India

Overweight *(previously Neutral)*

Oil & Gas Exp & Prodn

Shale to fail but offshore business will soar

- Shale oil has made the US the largest crude oil producer, but we feel its growth won't be so high in the future.
- Offshore is the cheapest form of crude oil production today and can help remedy supply shortage quickly.
- Offshore used to be a very expensive form of crude oil production but that has changed with industrywide consolidation, debt restructuring, and bankruptcy.

Shale firms' debt and high well depletion rate weighs on production

Shale companies must keep doing capex at a high rate to maintain their production level, given the high rate at which shale wells deplete. They had managed to raise money for capex from Wall Street, but now they face a double whammy of a high interest rate environment and the fact that a significant portion of their debt obligations are maturing in the next five years. Thus, they are more likely to focus on debt servicing rather than raising or even maintaining their production level.

Offshore industry is going through consolidation and bankruptcy

The offshore industry had touched its peak around 2013. The industry had a lot of froth back then. All this has changed. Breakeven cost per barrel of crude oil has more than halved. Some new estimates reported by www.oilprice.com indicate that it could even be as low as **US$18/bbl**. The industry has been through eight years of consolidation and cost-cutting and is close to the end of a series of bankruptcies and debt restructurings. All this makes it extremely cost competitive as a new source of supply.

Supply of offshore rigs has shrunk considerably

Depending on the segment, the number of rigs has gone down by 12-50%. The supply of more niche rigs like moored semi-submersibles is down 90% since the peak touched a decade ago. These semi-submersibles operate in harsh climactic conditions like those in the North Sea and will be key to raising European oil production.

Demand for premium rigs is rising

The demand for premium rigs has risen. We feel more vintage, less up-to-date rigs will also see greater demand soon. It should be noted that the rise in demand has been led mainly by independent contractors with oil majors still weighing on offshore activity. Once the oil majors start moving towards offshore, there will be a much stronger day rate for offshore companies, given the reduction in supply.

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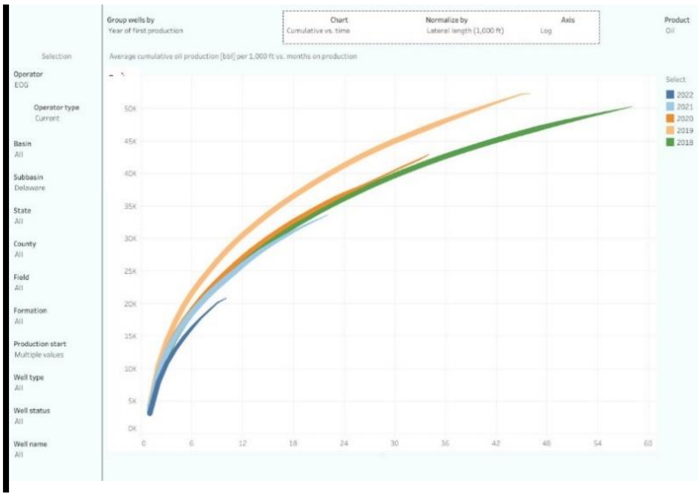
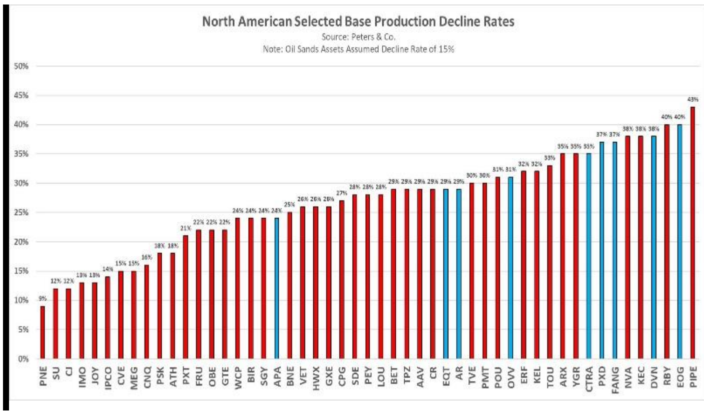
KEY CHARTS

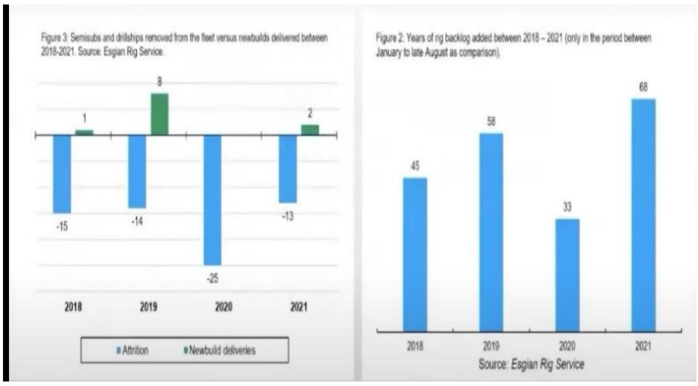
The adjoining chart shows that average cumulative oil production was lower in 2022 than in any of the previous years.



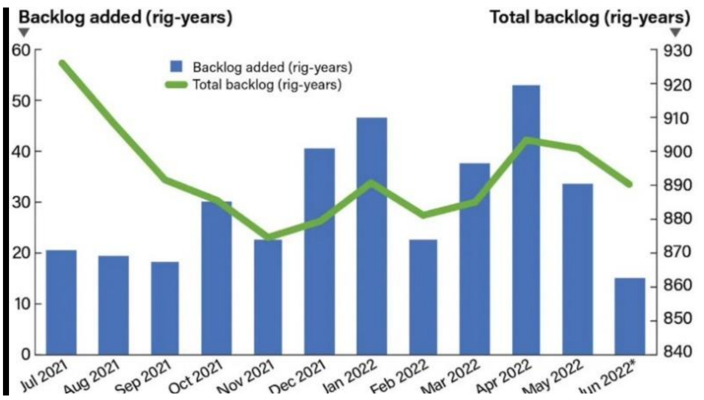
The adjoining chart shows the weighted average annual production decline rate for oil wells of select oil exploration and production companies. These companies are mainly shale producers.



New deliveries of rigs are few and far between. Meanwhile, they're being scrapped at a healthy pace. This has led to a sizeable backlog of contracts to build rigs.



Rig backlog has been on a general uptrend with a few bad months in 2022. The adjoining chart shows a decent demand scenario.



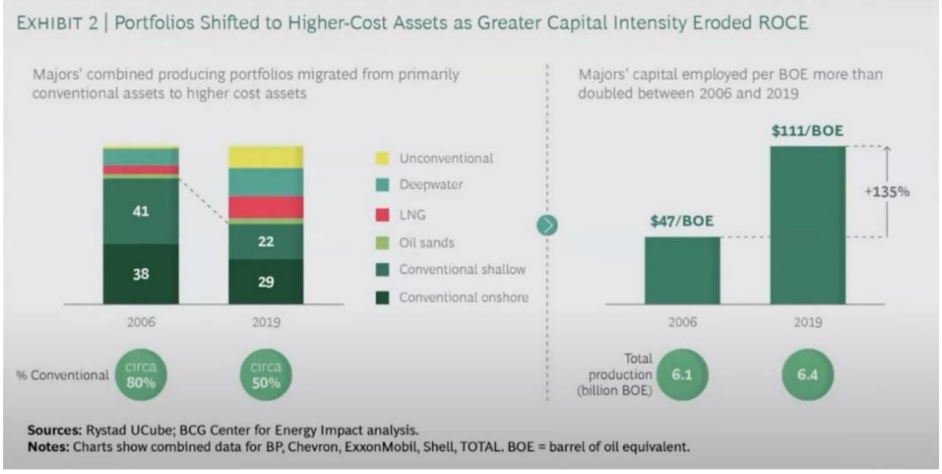
SOURCE: INCRED RESEARCH, COMPANY REPORTS

Offshore oil versus shale oil

Offshore is the best bet to raise crude oil production

Oil majors have shifted from offshore but haven't disposed of their offshore reserves

