



| India

**Neutral** (no change)

# Transport

## Crude oil & product tankers business update

- Liquid fuel demand is recovering from the Covid-19 pandemic-related disruption and, in our view, will keep rising steadily.
- Tanker capacity supply is being constrained by ESG regulations and a low order book position.
- In our view, severe tightness in the tanker market is likely going ahead.

### **Demand for liquid fuels (petrol/diesel) recovers post Covid disruption**

Demand for liquid fuels will be higher than the 2019 level in 2023F after the Covid-19 pandemic-led disruption. However, this will be only based on volume. Certain more exotic fuels like jet fuel haven't recovered completely and are awaiting the Chinese tourists' re-entry into the global market. This is a highly constructive macro demand.

### **Fuel inventories will get built up during the winter season**

Tanker demand is driven by fuel inventories. US diesel and jet fuel inventories are at a five-to-seven year low. The inventories usually get filled up on a seasonal basis. Thus, there will be tight market dynamics playing out in a few months.

### **Order book at multi-decade low**

The tanker industry's order book hasn't been this low in 20 years. The last time it was this low, there was a multi-year bull market in tankers (2003-08). This time around, the order book isn't even large enough to replace the ageing fleet. Thus, tanker capacity will go down on a structural basis. New orders for ships, in our view, would only start getting traction in 2025F.

### **ESG norms mandate slower steaming to reduce carbon emission**

International Maritime Organization (IMO) is mandating a 30% increase in existing ships' efficiency from the 2008 baseline. One of the measures to achieve this is sailing at a lower speed to improve mileage. This will further affect the supply of ships as voyages take a longer time.

### **Ukraine war leads to sizeable shipping demand/supply fragmentation**

The sanctions on Russian crude oil and petroleum products have increased tonne-mile demand for energy cargoes going to Europe considerably. Similarly, Russian energy cargoes must now travel further afield. Thus, there's a double impact on demand growth. The sanctions have also caused some fragmentation in the shipping market as the ships which carry Russian energy supplies are now disallowed from carrying energy supplies to Western countries. This fragmentation has helped in constricting the supply of ships further.

### **Shipping firms may start getting valued based on their earnings**

Generally, tanker firms are valued based on their book value/NAV with riskier firms trading at a steep discount to their NAV. However, sustainably higher rates in the foreseeable future means these firms could start being valued based on their earnings, just like other sectors. This happened during the shipping boom of 2003-08 as well.

#### Analyst(s)

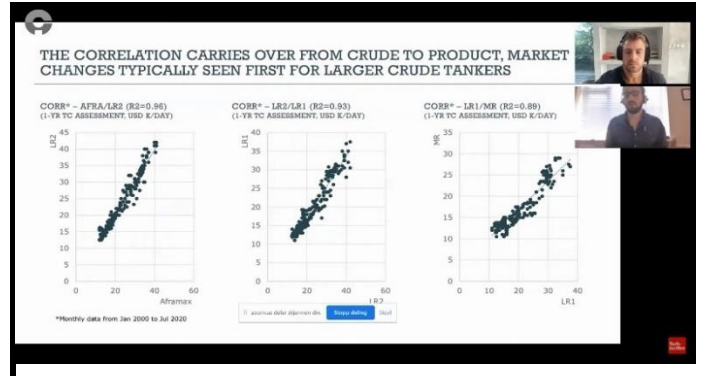
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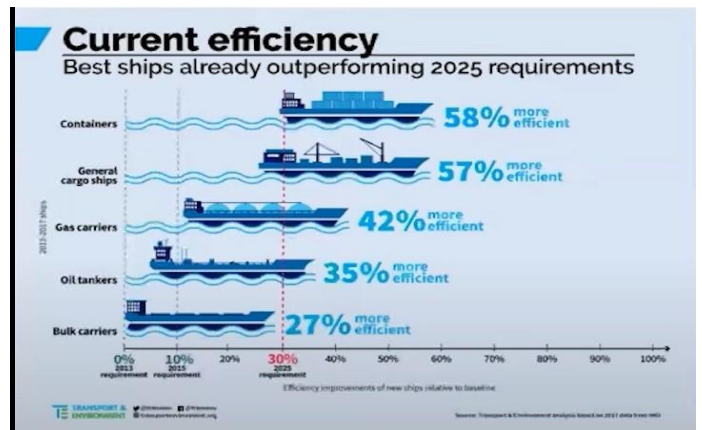
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## KEY CHARTS

Crude oil and tanker markets are very strongly correlated, and the changes are usually seen in larger crude oil tankers first owing to their position in the liquid fuels value chain.

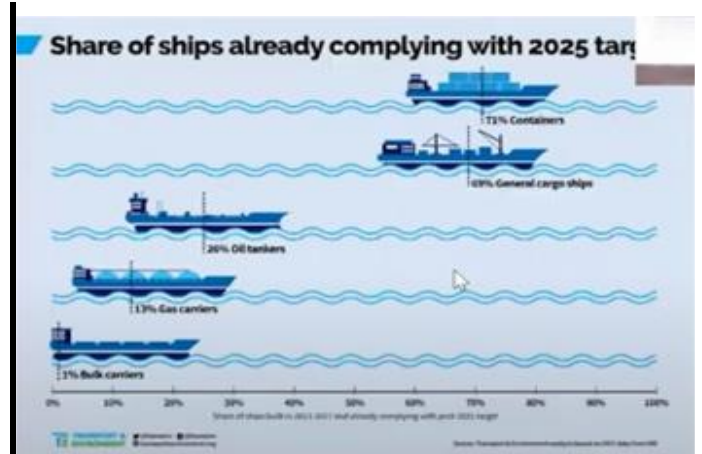


The best ships in all segments of shipping satisfy the 2025 efficiency requirements. Bulk carriers are the only exception to this.



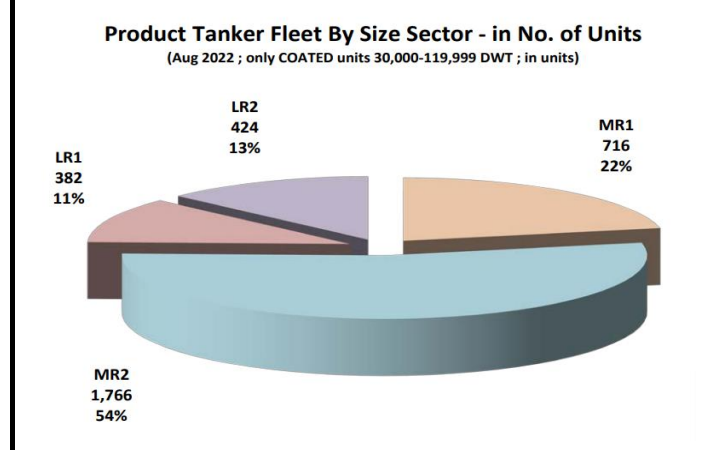
In so far as the share of ships of each segment which satisfy the 2025 efficiency norms are concerned, containers and general cargo ships are far ahead as they would be making more port calls.

Only a small portion of oil tankers and gas carriers satisfy the 2025 efficiency targets with a negligible number of bulk carriers meeting these targets.



Medium range or MR2s with a carrying capacity of 45-55,000t, called deadweight tonnage (DWT) are the workhorses of the product/clean tanker fleet followed by MR1s with DWT of 35-45,000t.

Meanwhile, LR1s and LR2s have DWT of 55-80,000t and 80-160,000t, respectively.

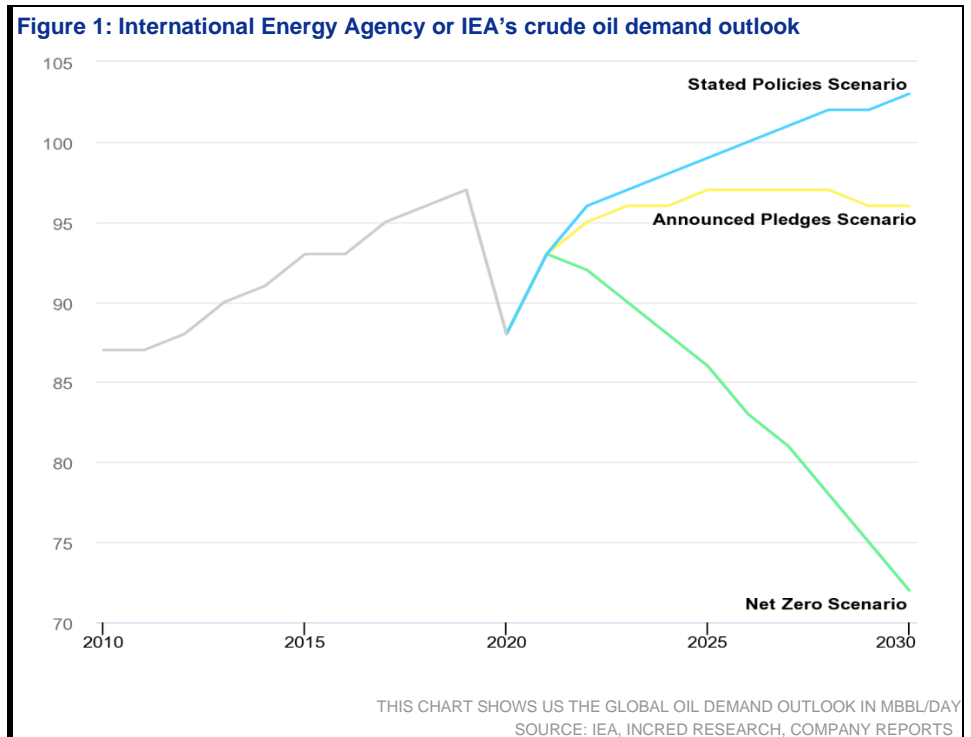


# Crude oil tankers

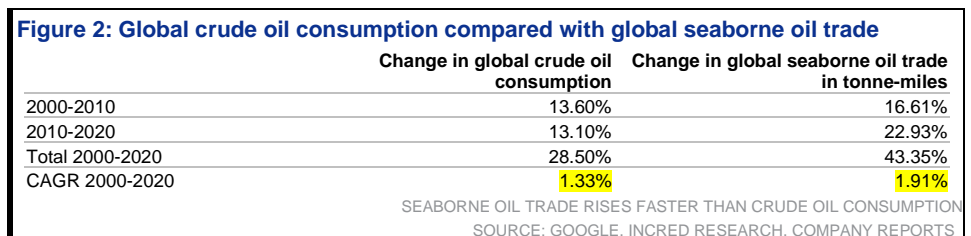
## Demand side

### Global crude oil consumption to keep rising in the foreseeable future

With the advent of renewable energy technologies and the broader ESG (Environmental, Social, & Governance) narrative, many analysts and environmentalists have estimated that global oil consumption would peak very soon and then start declining. The fact that some countries have given national targets to start phasing out petrol and diesel cars adds fuel to the 'peak oil' fire.



However, as we can see, the IEA expects oil demand to rise in a straight line till 2030F. This is a very conservative estimate as economic growth in the developing world will significantly increase global crude oil demand to the point that emerging economies will become the largest source of crude oil demand, overshadowing developed economies.



As we can see from the table above, seaborne oil trade tends to rise more than crude oil consumption itself.

### Increasing production from offshore reserves

While offshore oil production has been unattractive over the previous decade, it's becoming cost-competitive now. As the graph below indicates, offshore oil production cost now stands at about US\$35/bbl compared to shale cost at about US\$43/bbl.

