg: Historical data on indexes and prices, as well as global shipping routes

**Methodology:** We began by ICEing the data (investigate, clean, and explore) to understand what datasets we were dealing with and had access to, and came up with an initially story. After this, we conducted some mapping and trend analysis in R to find relationships between the throughputs, trade, wait times, and prices with respect to the pandemic. We wanted to create this story through different visualizations. Enjoy the journey through the waves.

## Overview of Global Shipment



Global shipping can be divided into three broad groups: dry bulk, tanker trade and container shipping. Covid-19 impacted the three groups differently, with the most tangible impact on containers.

## Top 5 major trade routes account for 72% of global container trade

Total global container routes by total TEU\*, 2022

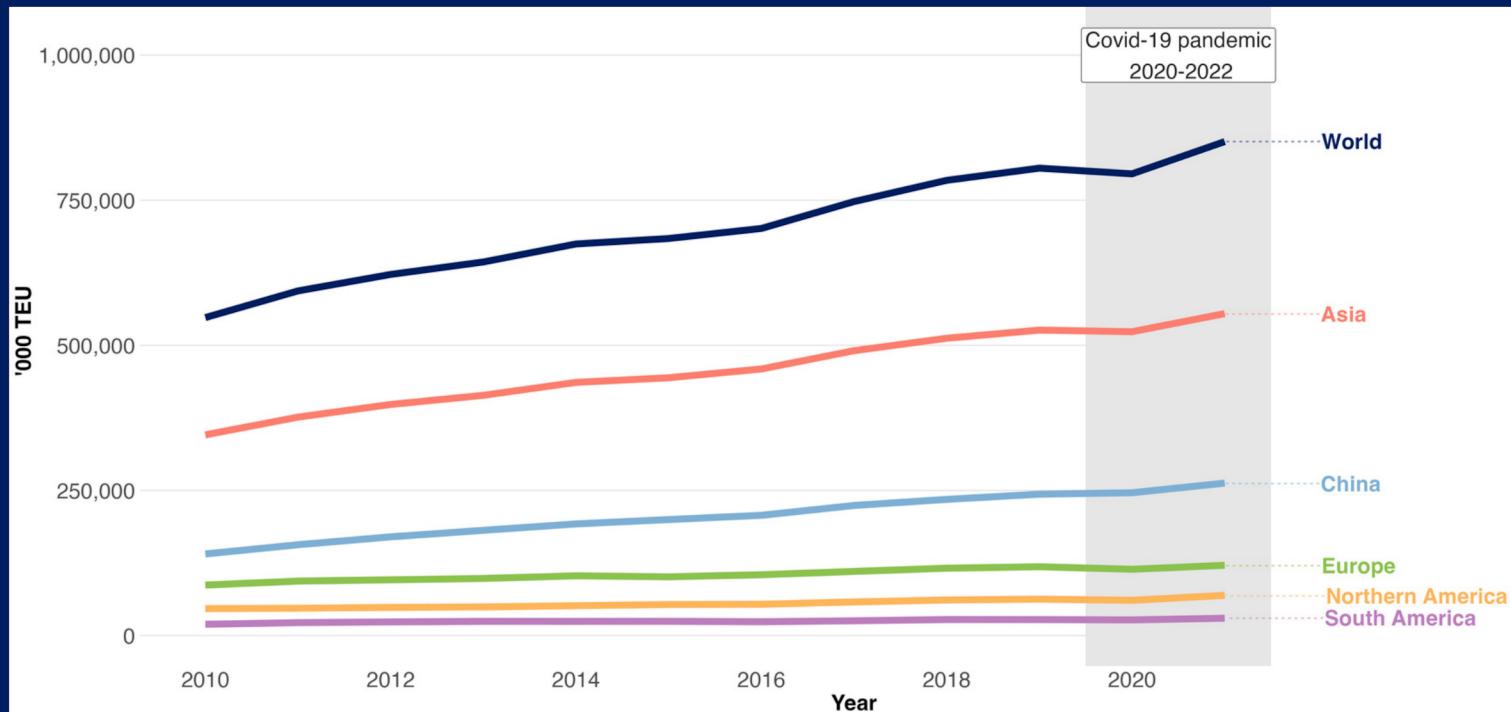


\*Twenty Foot Equivalent. Source: Bloomberg

The current globalized world relies on these 5 major trading routes for 72% of the trading goods. Therefore, externalities can significantly impact the global trading balance. Let's have a look of Covid-19 impact on global container shipping.