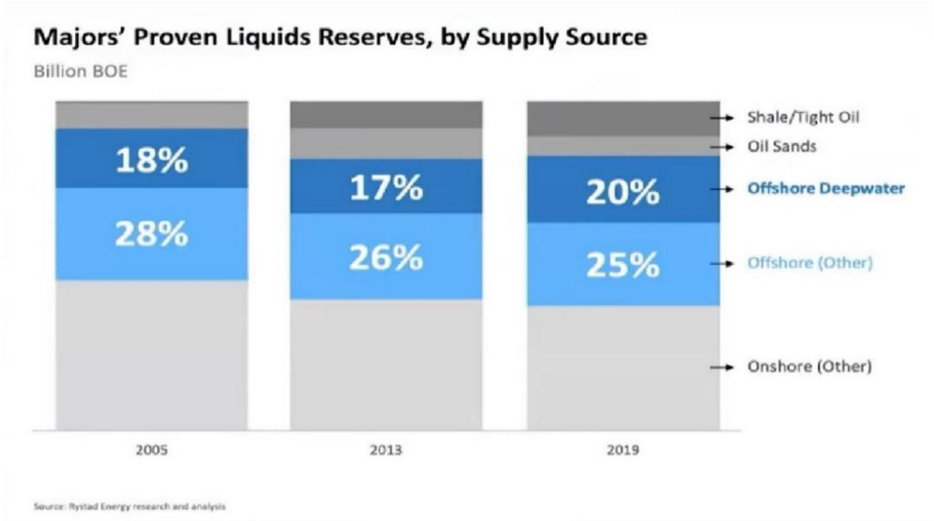
Figure 1: Oil majors have shifted to high-cost unconventional assets



SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

Oil majors have moved away from conventional oil sources, including conventional offshore ones, and shifted to high-cost unconventional assets since 2006. This has greatly raised their capital intensity and eroded their profitability.

Figure 2: Oil majors' proven liquid reserves



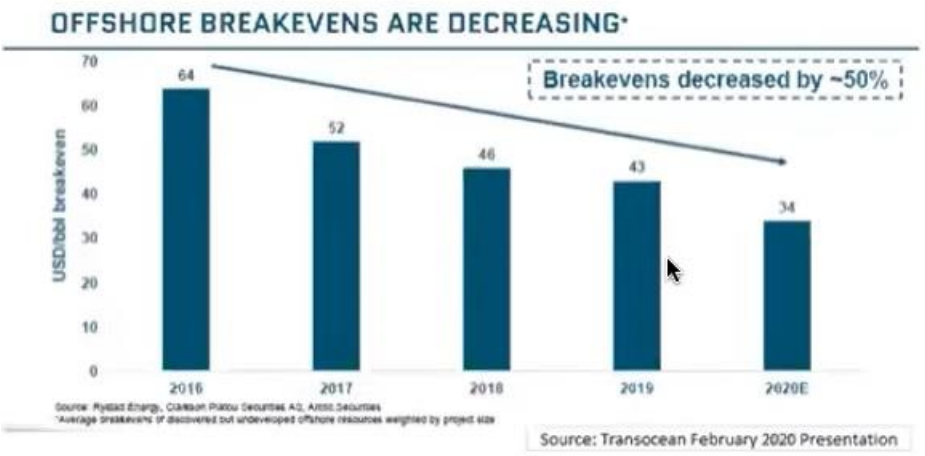
SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

Interestingly, offshore assets still account for almost half the proven reserves of oil majors. In a structural supply-deficit environment, especially the one fraught with geopolitical uncertainties, the restart of offshore oil production can help offset the supply shortfall from Russia.

InCred Equities

Offshore oil is highly cost-competitive currently

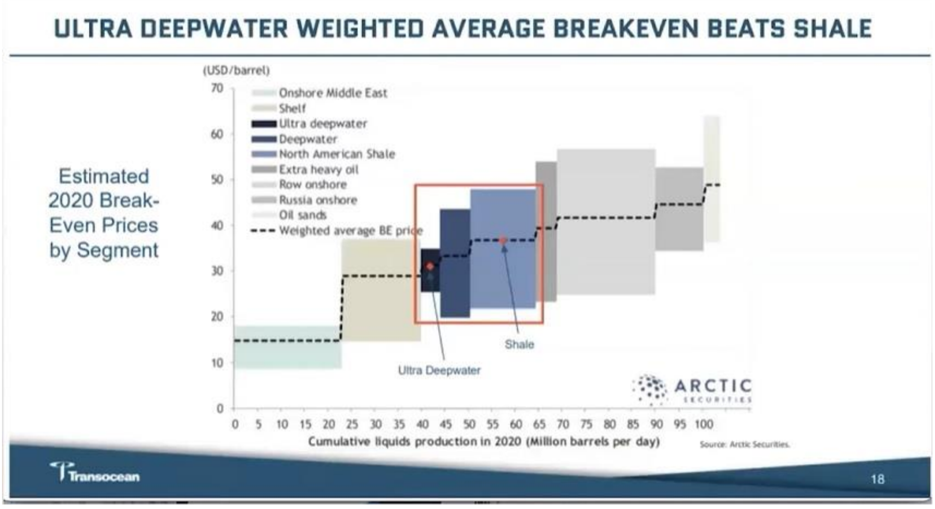
Figure 3: Offshore breakevens have been declining



SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

One of the key problems for the offshore oil industry earlier was extremely high breakeven cost. As we can see from the chart above, the offshore industry has done a lot of cost-cutting and has been successful in greatly reducing the breakeven cost. In fact, a report from www.oilprice.com states the following: *"According to Rystad Energy analysis, cited by Reuters, the resource-weighted Brent-equivalent breakeven oil price for producing global offshore projects averages US$18.10 per barrel of oil equivalent (boe), versus US$28.20 per boe breakeven price for global onshore projects already in production. In projects under development, global offshore again beats global onshore in terms of lower breakeven cost."*

Figure 4: Cost of supply by type of reserves

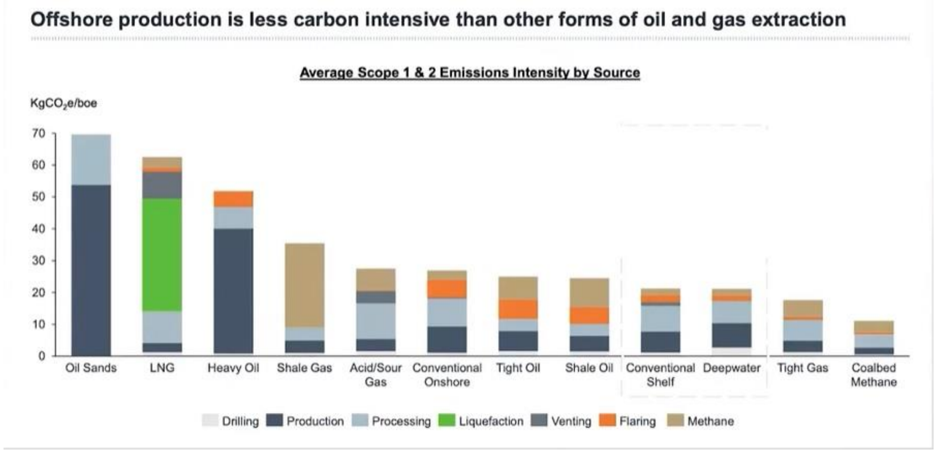


SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

Today, offshore oil would be the cheapest form of oil production and even beats shale oil. Thus, the offshore industry's cost-cutting exercise has been extremely successful.

Lower carbon emission

Figure 5: Offshore production has very low carbon intensity compared to other sources



SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

Offshore oil extraction generates 30% less carbon emission than conventional onshore extraction and 20% less carbon emission than shale oil. This, alongside the fact that offshore oil extraction is amongst the cheapest forms of oil production makes it a no-brainer for oil majors who seek to redress the mismatch in crude oil supply-demand.