Figure 3: Offshore oil has become economical

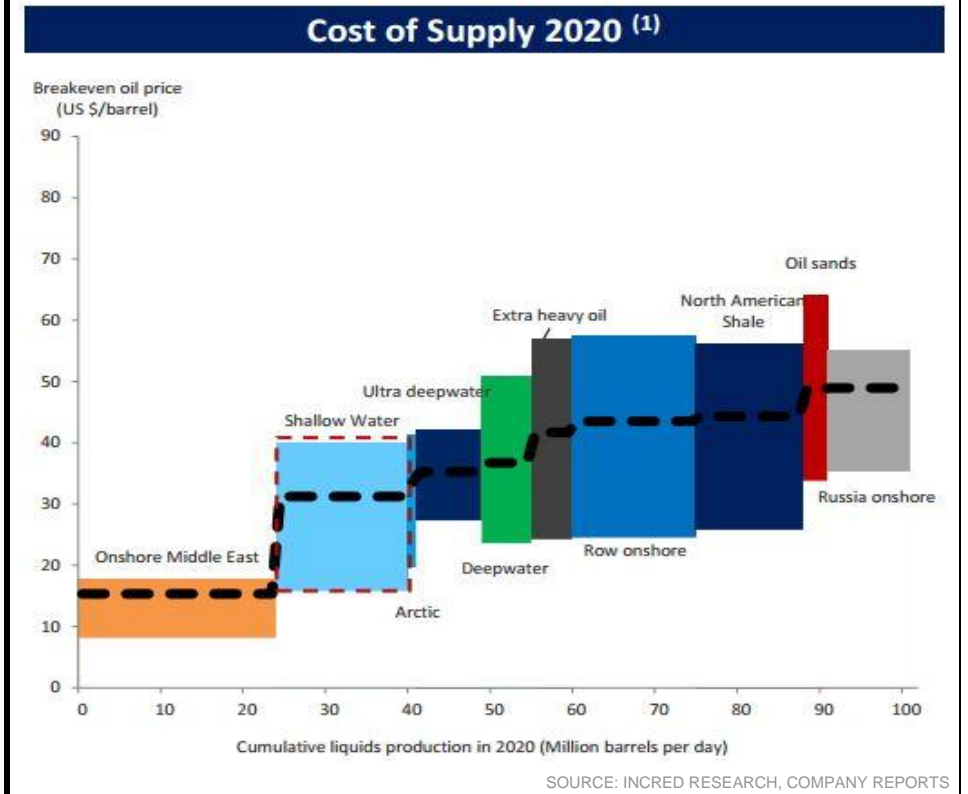
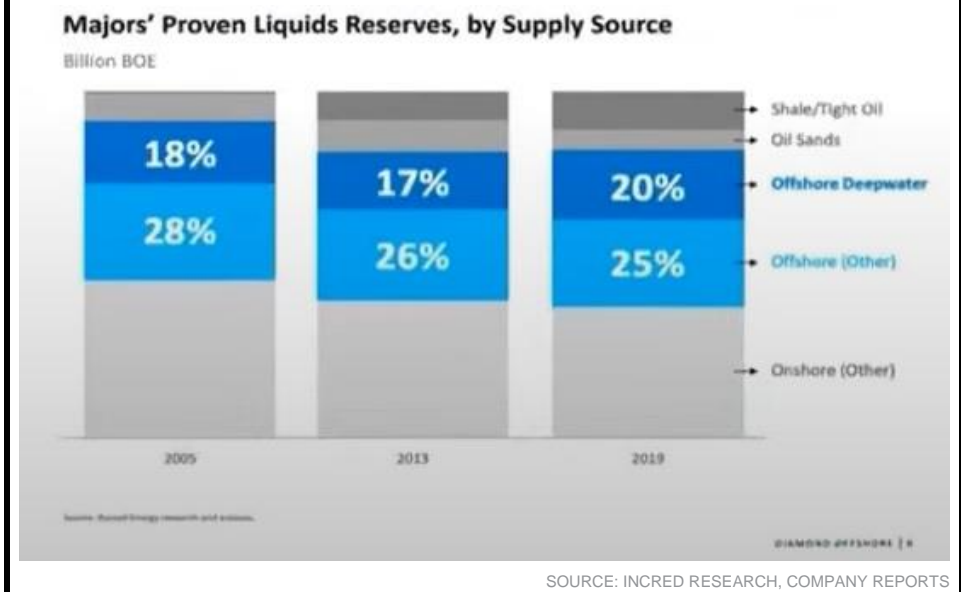


Figure 4: Offshore accounts for a large untapped portion of oil majors' reserves

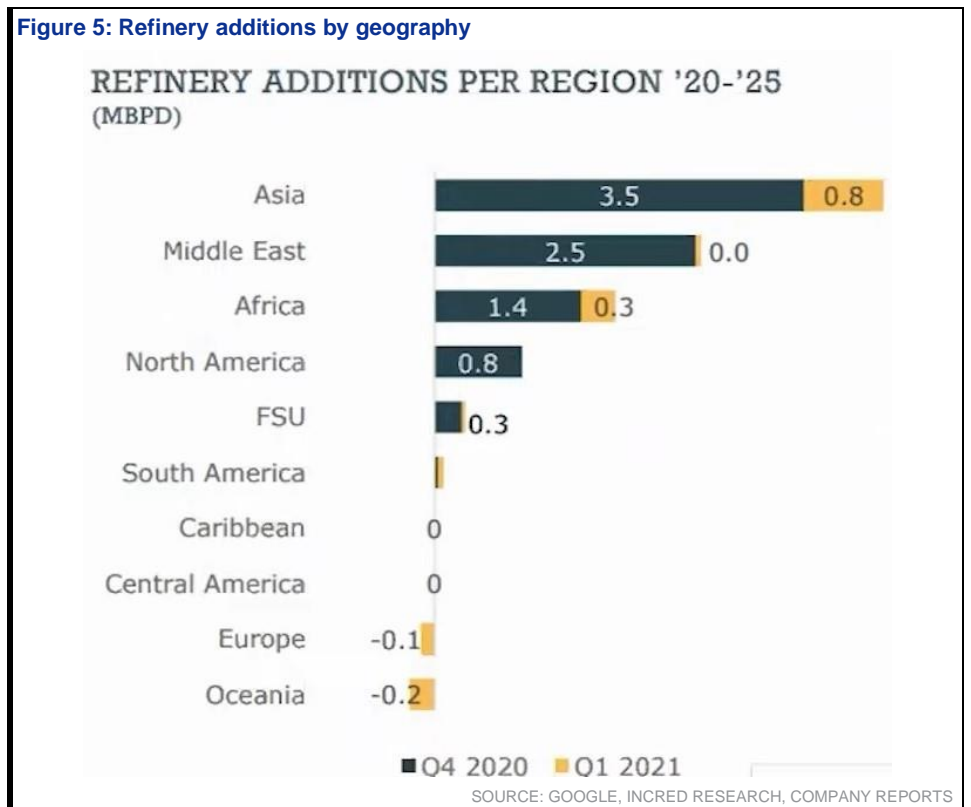


As of 2019, offshore reserves were at around 45% of the oil majors' total oil reserves. This is a large chunk which is becoming economically viable to extract again.

As offshore oil rigs get set up, they will have to be serviced by crude oil carriers. This will further increase the demand for crude oil tankers.

**Rising number of refineries east of Suez while new oil production is largely west of Suez**

Figure 5: Refinery additions by geography



The chart above clearly shows that refineries, which are the source of demand for crude oil, are increasingly being built in Asia and the Middle East, to the east of Suez. Meanwhile, we know that there is significant oil supply being added to the west of Suez, in North and South America.

Figure 6: Top 15 crude oil producing countries in 2012

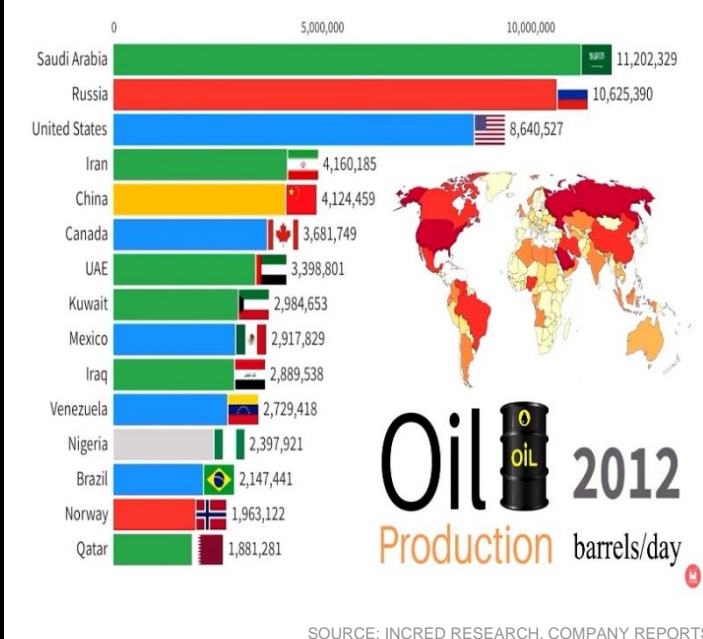
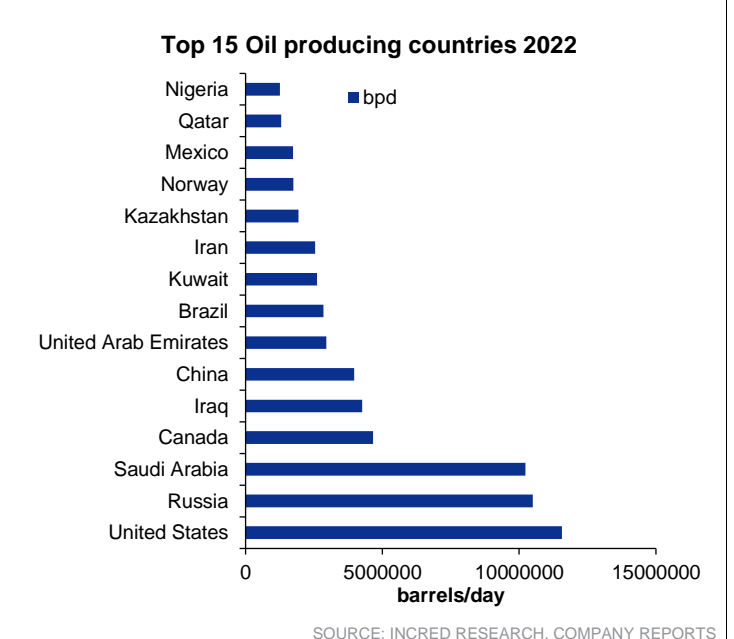
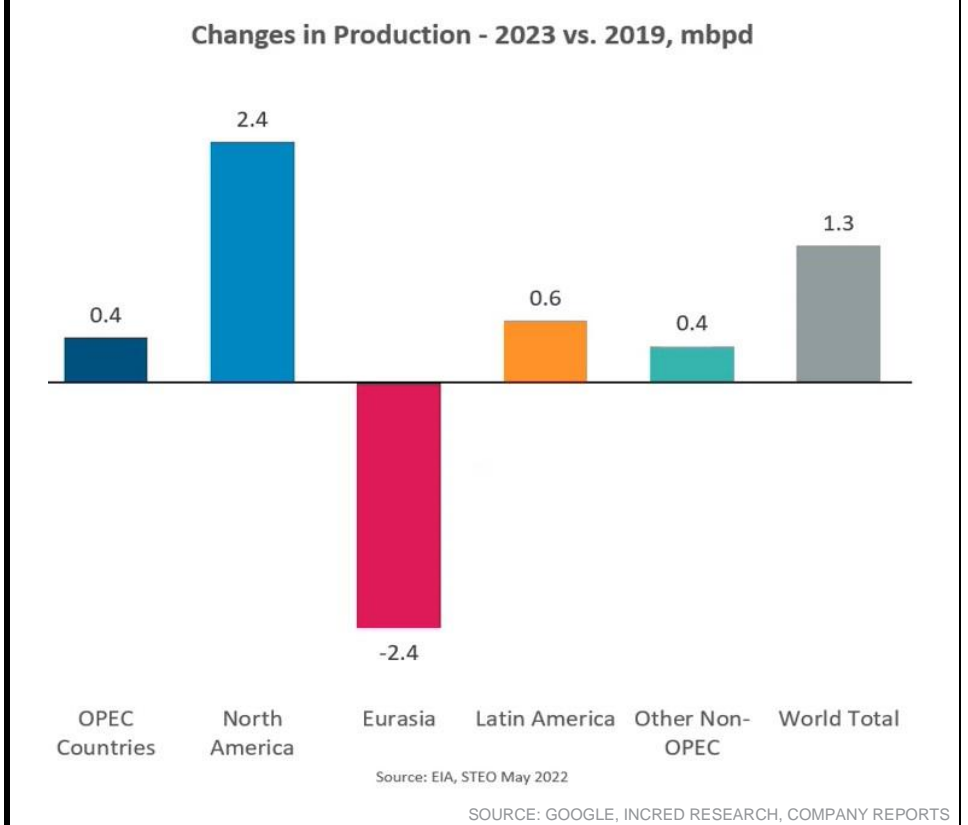