## Covid-19 had no Material Impact on Yearly Port Throughput...

Total Port Throughput in TEU, 2010-2022

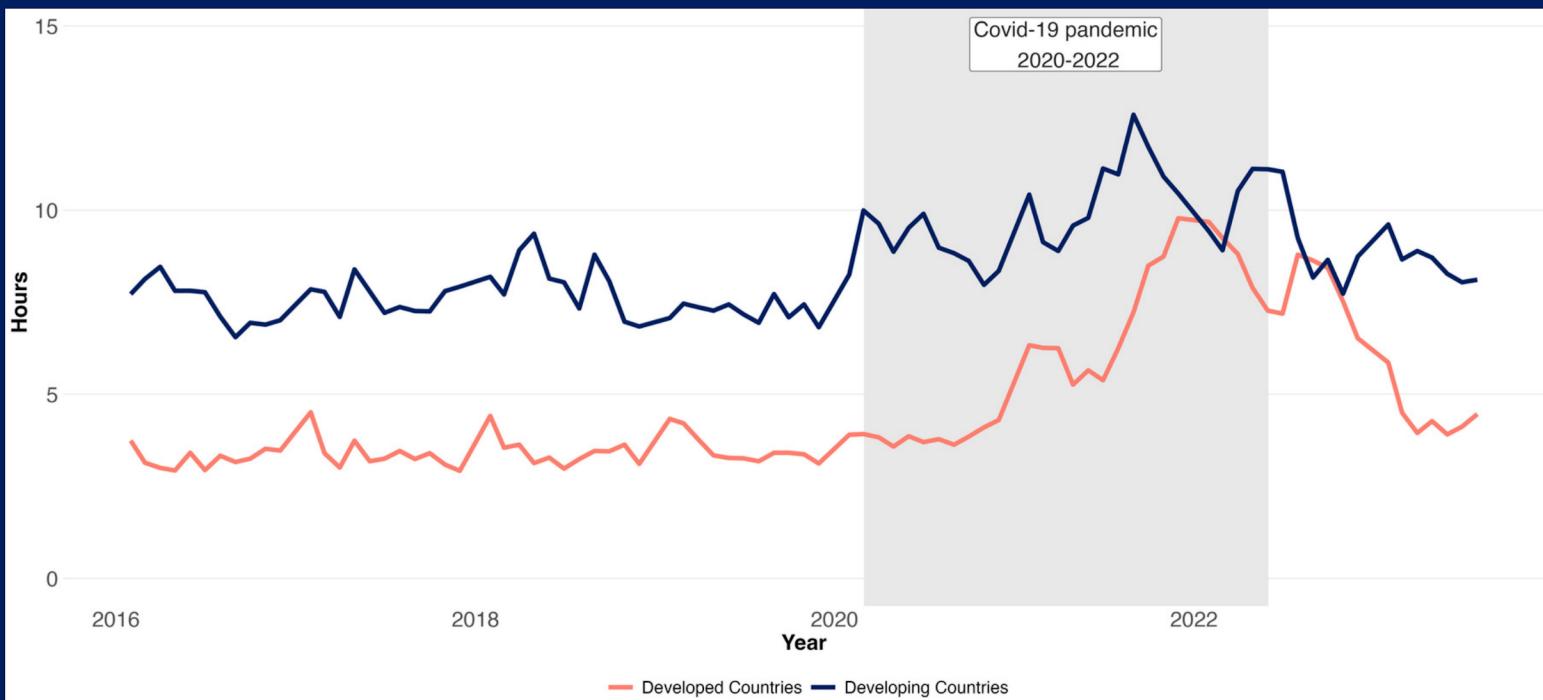


Source: UNCTAD

This graph shows how Covid-19 only had a minor impact on the yearly port throughput. It is visible how there was a short-term stagnation in 2020, which, however, was followed by a bounce back in 2021.