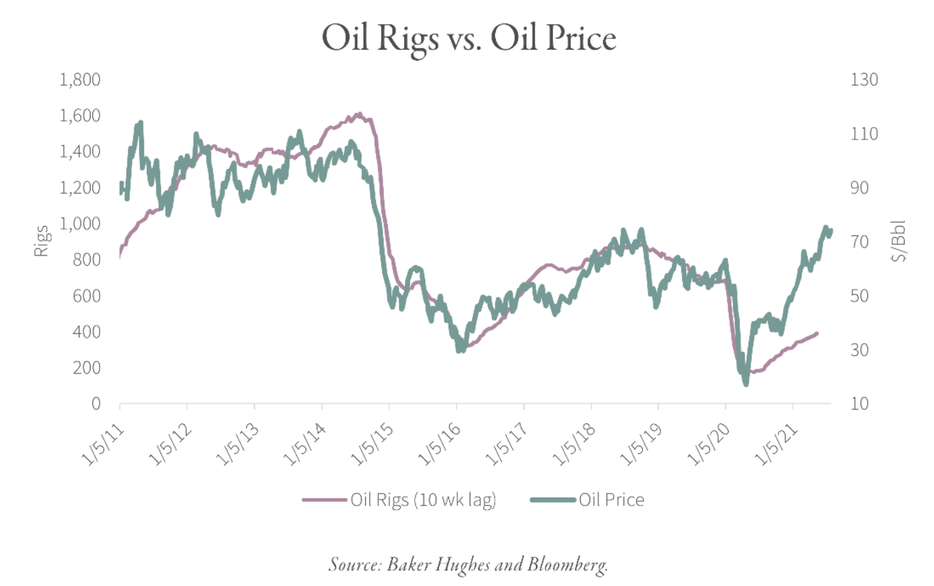
The case against shale oil

Shale companies have been high-grading their inventory and haven't focused on profitability

Shale companies are often seen as key beneficiaries of rising crude oil demand. There are a few problems with that thesis such as:

- Many countries have brought policies against fracking. This has restricted the growth of shale fields. Also, shale is an expensive form of crude oil production.
- A shale well depletes approximately 20% per annum. So, shale companies must keep drilling and hence, incur frequent capex to maintain their production level.
- Shale companies have been high-grading their inventory (depleting their best oil fields) and using the proceeds to fund growth instead of focusing on profitability. This is explained in the chart given below.

Figure 6: Shale oil rigs vs. oil price

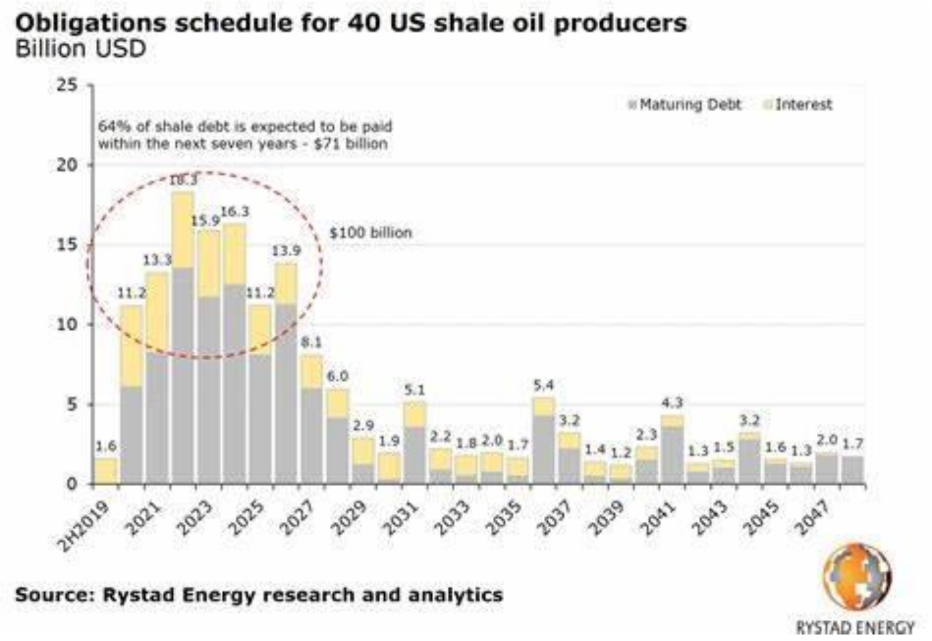


SOURCE: GOROZEN BLOG, INCRED RESEARCH, COMPANY REPORTS

High oil prices haven't been followed by a large increase in shale rigs. In previous oil cycles, shale companies would have had more economic opportunities for extraction and hence, should have about 800 rigs in operation. Meanwhile, actual rig counts were only half of that.

Shale industry may have to go through debt restructuring in this decade ➤

Figure 7: Debt schedule of US shale oil industry



SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

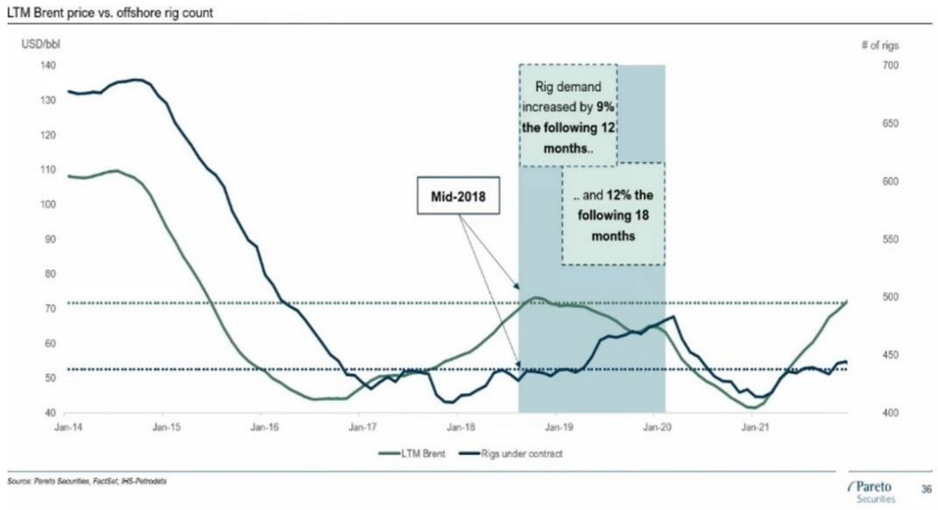
64% of shale industry's debt is expected to be paid by 2026F. If we look at the chart above alongside the previous one on lagging rig counts, we notice that the industry isn't producing as much oil as it should and is, instead, focusing on servicing its debt. We should also note that recent interest rate hikes by the US Federal Reserve will also have their impact on shale oil producers.

All in all, US shale oil output won't be as high as a lot of folks were expecting it to be and offshore oil is likely to be the most obvious beneficiary of this.