Figure 7: Top 15 crude oil producing countries in 2022



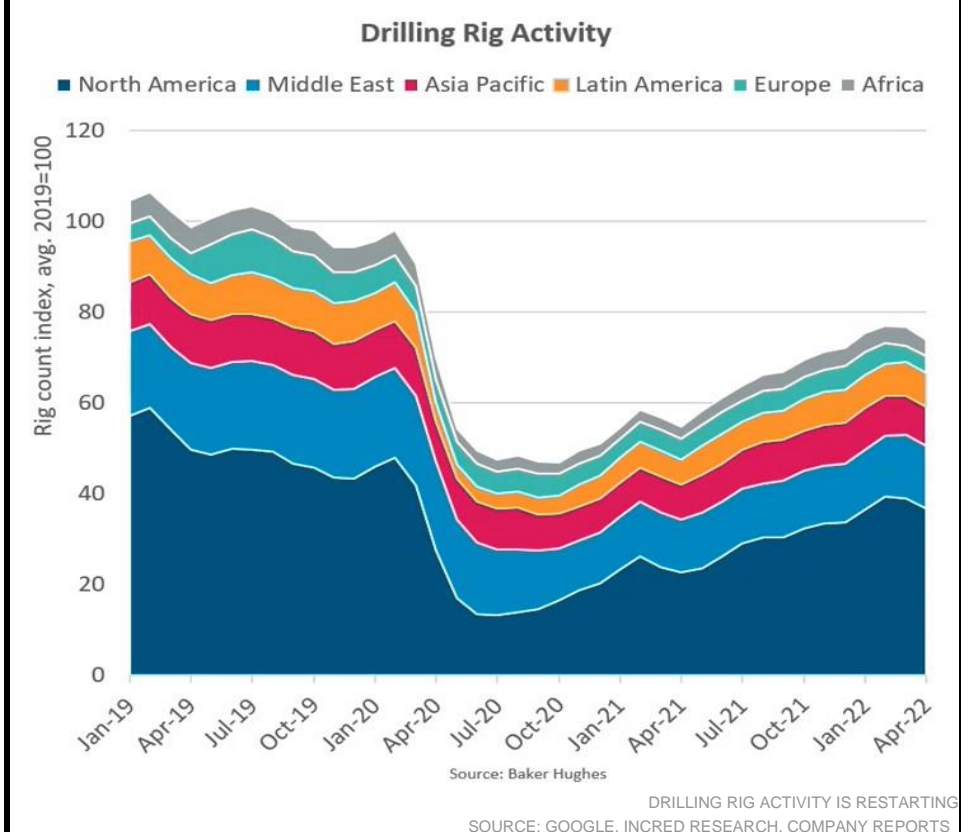
Please note that West African and the Middle East countries aren't as high up in this list as they used to be. Countries like the US, Brazil, and Canada are higher up in the list from 2012. So, we can see that North and South America are becoming larger contributors to crude oil production. As most of the new refineries are coming up in Asia, this increases the distance an average tonne of oil produced must travel.

**Figure 8: Tonne-mile increase for Atlantic basin-Asia route vs. the Middle East-Asia route**



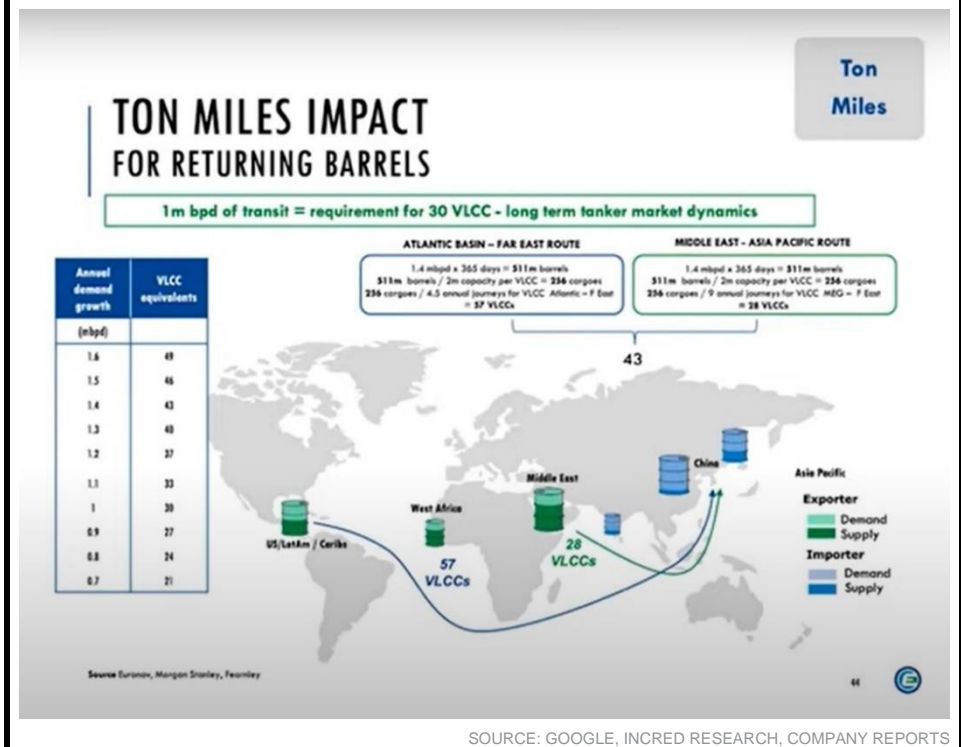
The marginal barrel of crude oil comes from North and South America while the marginal refining capacity comes up in Asia. While Asia is the dominant driver of fuel consumption, this means that more and more petroleum products would have to be imported into North America and Europe.

**Figure 9: Drilling rig activity**



Drilling rig activity has started picking up, but it isn't near the pre-Covid levels yet. As it rises, there will be increased demand for crude oil tankers. We should bear in mind that this is sticky demand for crude oil carriers.

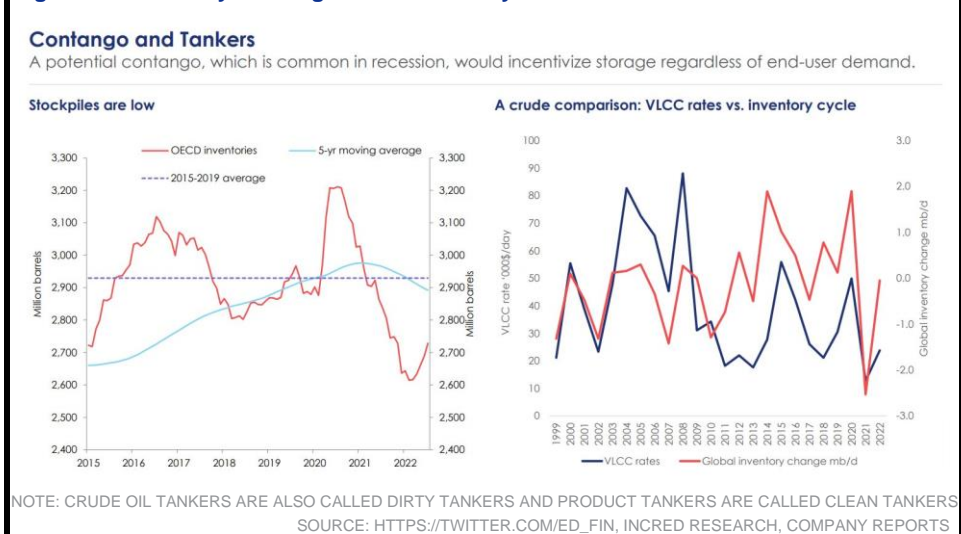
**Figure 10: Tonne-mile increase for the Atlantic basin-Asia route vs. the Middle East-Asia route**



An additional 1.4 mbb/d of crude oil supply from North and South America instead of the Middle East would require an additional 29 VLCCs (very large crude carriers) - these usually have a carrying capacity of 250,000t) for the journey to Asian refineries. 29 VLCCs represent around 3% of the total fleet of 810 VLCCs.

**Inventory will start building up; fleet capacity utilization is likely to rise considerably**

**Figure 11: Inventory building will considerably raise the demand for crude oil carriers**

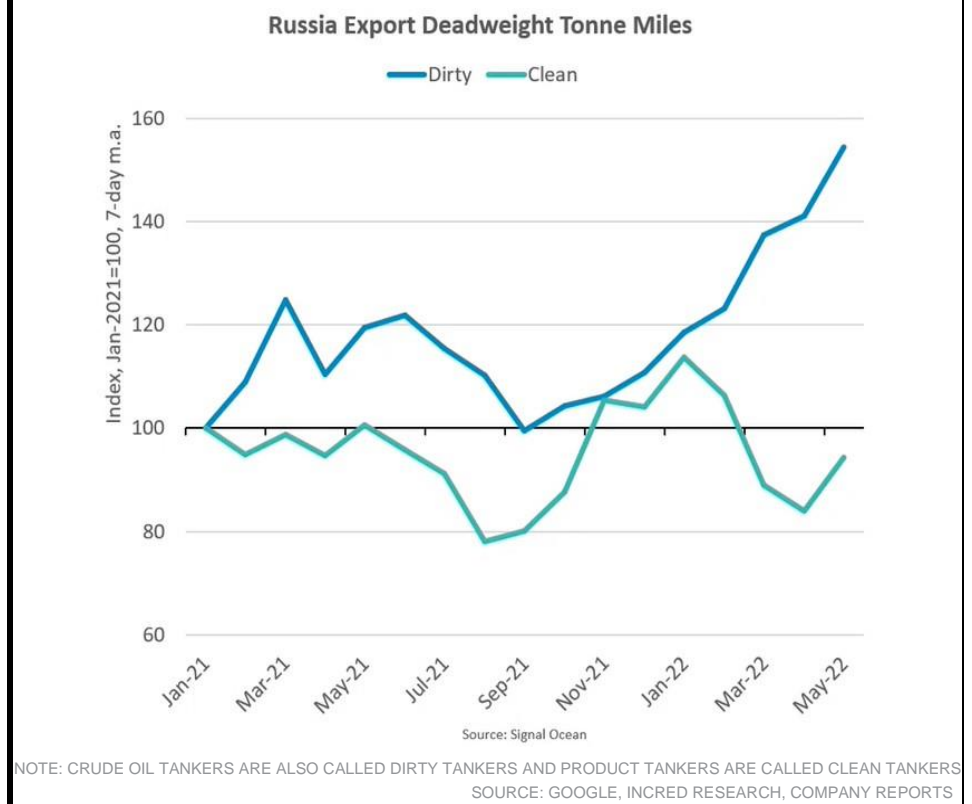


The Organization of Economic Cooperation and Development or OECD countries' crude oil inventories are well below where they should be. Historically, VLCC rates always rise when inventories are being built. It should be noted that as crude oil inventories were being built from 2007 to 2008, VLCC rates also rose during the recession. They would have kept on rising were it not for the massive fleet growth

- the fleet had a net growth rate of a whopping 10% annually over 2007-09, which is the main reason why VLCC rates fell in 2009.