**...but significantly increased the Average Wait Time in Ports...**

### Average Wait Time in Ports for Container Vessels, 2016-2023



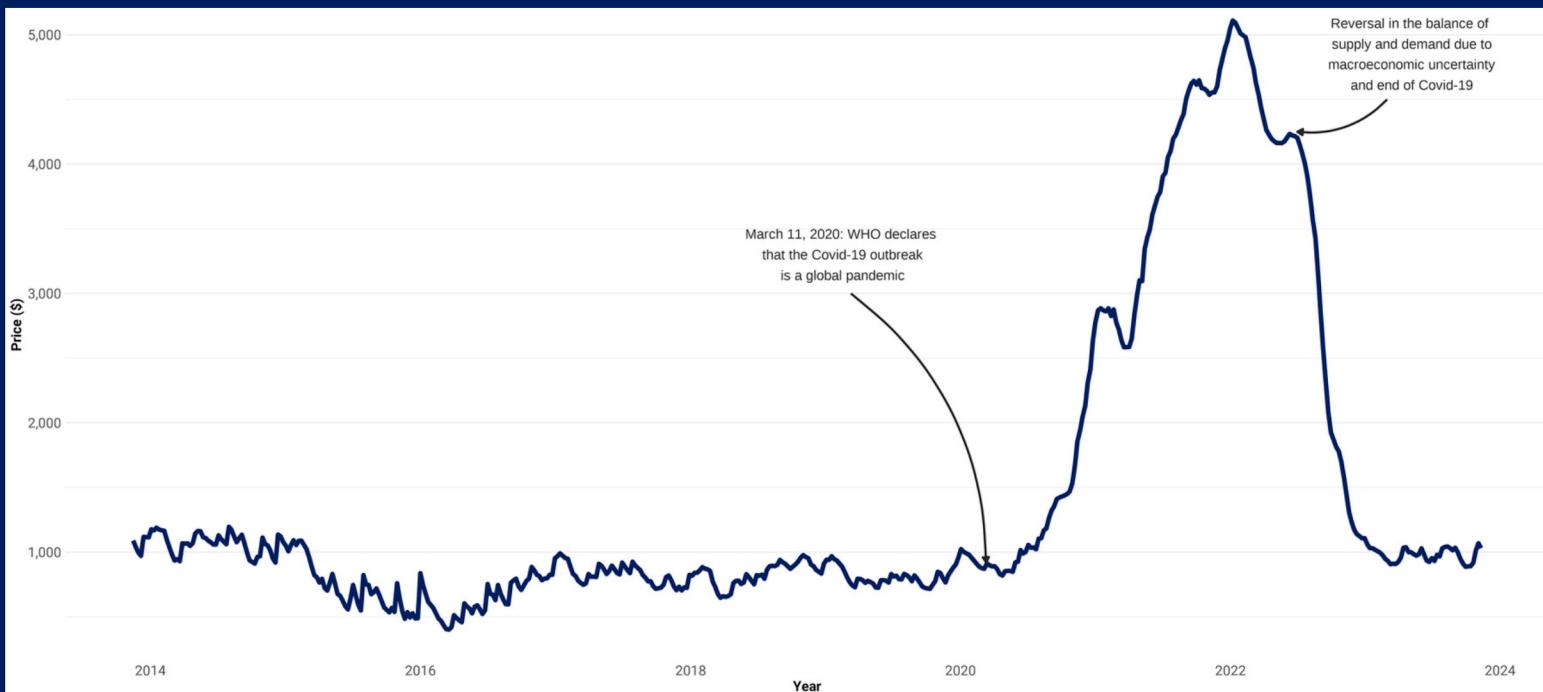
Source: Clarkson Research

However, Covid-19 lockdowns and safety measures impacted the average wait time in ports, with the wait time in developed countries more than doubling at the peak. Increasing wait time means increasing freight times, which flows through to the cost of shipment.