Demand-supply dynamics of offshore oil industry

Demand

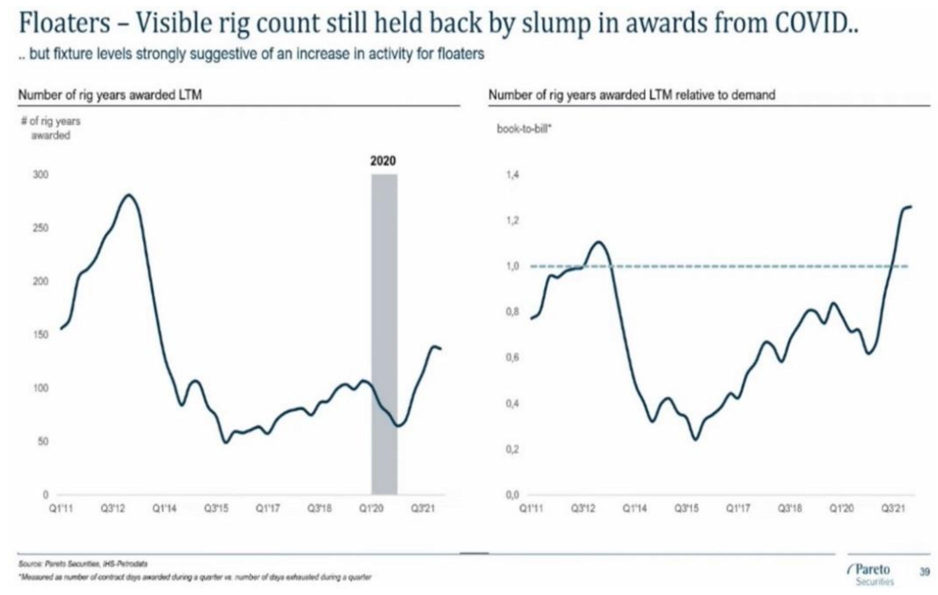
Figure 8: Previous 12-month average Brent crude oil price vs. offshore rig count



SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

The chart above compares the trailing 12-month average Brent crude oil price and the number of offshore rigs under contract. It shows that the offshore rig market was improving from mid-2018, but this recovery was stymied by the Covid-19 pandemic and the resultant negative impact on the oil market.

Figure 9: Floater rig years and rig demand comparison

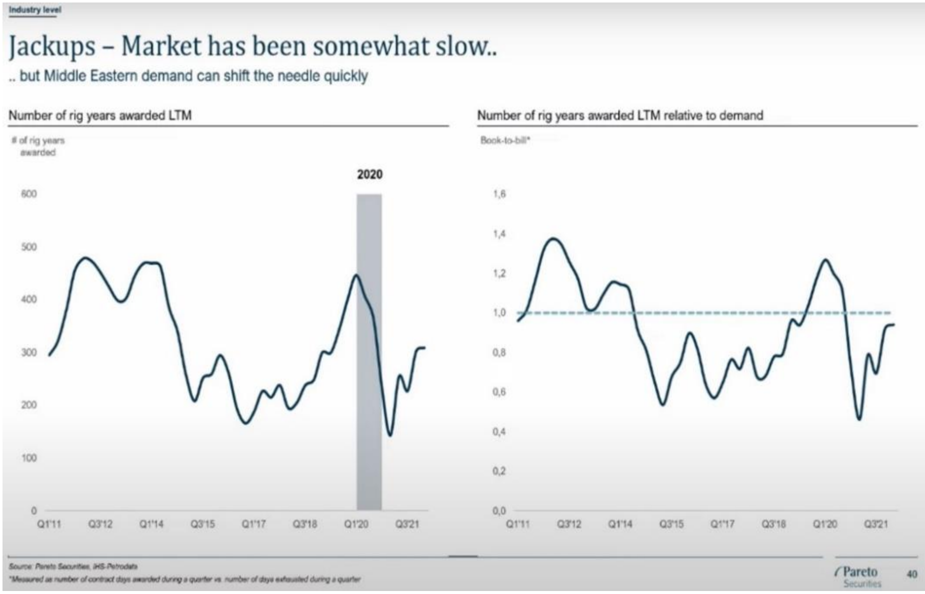


SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

Floaters are a type of drilling oil rigs used in deep seas. They can be positioned over the exact point to pump crude oil with the help of anchors. Understandably, they take a longer time to set up than non-floaters, i.e., jack-up rigs. There are various types of floating rigs designed for deep sea-level drilling. The two most used floaters are semi-submersibles (which are more suited to rough seas) and drill ships.

The chart on the left above shows that although the number of offshore rigs, specifically floaters, hasn't recovered, the number of rig years awarded in contracts has seemingly returned to the trend. The chart on the right shows that contracted rig years are considerably higher than current demand. Hence, the market seems to be quite constructive in the long term. Historically, whenever this figure goes above 1, there is a long-term bull market in offshore oil (2012-15).

Figure 10: Jack-up rig years and rig demand comparison

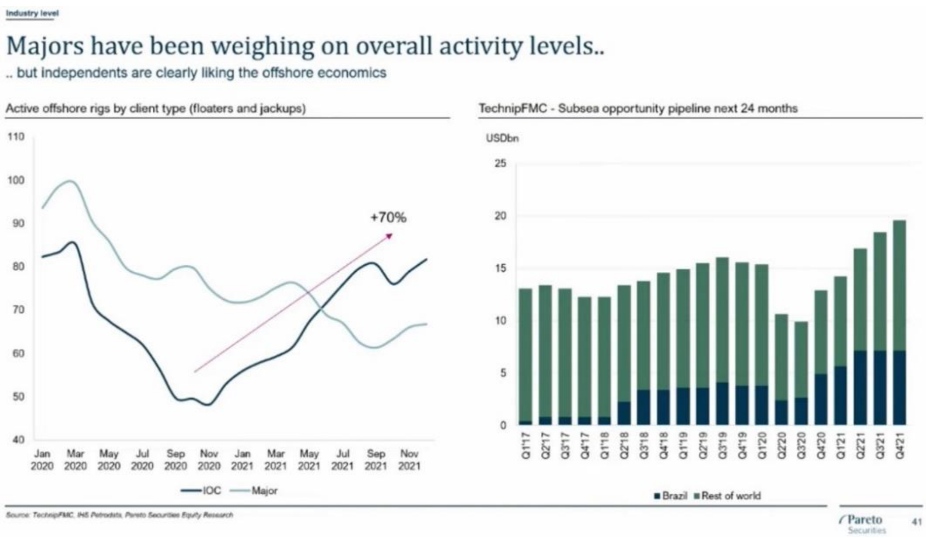


SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

Jack-up rig rests on the sea floor and hence, is a highly stable drilling platform. It can go up to 350 feet under the sea. It has open-truss legs that make the process of pumping oil efficiently from the sea.

Jack-up rig is more sensitive to short, cyclical trends. But even here, the market was quite healthy prior to the Covid-19 pandemic and is recovering from that shock. However, the demand from the Middle East could come back quickly, leading to a good rise in this market too.

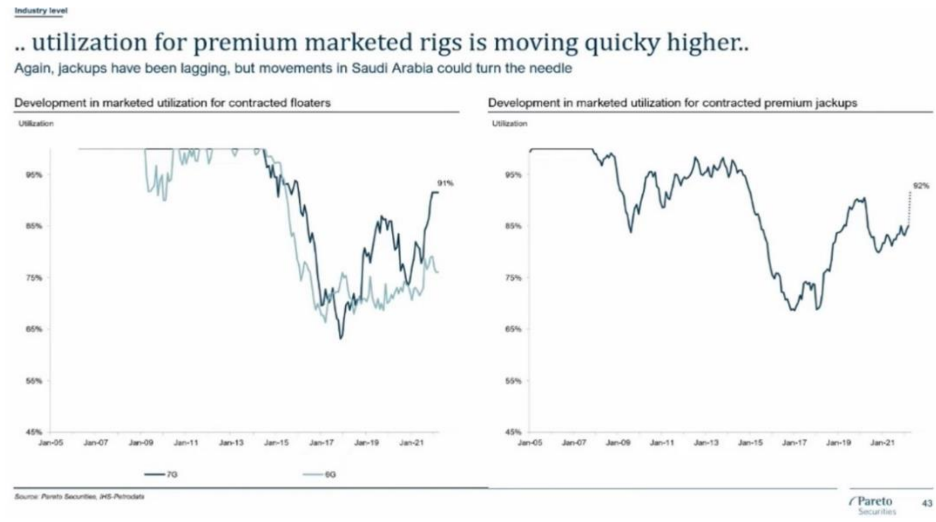
Figure 11: Independent oil contractors (IOC) are leading the recovery in offshore oil



SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

Oil majors haven't moved as fast as independent oil contractors (IOCs). But they're likely to join the fray as the demand for crude oil keeps rising and overpowers ESG concerns. However, the large-scale entry of oil majors as clients for the offshore industry is likely to cause some serious dislocation in demand and supply.