**Russian oil embargo**

**Figure 12: Russian crude oil exports in deadweight tonne miles**



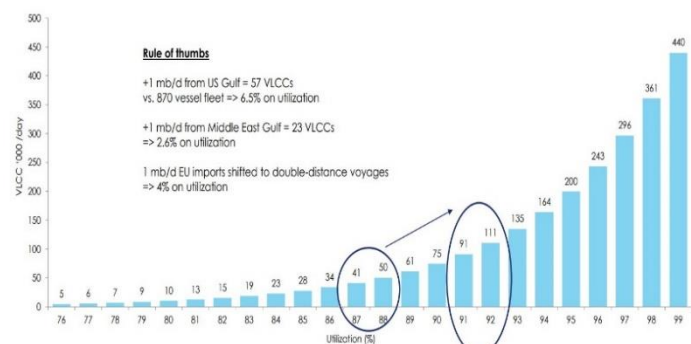
European sanctions against Russian seaborne crude oil have forced Russia to look for customers further afield. This is clearly illustrated in the graph above. Now let's look at the expected rise in demand for crude oil tankers to enable this crude oil to travel longer distances.

The Russia to Europe trade route is on an average around 4,000km long or about half the distance of global destinations of approximately 8,000km. The European Union's embargo on Russian crude oil will double the distance that oil needs to travel to reach the European market. Most likely, in our view, this oil will now come from the US Gulf or the Middle East.

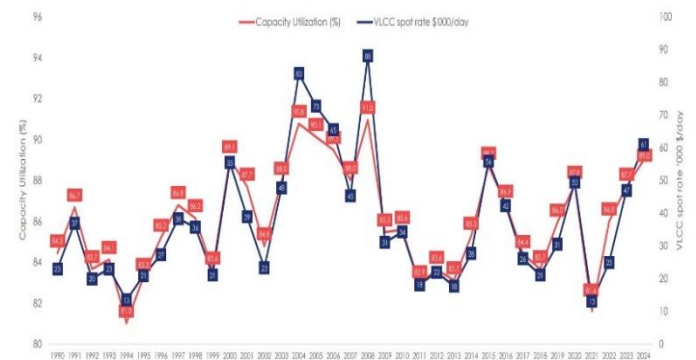
**Figure 13: VLCC order book, as a percentage of fleet, at a historic low**      **Figure 14: Crude oil tankers aged 20+ low**

**Russian crude embargo could lift utilization by 4% of the fleet**  
 VLCCs could potentially reach \$100,000/day

**Capacity utilization and VLCC spot earnings**



**Just halfway up from the cyclical bottom - lots more upward potential remains**  
 Capacity Utilization and VLCC earnings 1990-2024e





During 1HCY22, the global VLCC fleet had an average capacity utilization of 81%. Currently, it is likely to be around 87%. This could easily rise to 92%. While we have seen a healthy rise in VLCC rates, capacity utilization rising to 92% would double the VLCC rates.

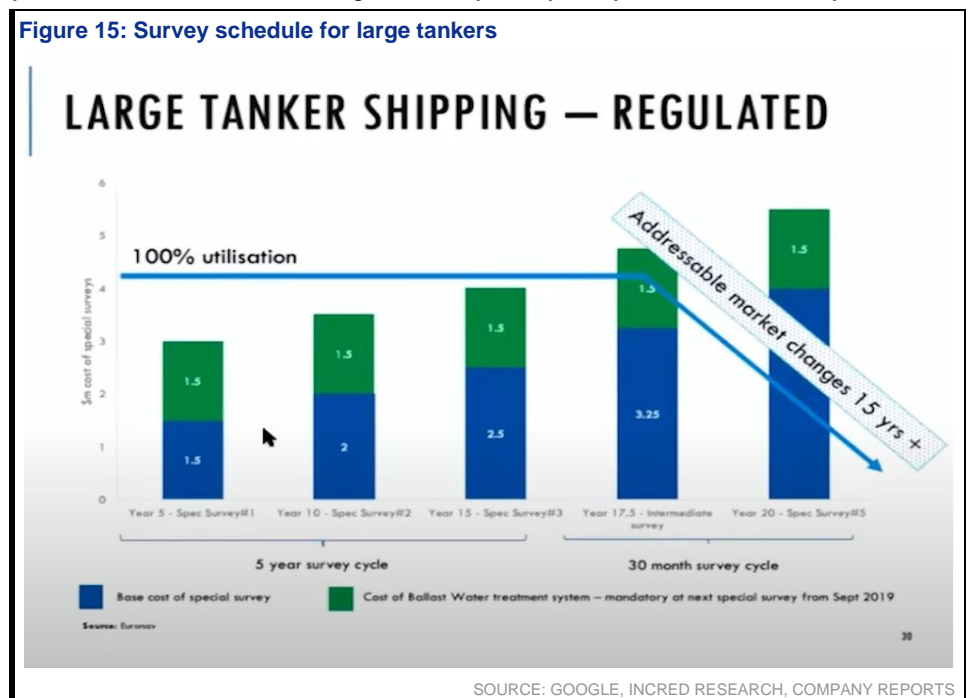
As the historical capacity utilization vs. day rates chart indicates, there is still moderate capacity utilization. This is likely to rise more given the lack of supply and lead to a corresponding rise in VLCC day rates (shipping firm's earnings) too.

## Supply side

### Tanker inspections and surveys are very expensive

It should be noted that in 2020, the cost of a newly built VLCC stood at around US\$90m. Each tanker has to undergo several expensive surveys throughout its life.

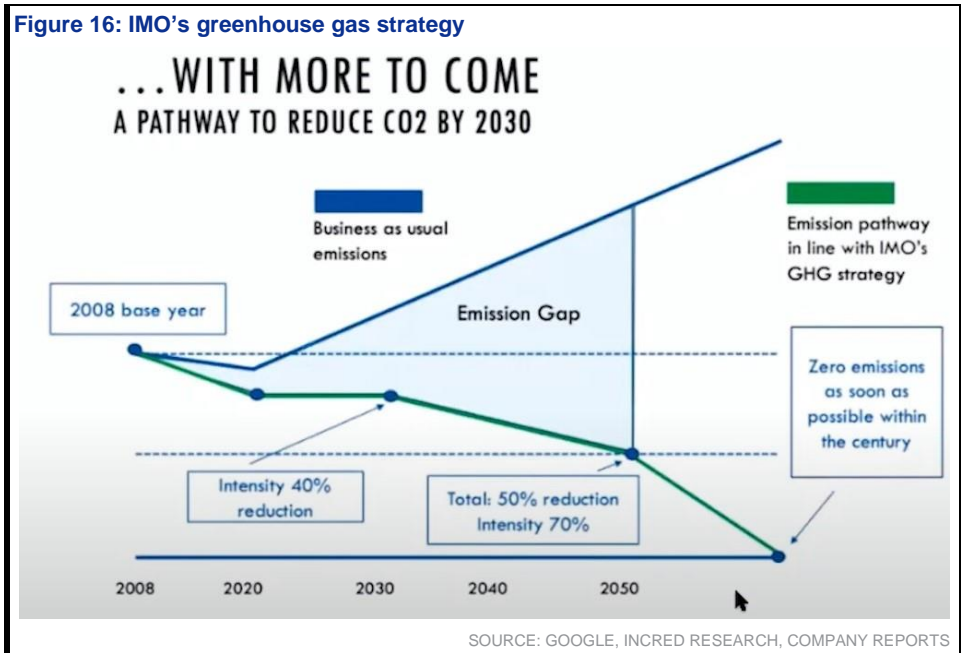
While a tanker needs to go through a survey every five years during the first 15 years of its life, it must undergo a survey every 2.5 years after it is 15 years old.



As shown in the chart above, by the time a tanker is 15 years old, the total cost of these surveys would come to around US\$10.5m. By age 20, the cumulative cost of these surveys would amount to US\$20.75m or about 23% of the cost of a newly built VLCC.

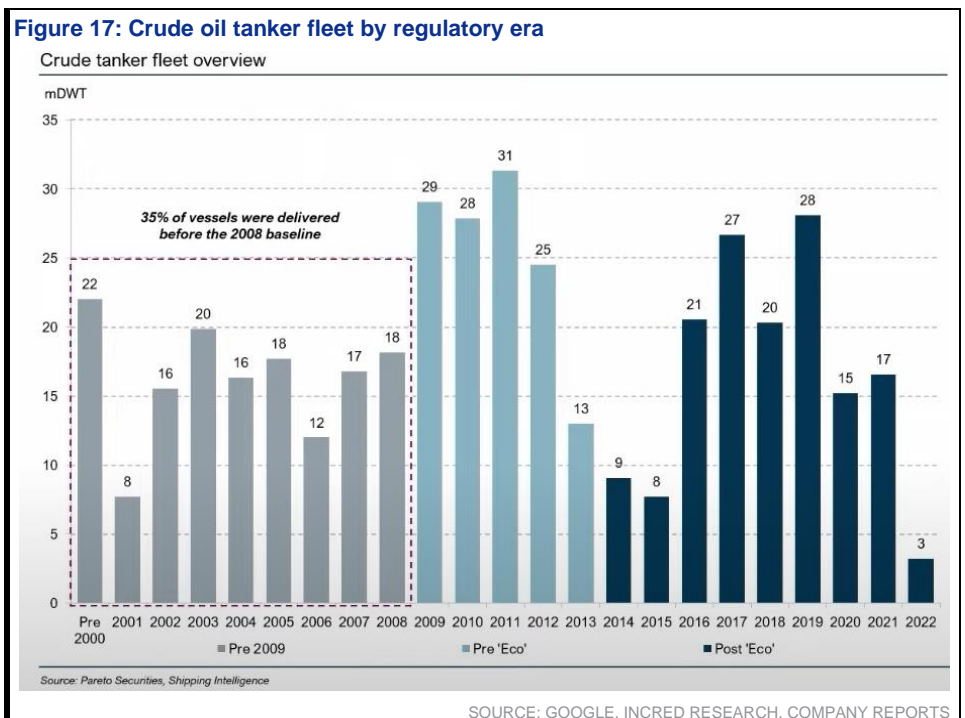
The median age for scrapping tankers is around 22 years. They are generally scrapped/recycled at this age to avoid having to do the sixth special survey, which would have to be done at 22.5 years.

ESG regulations could further tighten the tanker market



The above graph shows the IMO's greenhouse gas (GHG) reduction strategy. This strategy entails a 40% reduction in carbon intensity from the 2008 baseline by 2030F. The IMO has an intermediate carbon intensity target of 30% reduction from the 2013 base year by 2025F. The accounting period for carbon intensity calculation to attain the 2025F target starts from Jan 2023 and extends up to 2027. The emissions are calculated as a normalized function of the emissions throughout this period.