**...leading to a 5x increase in the price of container freight...**

### Shanghai Containerized Freight Index, 2014-2023



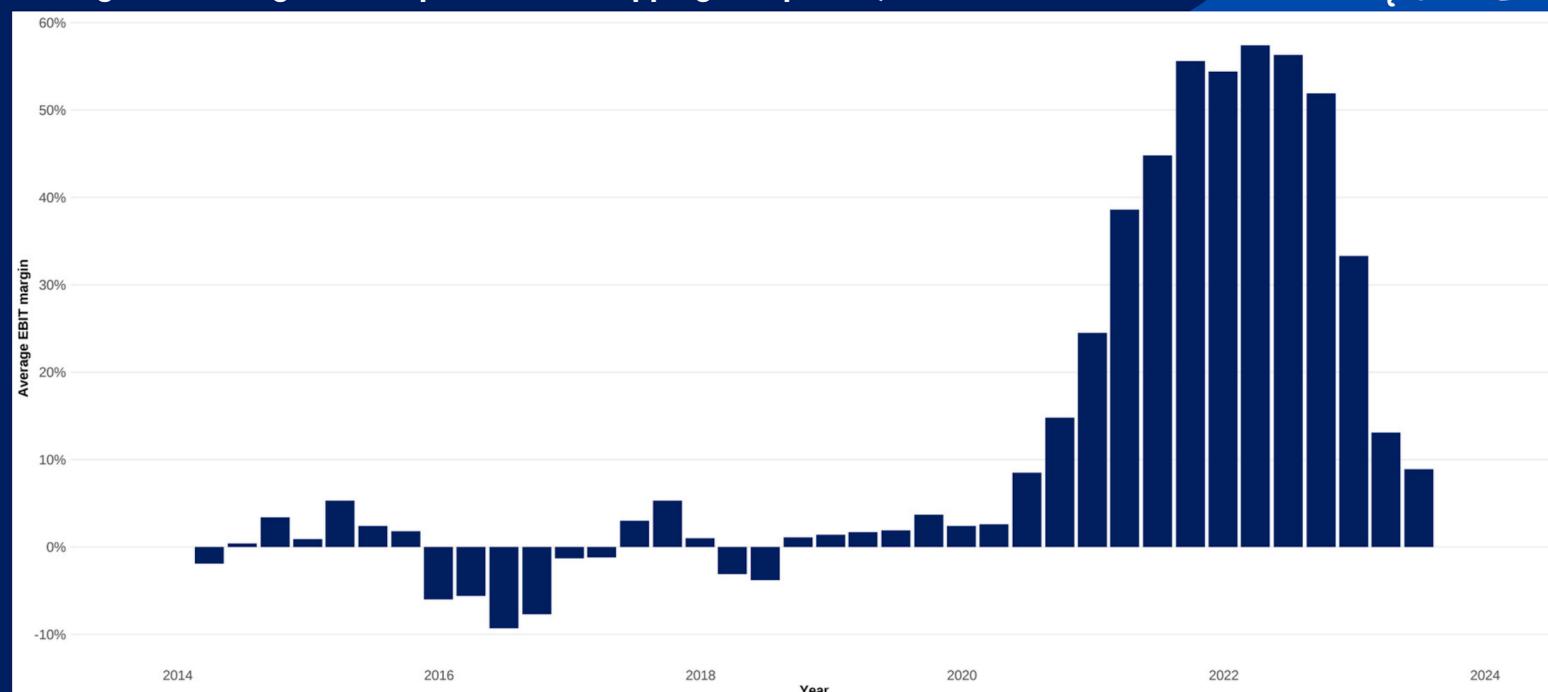
Source: Bloomberg

The Shanghai Containerized Freight Index reflects the cost of ocean freight and the associated seaborne surcharges on the spot market. Covid-19 lockdowns, safety measures and other supply chain issues caused the prices of containerized freight to surge 5x from pre-Covid levels.