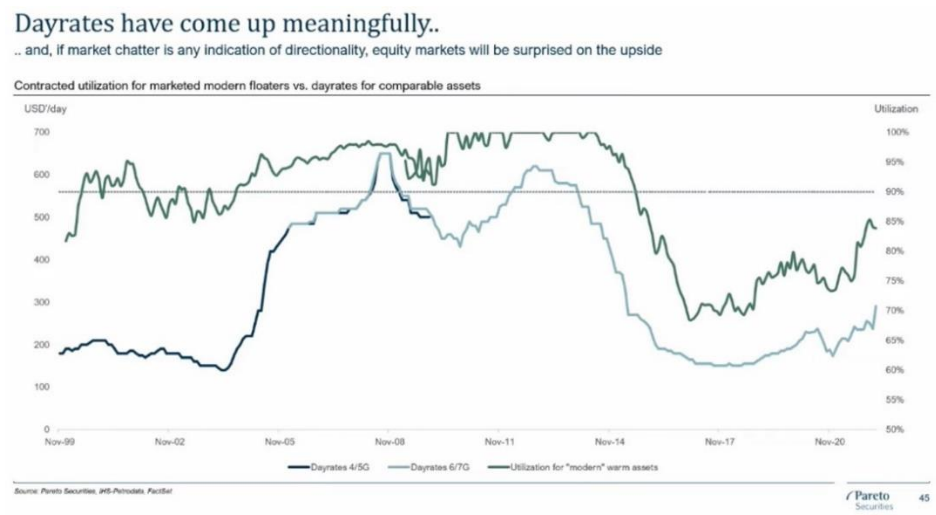
Figure 12: Utilization of premium marketed rigs is rising fast



SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

Utilization of premium marketed rigs has risen quickly. Naturally, once they reach a high enough level, the clientele which enters late will have to rely on more vintage rigs. This will raise the day rates for older rigs and lead to an industrywide rise in day rates.

Figure 13: Recovery in day rates has begun



SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

Utilization of modern, warm assets is rising fast. This is expected as these assets are the quickest to be put into production and more efficient than their predecessors. As contracted utilization crosses the 90% mark, we could easily see day rates rising significantly. It should be noted that at below 80-85% utilization, most offshore companies would be running at a loss. The fact that offshore companies will start making money again after eight years clearly indicates the cyclicality of this industry.

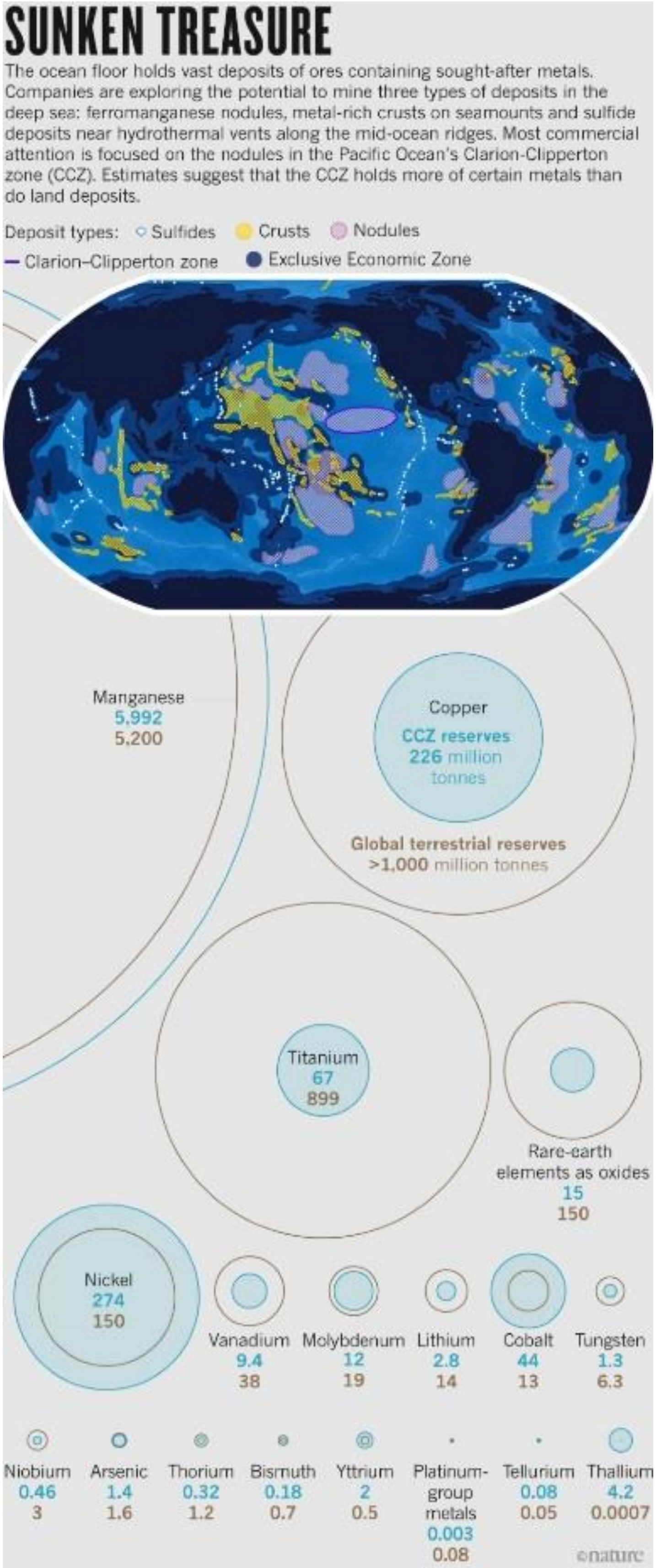
Alternative sources of demand

Deep sea mining ›

Many studies and experiments carried out in the 70s and 80s have shown that there are many nodules on the seabed which contain valuable minerals like nickel, copper, cobalt, manganese, etc. As a shortage in battery metals is expected, deep sea mining could open a sizeable source of new supply which is free from geopolitical entanglement and concerns over worker conditions.

The technology is fairly tested and now there are a few deep sea mining companies starting to take advantage of these deposits.

Figure 14: Deep sea metal deposits

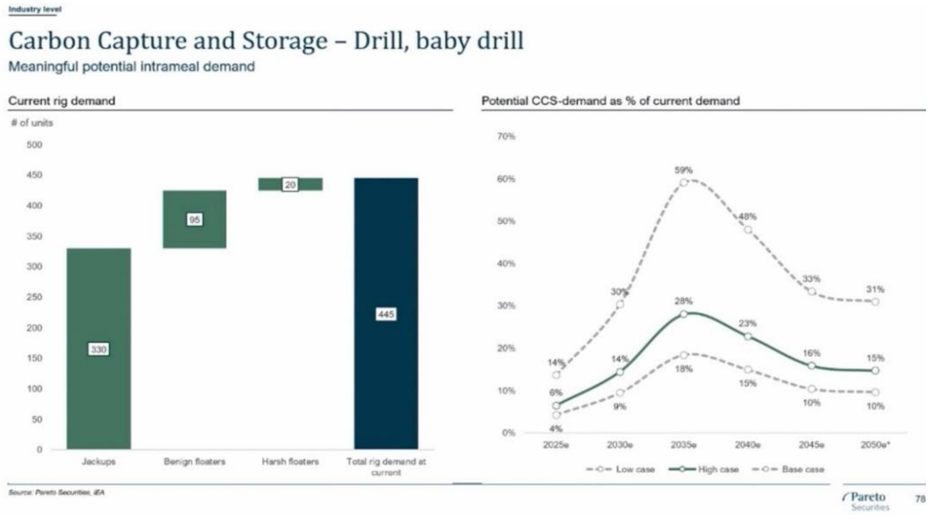


SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

Most of the commercial attention is focused on a specific region of the Pacific Ocean called the Clarion-Clipperton Zone (CCZ). As seen in the chart above, this zone alone is expected to have metal deposits which could outnumber total land-based reserves.