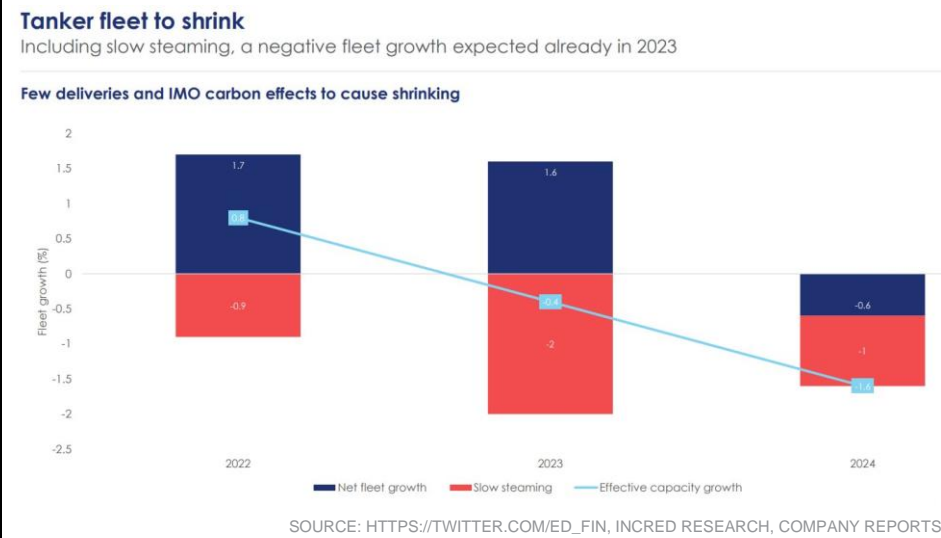
As vessel operators get ranked based on carbon emission of their fleet, it's quite likely that tanker fleets could get split into tiers with a greater regulatory cost imposed on lower-tier ships. This would further tighten the supply of ships on certain routes.



Vessels built after 2013 are called eco vessels as they integrate several efficiency-improving features, but one of the key features to reduce carbon intensity is slower steaming.

Reduced sailing speed considerably increases the ship's mileage at the cost of prolonging the voyage's duration. This has an added effect of further constraining the supply of ships available for undertaking voyages at any given time.

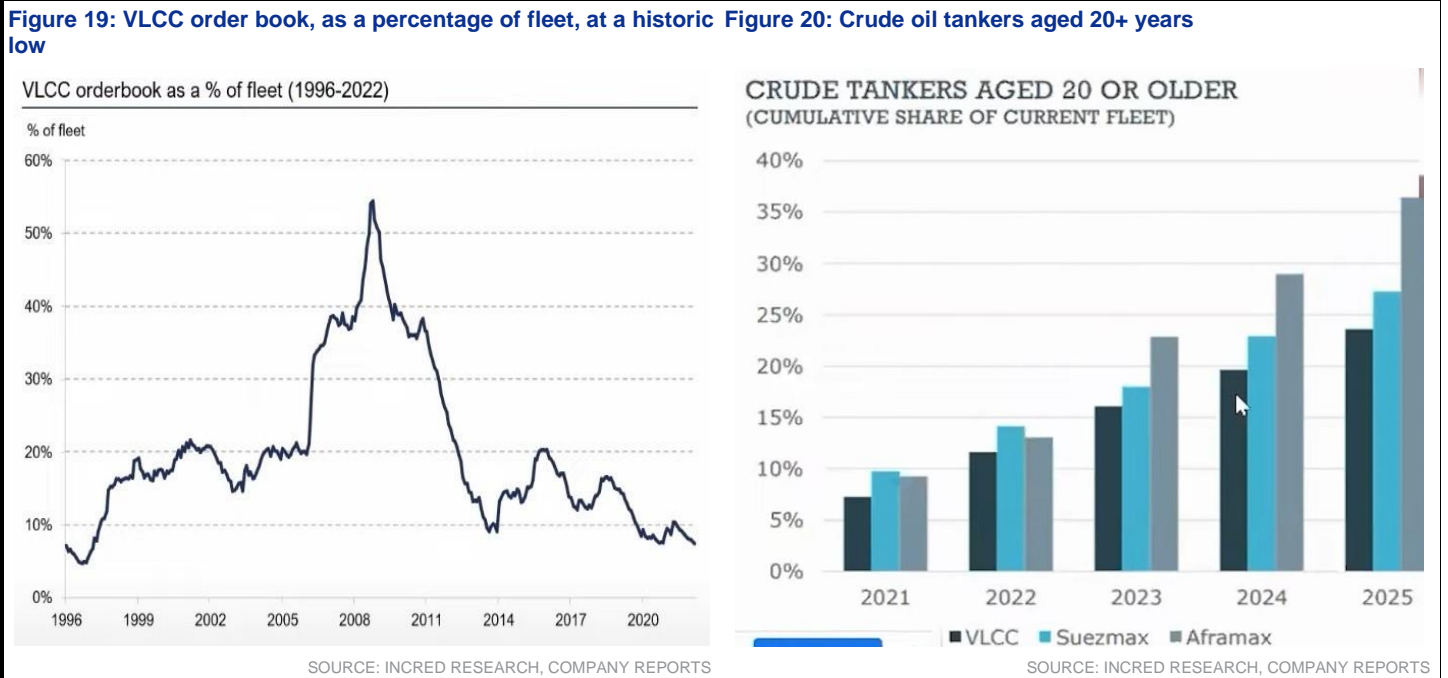
**Figure 18: Slow steaming will reduce fleet capacity considerably**



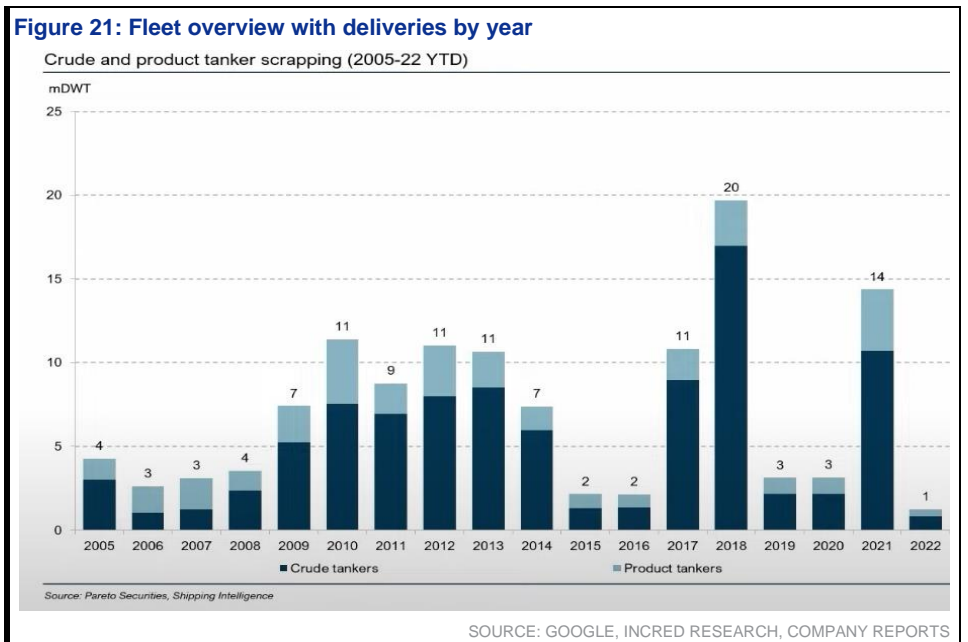
**Fleet is aging but not being replaced ➤**

The shipping industry has long-term cycles where the upcycle is characterized by constrained supply of ships and a sudden jump in demand. During the upcycle, shipping companies tend to expand their order book massively which, in turn, leads to oversupply and then a downcycle.

As shown by the chart below, VLCC order book is at a historic low. Market changes are often first observed in large crude carriers.

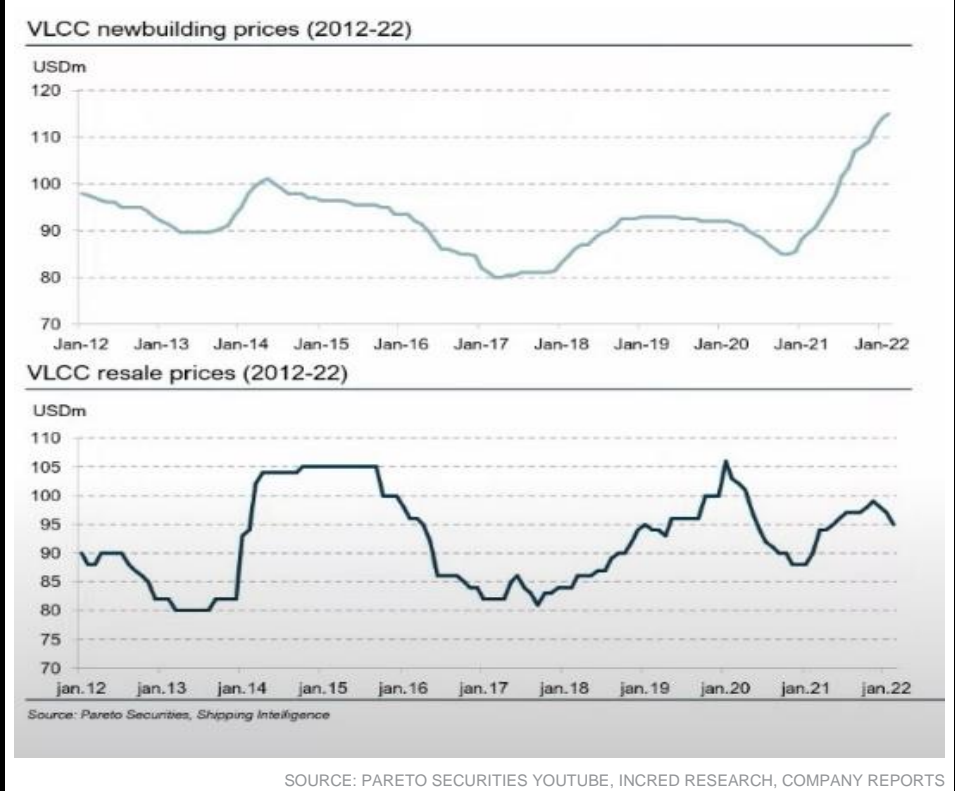


VLCC order book, as a proportion of the fleet, is at a 25-year low at 6-7%. Meanwhile, around 12% of the VLCC fleet is over 20 years old. This means that as the older vessels are coming up for scrapping, only half of them would be replaced in the next two years. Meanwhile, vessel scrapping isn't decreasing. In fact, 2021 was the second-highest year of vessel scrapping since 2005.



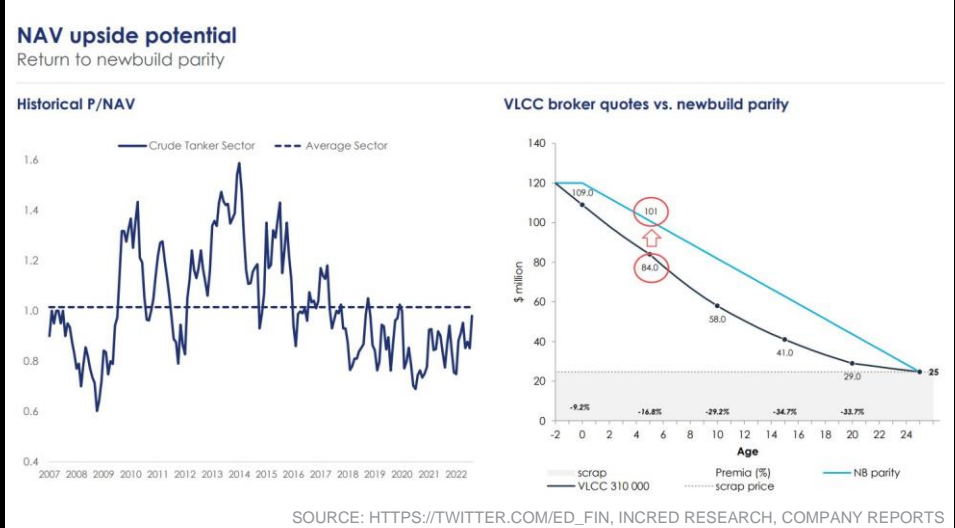
Shipping companies are unlikely to start placing orders for a large number of ships as new build vessel prices have risen substantially.