## ...significantly favouring the large container shipping companies

Average EBIT margins for top container shipping companies, 2014-2023



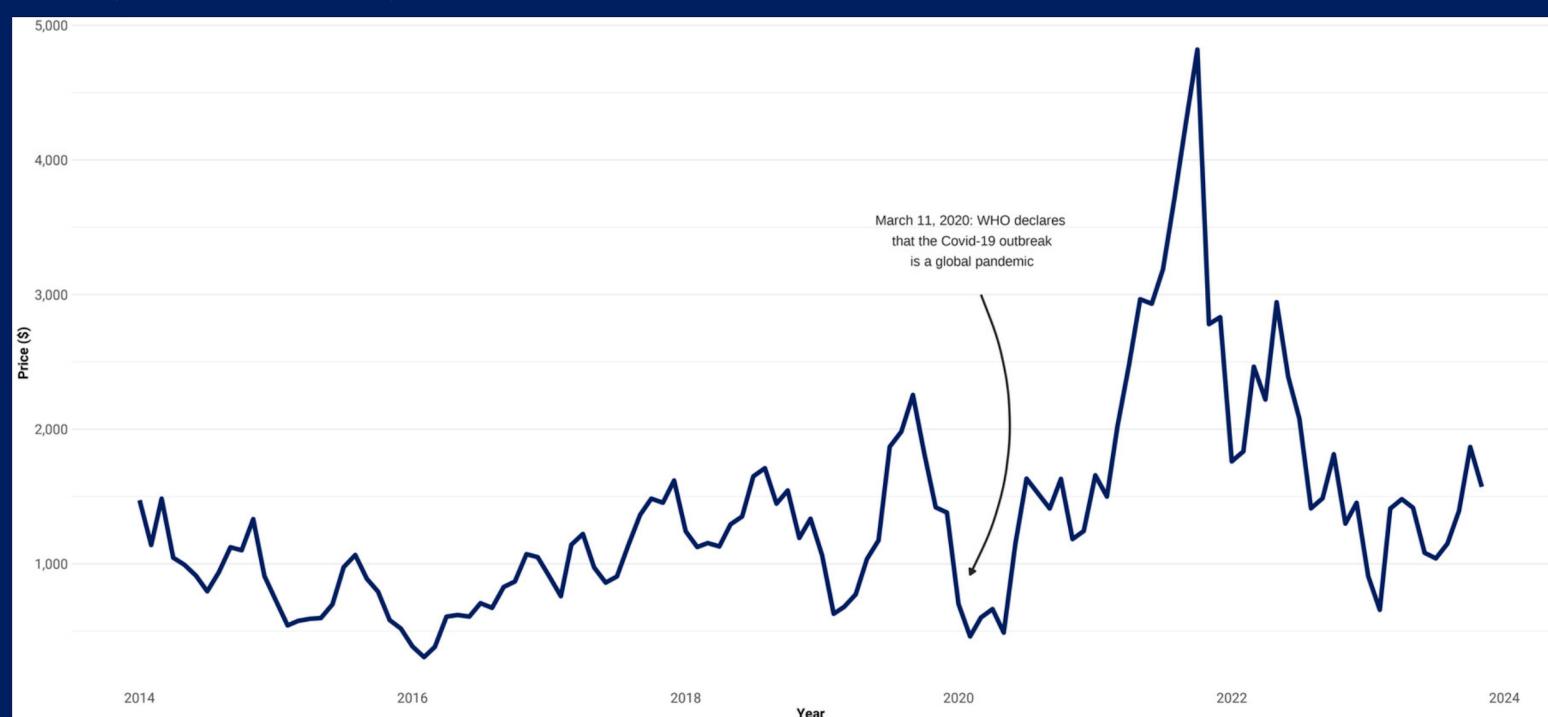
Source: Statista

It's reasonable to assume that the price surge was due to cost increases for the global shipping companies, but judging from the graph above, their profit margins experienced a similar pattern, almost rising to 60% during Covid-19, from <10% pre-Covid. Hence, the shipping companies benefitted tremendously from the impact that Covid-19 had on maritime freight.