Carbon capture and storage

Figure 15: Industry balance sheets have been restructured

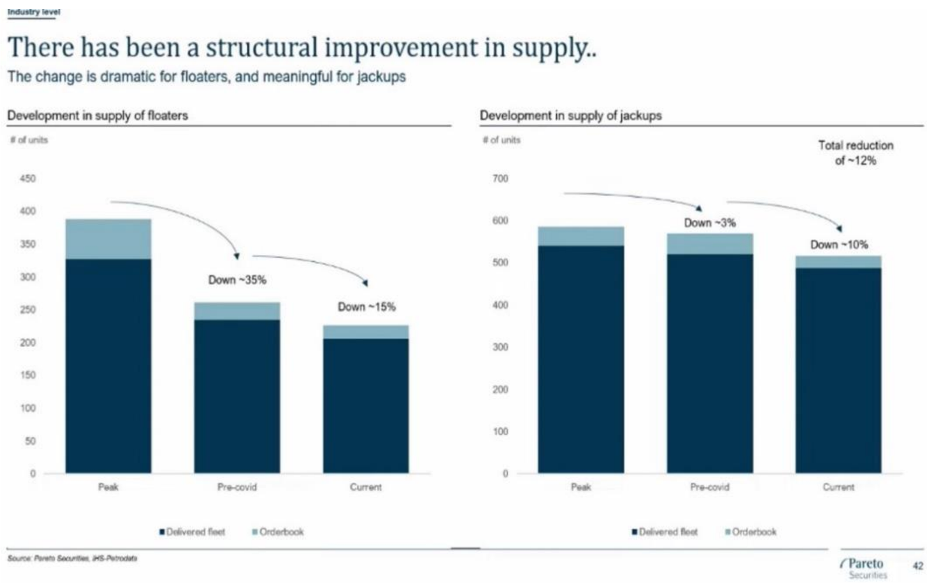


SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

Storing carbon dioxide in empty oil wells is a popularly talked-about method of carbon capture. The economics aren't in favour of it currently because of low carbon credit prices. But carbon credit prices have historically seen high growth rate and hence, could easily reach the level at which this form of carbon capture and storage is economically viable.

Supply of floaters and jack-up rigs

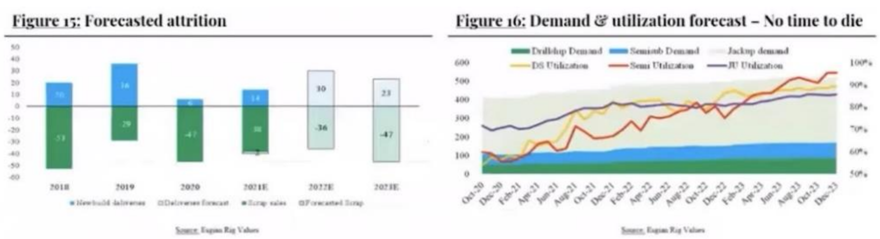
Figure 16: Supply of floaters and jack-up rigs has reduced considerably



SOURCE: INCRED RESEARCH, COMPANY REPORTS

The supply of floaters and jack-up rigs has reduced considerably from the peak touched around 10 years ago.

Figure 17: Supply of rigs is forecast to keep reducing



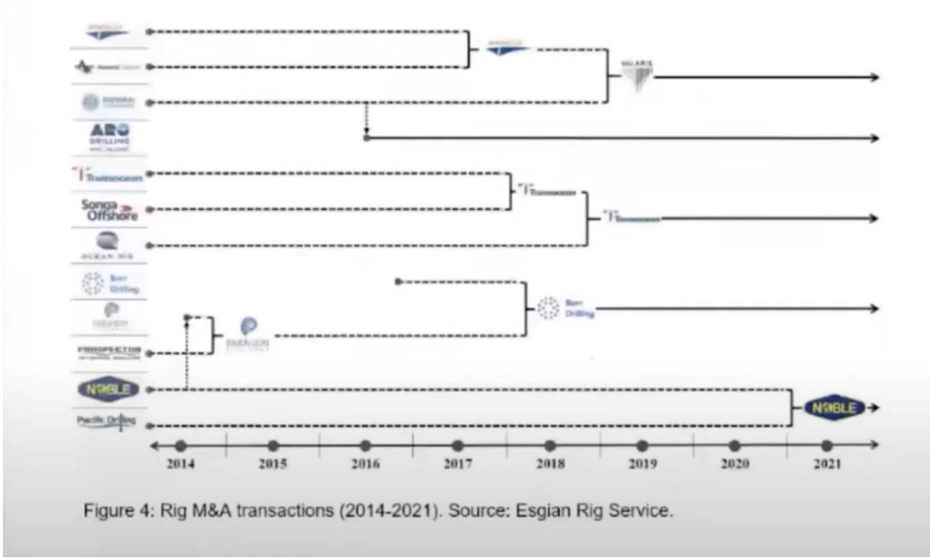
SOURCE: INCRED RESEARCH, COMPANY REPORTS

The supply of rigs is expected to reduce going into the future as well because there are several old rigs that have to be scrapped. Thus, utilization across all segments is likely to stay above 85%.

The key strength for the offshore industry in this bull run is the fact that geopolitics is hurting crude oil supply and the fact that the industry has consolidated and is going through debt restructuring which would make it difficult to buy new rigs in a hurry. Any purchases would have to be financed primarily by equity. This greatly increases the time horizon over which a new rig can be purchased.

Industry has been consolidating for nearly a decade ›

Figure 18: Industry has been consolidating since nearly a decade and we feel it may continue in this mode for a few more years

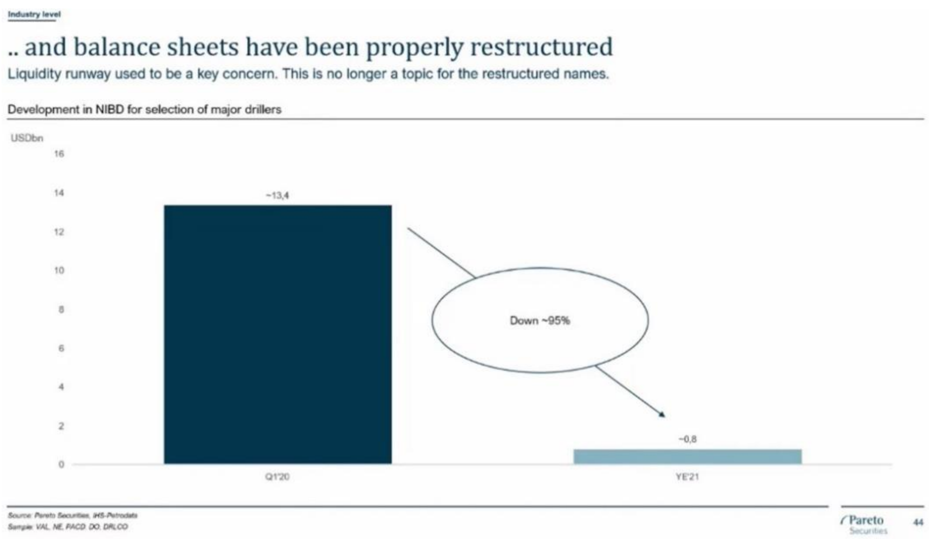


SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

12 of the largest players have now been reduced to just 4 - Valaris, Transocean, Borr Drilling, and Noble. The industry has been in a consolidation mode since almost a decade.