Figure 22: Second-hand vessel prices as well as new build vessel prices are rising



## Net asset value or NAV & book value of crude oil tankers

Figure 23: P/NAV and second-hand vessel prices



The sector's P/NAV was below 1, the average for the sector, for a few years. As the chart above illustrates, there's a good chance that the sector's P/NAV will now trade above 1 for a few years.

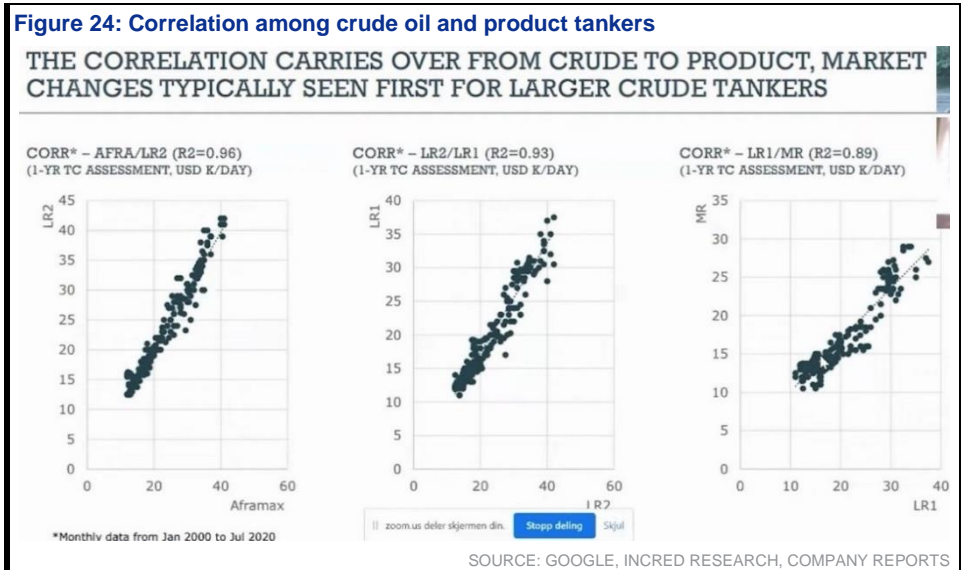
We should bear in mind that NAV itself isn't as fixed as in other sectors, given the very active second-hand market for ships. These ships usually get depreciated on the books from the time the order is given to the shipyard, and this is reflected in the broker quotes. If the broker quotes achieve parity with new build vessel price, as reflected in the chart above, NAV could rise by as much as 50%. In our view, this is what makes this sector very interesting to invest in currently.

## Risks

The key risk to long-term demand would be a prolonged and severe global economic depression. This would curtail growth in global energy demand.

Shipping companies could choose to greatly reduce vessel scrapping and use the current record profits they are making to purchase several ships. They could order the ships on charter for their clients and hence, have enhanced safety of cash flow. It should be noted that such contracts usually entail a sizeable debt component.

However, with the current recessionary economic environment and tight monetary conditions raising the cost of debt, it's less likely that shipping companies and their clients would take such risks.



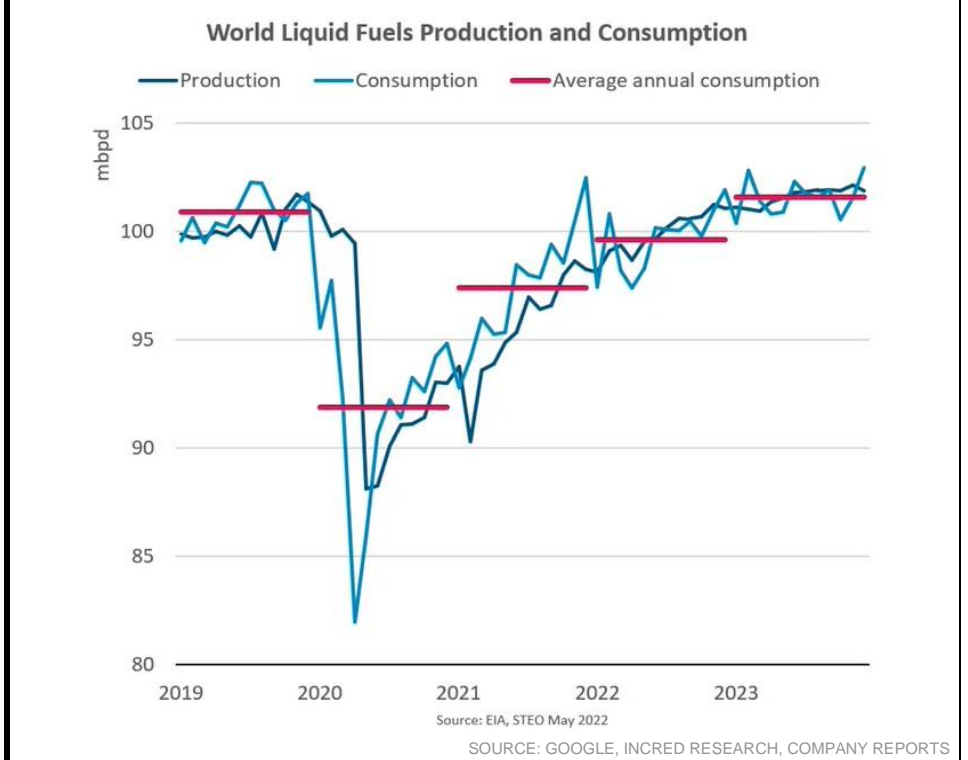
As the charts above illustrate, the whole tanker market tends to move together with market changes appearing first for larger crude oil tankers.

# Product tankers

## Demand side

### Global liquid fuel consumption is on the rise

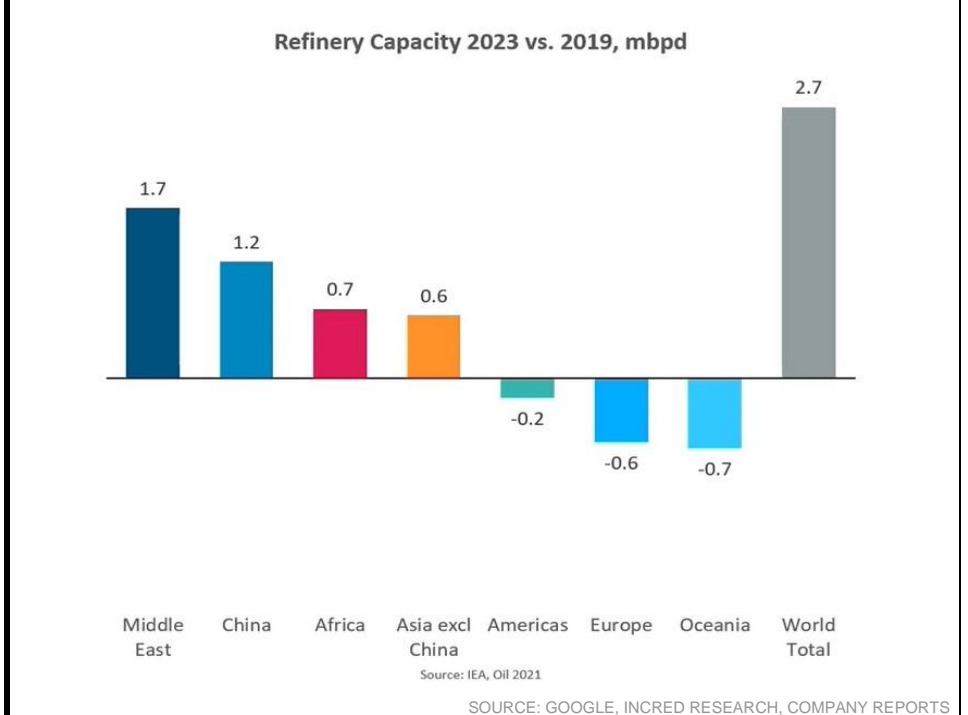
Figure 25: Global liquid fuels production and consumption



Global liquid fuels consumption is expected to rise by 2-3% next year . However, this would still only be 0.7% more than the 2019 level.

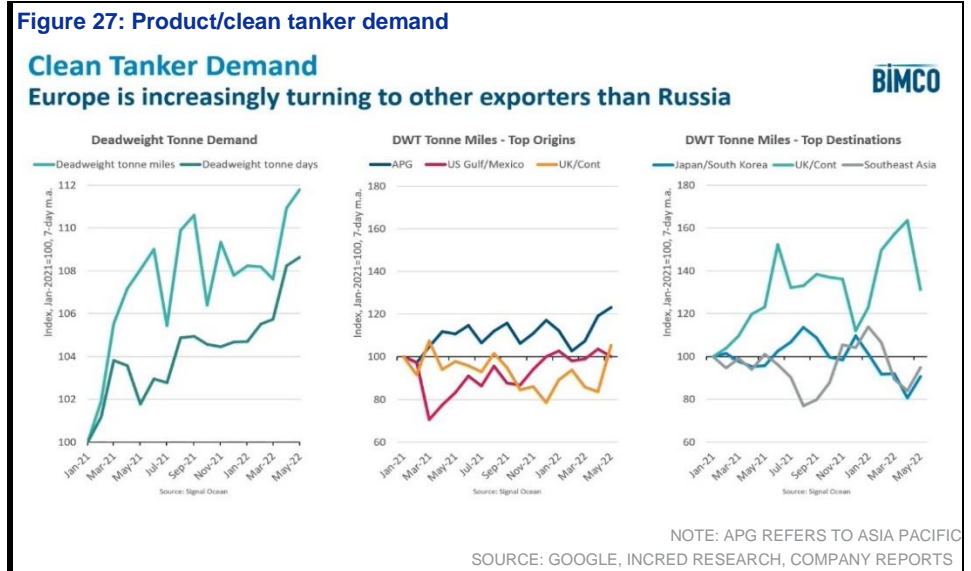
### Petroleum products will have to travel longer distance to reach developed markets

Figure 26: Refinery capacity over 2019-23F



Refinery capacity is increasingly concentrated in Asia. While Asia continues to drive growth in liquid fuels production and consumption, we see that refineries are shutting down in the developed world. This means the developed world will have to import more of its fuels from Asia and perhaps Africa.

**EU sanctions on Russian petroleum products are adding significant tonne-mile demand**

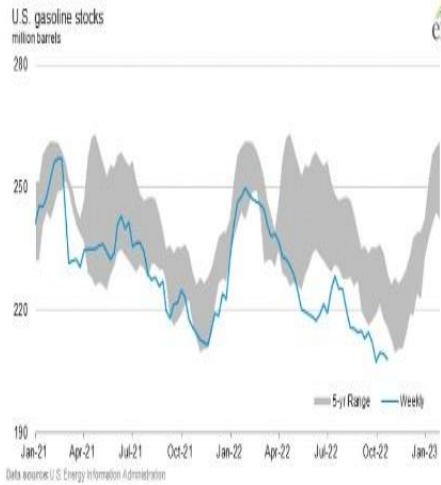


Total demand for product tankers has risen by a whopping 12% since Jan 2021. UK and Europe have been the top destinations for product tanker voyages with Asia Pacific being the top origin for the same.