## ...a similar price increase can be seen in the dry bulk shipping industry

Monthly Average Baltic Dry Index, 2014-2023



Source: Bloomberg

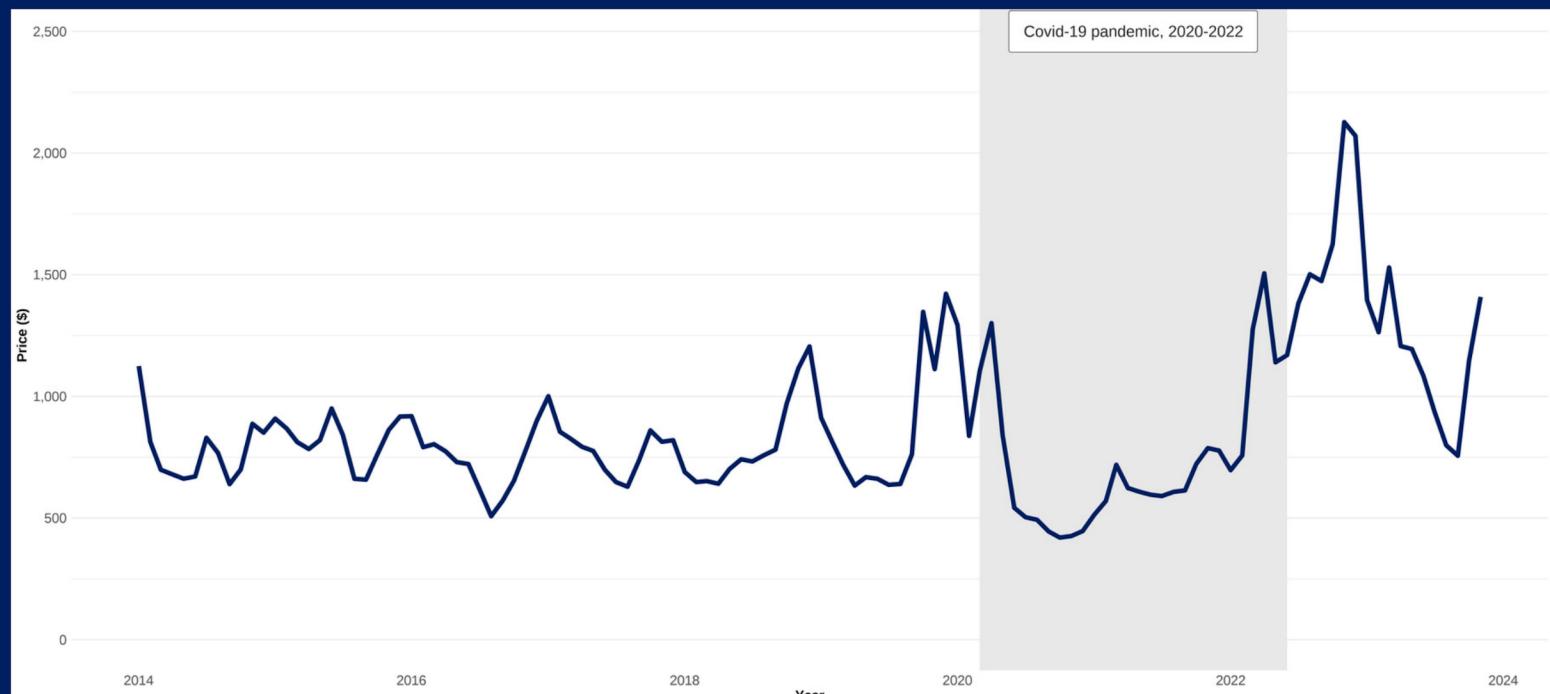
The Baltic Exchange Index shows a similar pattern for dry bulk as it did for container freight with an increase in prices following the outbreak of Covid-19.