Industry is going through debt restructuring, bankruptcy ›

Figure 19: Industry balance sheets have been restructured



SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

As illustrated in the chart above, net interest-bearing debt is down 95%. The industry is going through debt restructuring, bankruptcy, etc. This has had the following effects:

- Many of these companies have recently got relisted on international stock exchanges.
- Debt service cost and hence, breakeven cost declined dramatically.
- Banks would be reticent to lend to this industry and thus future supply of rigs would be constrained. This drives up the day rates and asset value of the rigs too.

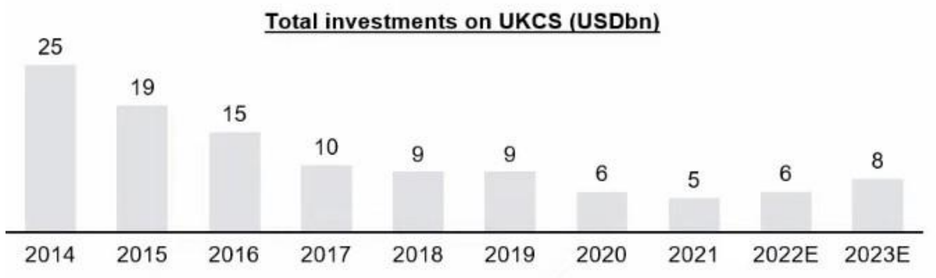
Offshore oil production in Europe

North Sea still contains sizeable oil reserves, and these would be easy to tap into for Norwegian and British industry. Indeed, British industry is arguably more likely to tap into it, given the fact that it suffers from an energy crisis to a greater extent.

Rig demand scenario in North Sea

As the North Sea and, especially, the UK's Continental Shelf (UKCS) in the North Sea has very rough seas, floaters which can withstand harsh weather conditions (harsh floaters) have to be used. Semi-submersibles (semis) are best suited to this task as they're partially filled with water below sea level and hence, provide greater stability in rough seas.

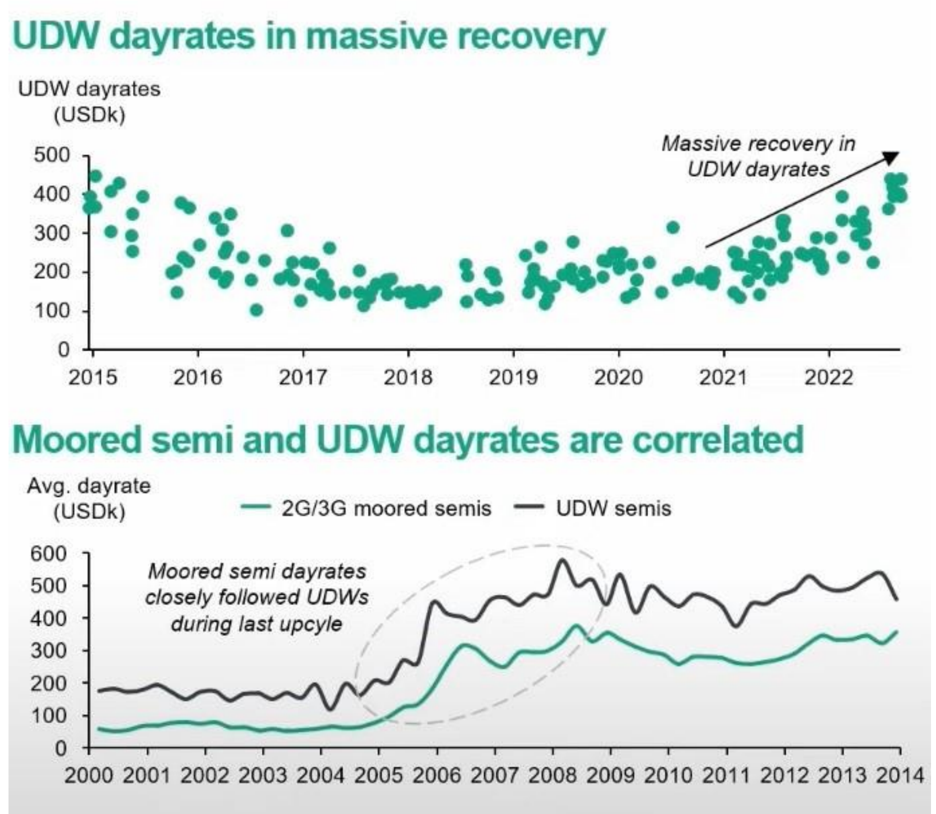
Figure 20: Investments on UKCS are expected to rise considerably



SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

The chart above shows that investments on UKCS are expected to rise in 2023F.

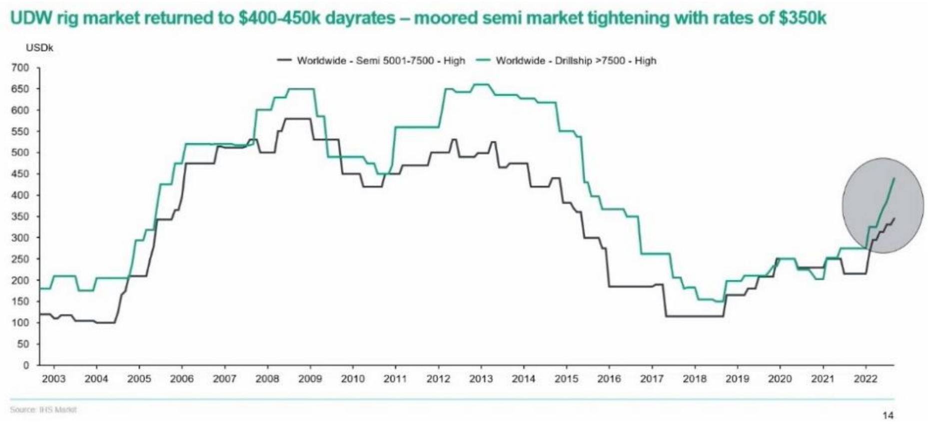
Figure 21: Ultra-deep water (UDW) day rates and moored semi correlation



SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

UDW day rates have doubled since 2021. Moored semis follow them very closely. So, there's a good chance of seeing a rise in day rates for moored semis.

Figure 22: UDW rig market and moored semi-rig market

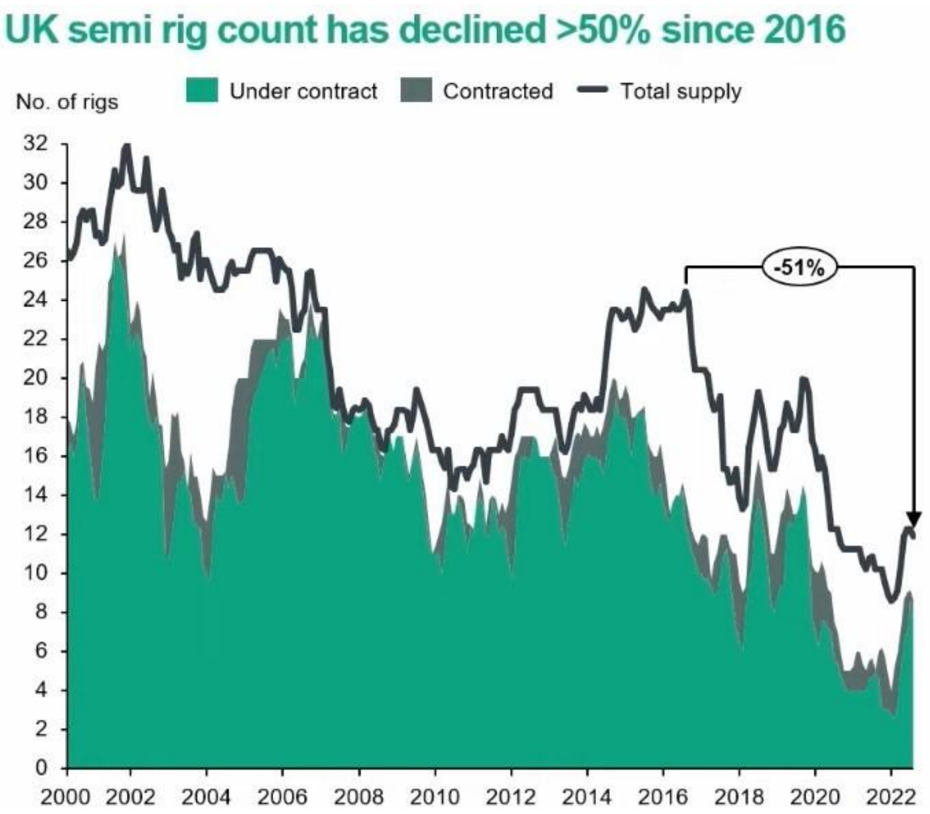


SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

The UDW/drillship market has shown great signs of recovery, but the semis market hasn't reached those levels yet. This presents a great opportunity.