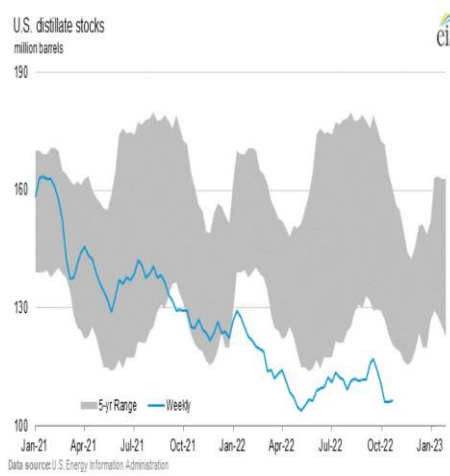
**Inventories will be built up soon**

**Figure 28: US petrol inventory**



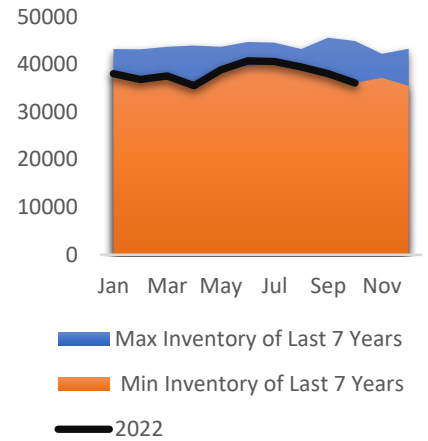
SOURCE: INCRED RESEARCH, COMPANY REPORTS

**Figure 29: US diesel and fuel oil inventory**



SOURCE: INCRED RESEARCH, COMPANY REPORTS

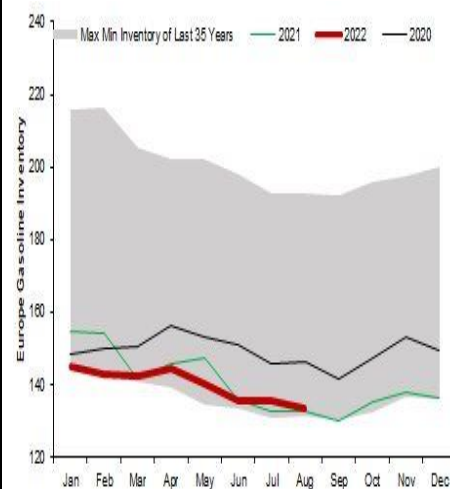
**Figure 30: US jet fuel inventory**



SOURCE: INCRED RESEARCH, COMPANY REPORTS

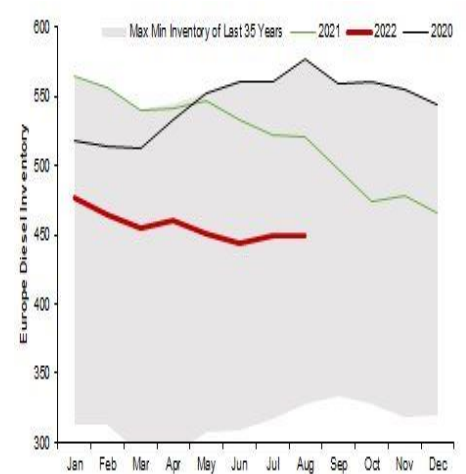
US fuel inventories generally start building up around this time of the year. As the charts above indicate, inventory levels for petrol, distillates (diesel and other fuel oils) and jet fuel are below the minimum of the five-year range. These should be built up through Feb 2023F.

**Figure 31: Europe petrol inventory**



SOURCE: INCRED RESEARCH, COMPANY REPORTS

**Figure 32: Europe diesel inventory**



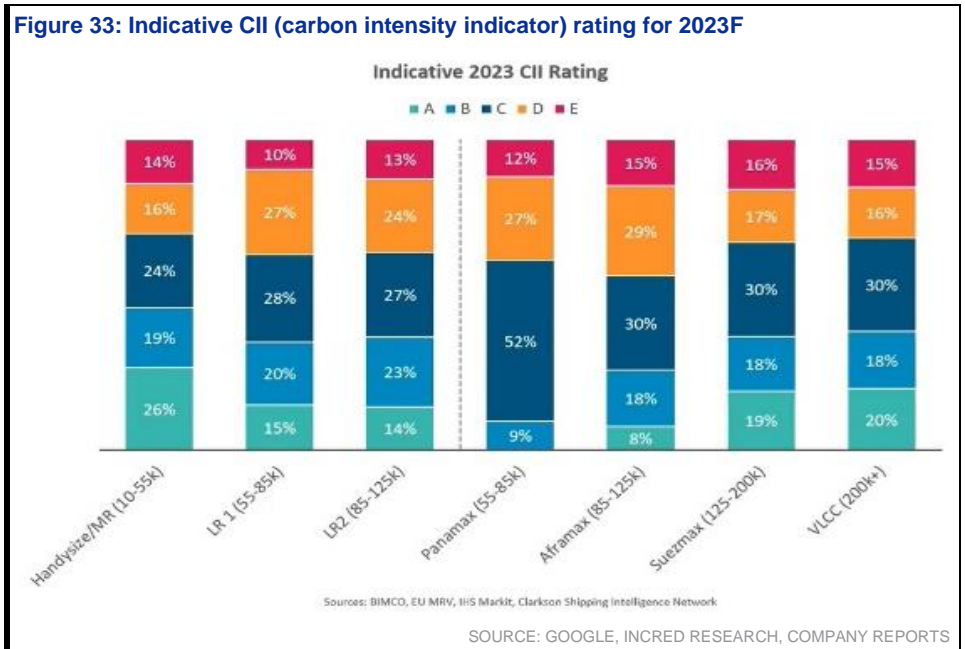
SOURCE: INCRED RESEARCH, COMPANY REPORTS

It has been reported at a recent product tanker conference that the global product tanker fleet was running at a utilization rate above 90% for the Jun-Sep 2022 quarter. Product tanker demand usually starts picking up when fuel inventories are rising. As the fleet utilization rate is already so high, we feel there could be a situation of undersupply of product tankers in the short term.

## Supply side

### ESG concerns about

Figure 33: Indicative CII (carbon intensity indicator) rating for 2023F



Upon estimating the amount of speed reduction to improve CII (carbon intensity indicator) rating and hence, reduce cost exposure to the EU's ETS (European Union's Emissions Trading System), we find that average ship speed could be reduced by 0.5 knots (0.9 km/hr). This would mean that there would be fewer ships available to undertake a journey. This supply reduction in effective capacity would come to around 4.3%. This would be applicable to both crude oil and product tankers.

### Fleet growth unlikely to keep up with demand

Figure 34: Product tanker order book, fleet size

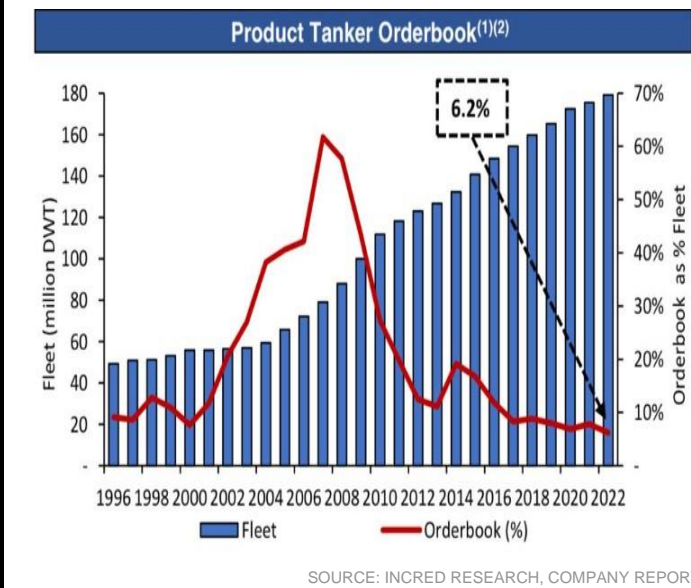
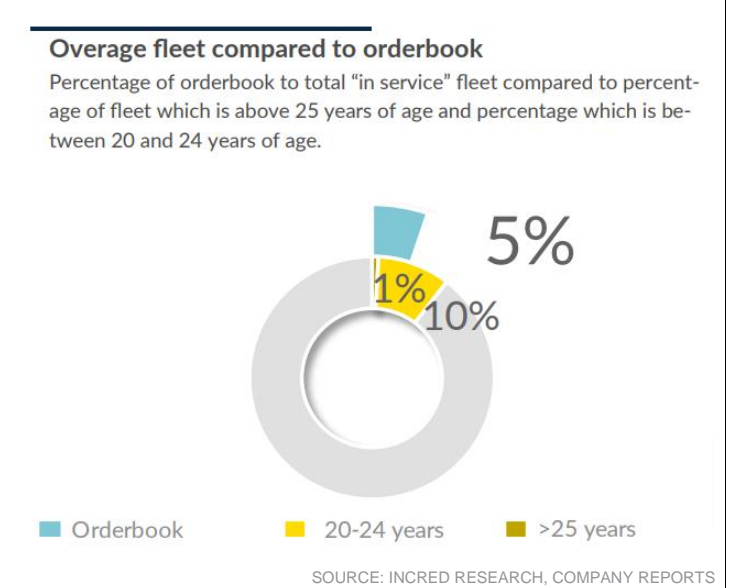
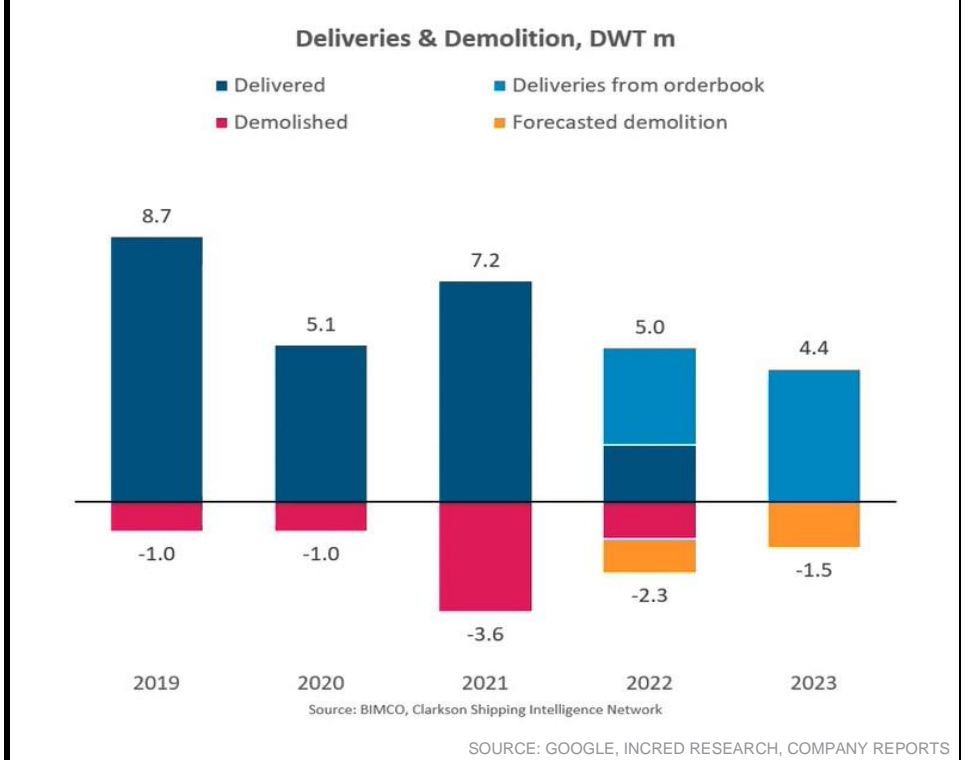