**...however, the tanker market experienced the opposite effect**

Baltic Dirty Tanker Tanker Index, 2014-2023



Covid-19 pandemic, 2020-2022

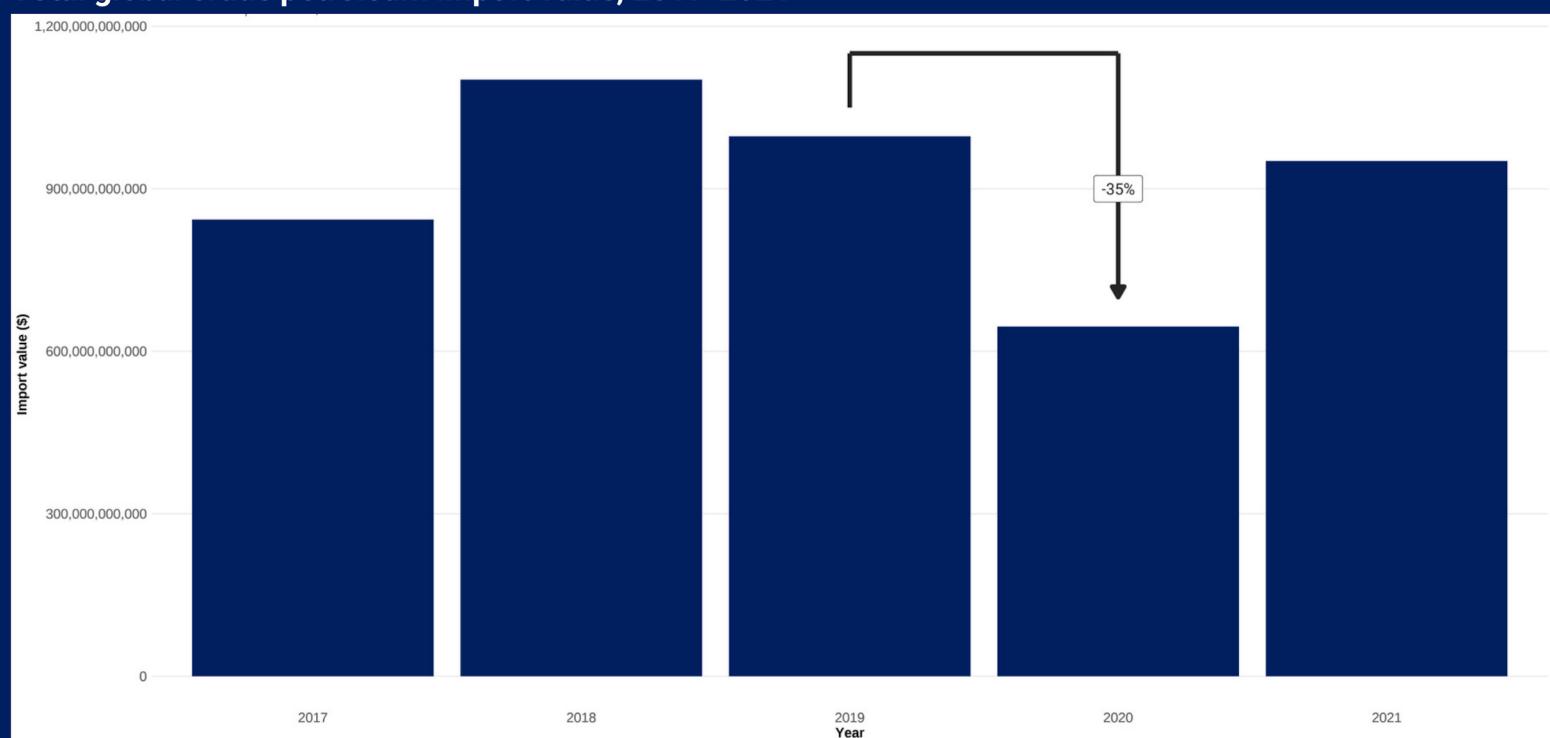


Source: Bloomberg

At the outbreak of Covid-19, spot prices for tanker shipping took a big dip, reaching all time lows in October 2020, and not recovering until the end of the pandemic in 2022. This suggests that the tanker market didn't experience equivalent supply-demand constraints as the container and bulker market.

**Decreasing tanker prices are likely due to a significant drop in oil demand**

Total global crude petroleum import value, 2017-2021



Source: UNCTAD

During Covid-19, the demand for crude oil decreased significantly mainly due to the decreased demand of fuel following travel restrictions and other safety measures. Therefore, it is likely that the oil tanker shipping industry didn't experience equivalent supply-demand issues as the containerships and bulkers.

#### **Discussion and critique:**

**What did you learn about the process of carrying out your project?**

- GitHub is very compatible for group work.

**What went wrong, and how could you improve it next time?**

- We tried to use too many datasets, narrowing down the project and limiting the scope was necessary.

**For instance, did any sources of bias creep into your survey or experiment?**

- Initial hypotheses influenced our analysis approach, for example, other reasons could also impact global shipment. For instance, lack of containers in China also affected the wait time in ports.

**What advice would you give future students?**

- Research is key and ensure to clean the dataset
- Make sure the datasets entail what you are looking for and are easy to work with before starting
- Come up with the story and align it with the group
- Ensure depth of analysis



# **Thank You**