Figure 35: Overage fleet compared to order book for MRs



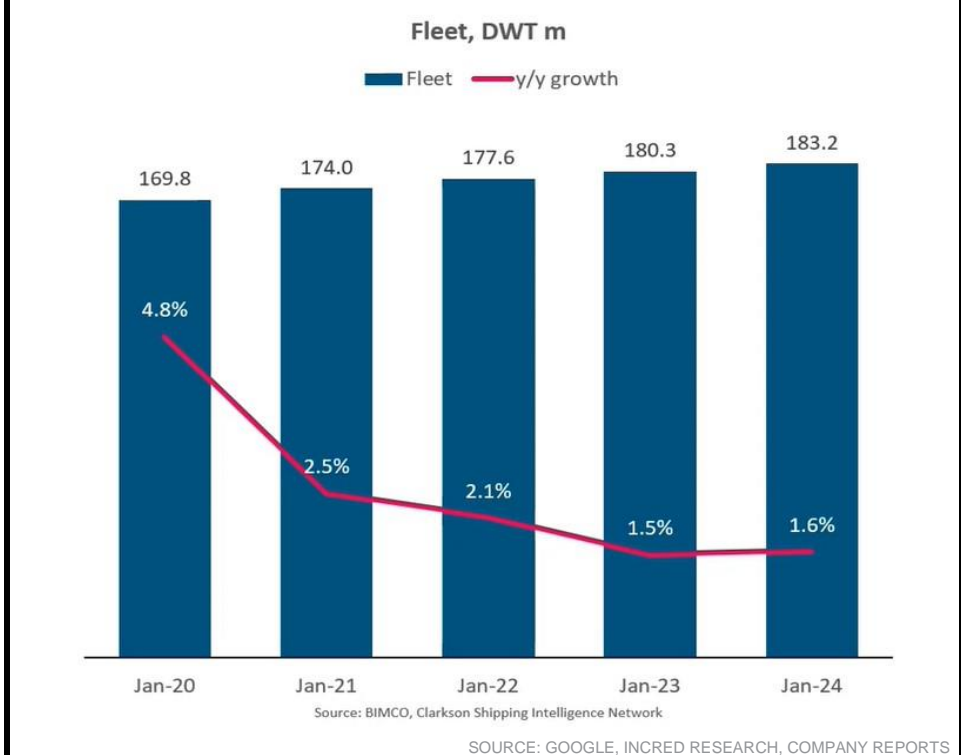
Product tanker order book, as a percentage of fleet size, stands at 6.2% and this is a 25-year low. Product tankers usually get scrapped after 20 years. Thus, as we can see, around 11% of the fleet would likely get scrapped, but the order book stands at only 5% of the fleet.

Figure 36: Product tanker deliveries and demolitions



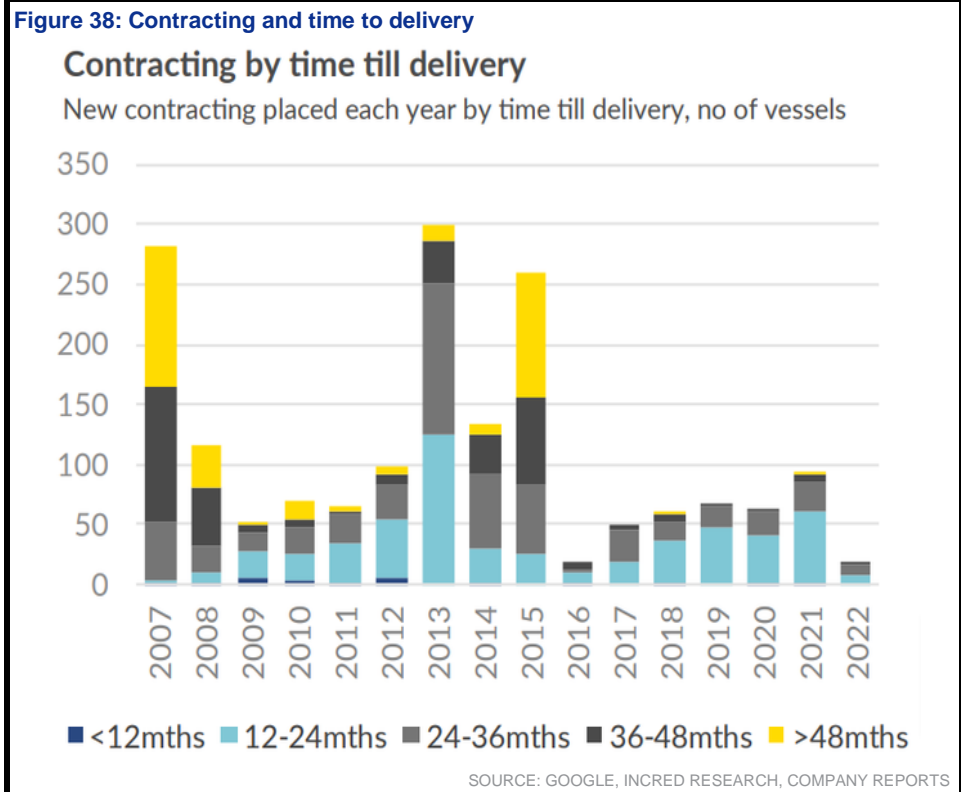
Product tanker deliveries for 2023F are quite low while demolitions are expected to be higher than average for 2023F. The forecasted demolition figures exclude ships which could get scrapped to align with ESG regulations.

Figure 37: Product tanker fleet development

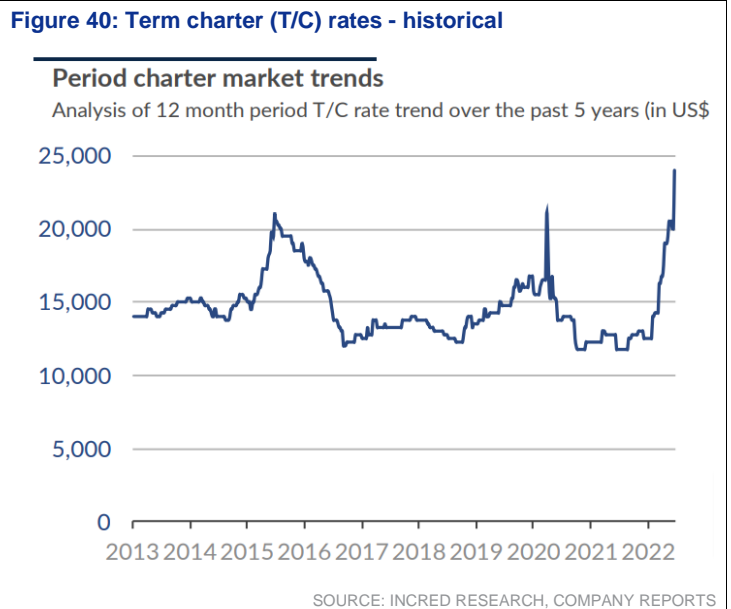
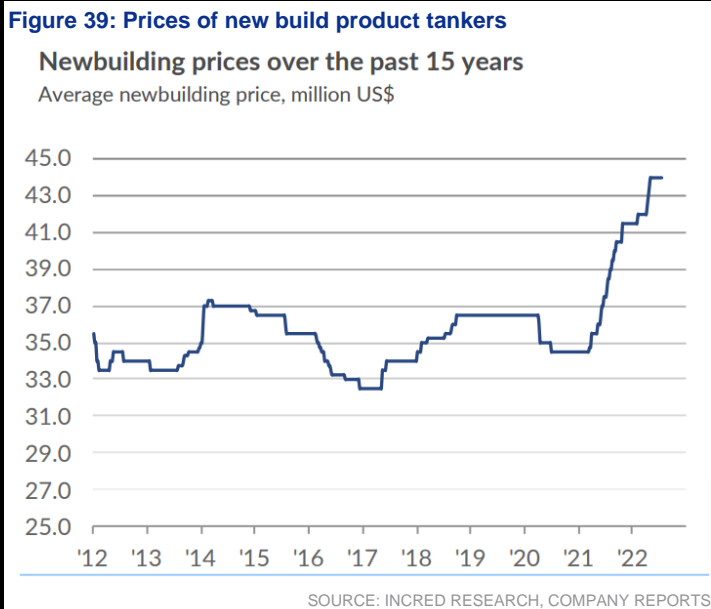


Product tanker fleet may barely grow over the next two years, in our view, thus further tightening the supply situation.

Upside risk to supply



Many shipyards can deliver within 24 months, and some even manage to deliver within 12 months. Thus, it's possible that a significant number of ships get delivered within two years and this causes a large increase in the supply of ships which would lead shipping rates to drop and spell the end of the bull run in product tankers.



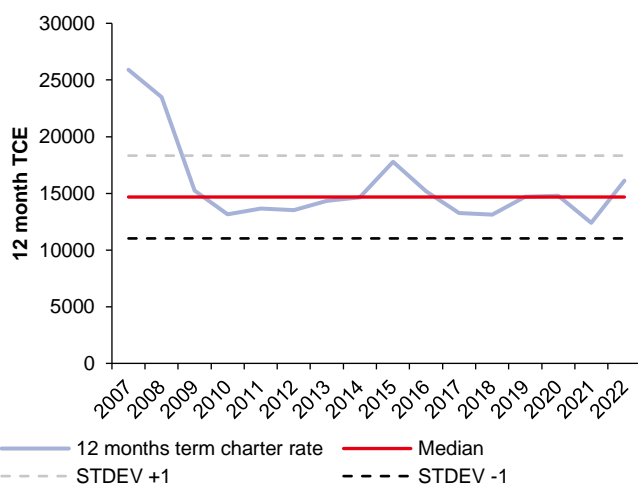
New build vessel prices have risen in part due to high steel prices, and as steel prices moderate, we could see downward pressure on new build vessel prices. Alongside the high 12-month term charter rates, we could see a large expansion of the order book.

## Noteworthy points

- Freight rates are generally a very small component of the actual price of the cargo being shipped. They wouldn't cross 7% of the total cost of the cargo. Hence, in our view, high freight rates are unlikely to cause demand destruction.
- While ESG regulations are a concern, the owners of the cargo aren't yet willing to pay a higher rate for more ESG-compliant ships. Hence, ESG adoption will be slow in this sector.
- This industry is closer to free market capitalism than the other ones as there are several legal workarounds pertaining to the flag of the ship, country of registration, etc.

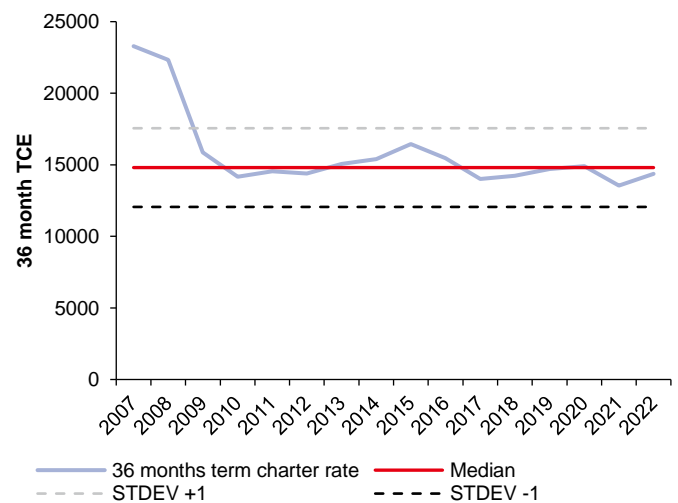
## Rates of product tankers

Figure 41: 12-month TCE rates



SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 42: 36-month TCE rates



SOURCE: INCRED RESEARCH, COMPANY REPORTS

Though tanker rates have recently been quite high, the above charts show that on a 15-year basis they are quite close to the median value and could easily rise higher.

## Investing ideas

In India, Great Eastern Shipping would be the top pick. The second-best option would be Shipping Corporation of India.

As far as international exchange traded funds or ETFs are concerned, our top picks are:

- U.S. Global Sea to Sky Cargo ETF (SEA)
- SonicShares Global Shipping ETF (BOAT).

Our top picks from international stocks are:

- Euronav
- Teekay Tankers
- Frontline
- Nordic American
- Hafnia
- Scorpio Tankers
- Ardmores Shipping Corporation
- TORM.

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