Rig supply scenario in North Sea

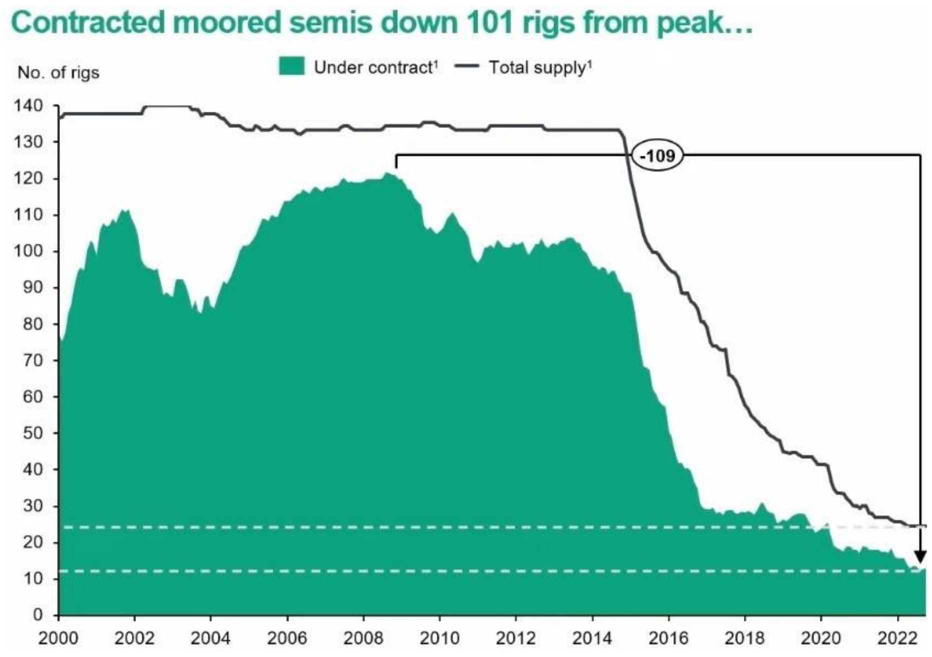
Figure 23: UK semi-rig count



SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

UK's semi-rig count has halved since 2016. Currently, there isn't much slack between demand and supply in the UK.

Figure 24: Global moored semi-rig supply and demand scenario

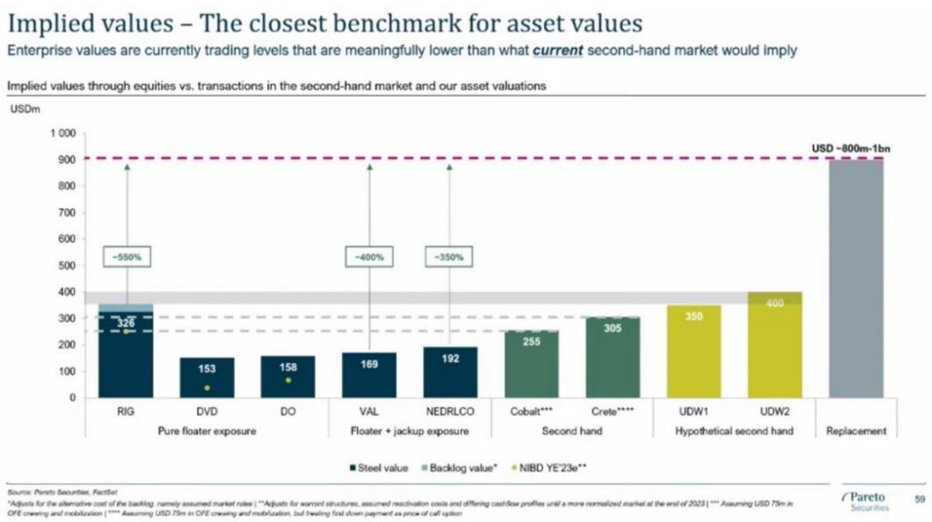


SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

As shown in the chart above, the global supply of moored semis has fallen off the cliff since 2014. Thus, there's likely to be a demand-supply mismatch for semis in the UKCS. This would lead to very high day rates for semis in the region.

Valuation of rigs and industry-specific assets

Figure 25: Implied asset valuations

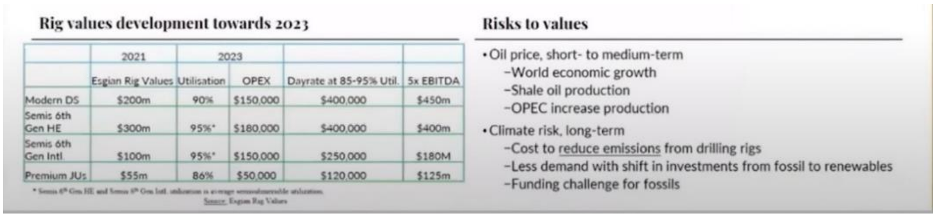


SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

Current implied asset values as computed from the enterprise values of offshore companies are much lower than the recent second-hand market transactions.

- Based on current second-hand transactions, we estimate that asset values are at a 33% discount.
- If we go by hypothetical second-hand transactions in tight market conditions, which more closely resemble the current market, we can say that asset values are at a 50% discount.
- Now, if we were to estimate replacement values, we would arrive at a figure closer to 80% discount.

Figure 26: Calculated asset valuations



Rig values development towards 2023

	2021	2023			
	Esgian Rig Values	Utilisation	OPEX	Dayrate at 85-95% Util.	5x EBITDA
Modern DS	$200m	90%	$150,000	$400,000	$450m
Semis 6th Gen HE	$300m	95%*	$180,000	$400,000	$400m
Semis 6th Gen Intl	$100m	95%*	$150,000	$250,000	$180M
Premium JUs	$55m	86%	$50,000	$120,000	$125m

Risks to values

- Oil price, short- to medium-term
  - World economic growth
  - Shale oil production
  - OPEC increase production
- Climate risk, long-term
  - Cost to reduce emissions from drilling rigs
  - Less demand with shift in investments from fossil to renewables
  - Funding challenge for fossils

SOURCE: GOOGLE, INCRED RESEARCH, COMPANY REPORTS

The chart above shows that a modern drill ship or DS would generate an EBITDA of US$150m at 90% utilization.

A second-hand DS or UDW would cost around US$400m as seen in the previous chart. Thus, operations from a modern DS would earn enough to be able to buy a second-hand DS in about three years. If we are looking to finance a newbuild DS, it would take around 5.5 years assuming the cost of the newbuild at US$800m. Based on this analysis, we can say that for additional supply to come online, day rates must stay at this level for three-to-five years, or they should double and stay at that level for two-to-three years.

Factors such as higher interest rates and inadequate building slots at shipyards indicate that day rates could rise higher and stay at such elevated levels for at least three years.

Investment Ideas

Indian companies

Direct beneficiaries

- **Essar Shipping:** This company has a subsidiary which is into the oil & gas drilling business, providing contract drilling services across the world. It has a fleet comprising land rigs and a semi-submersible rig.
- **Jindal Drilling and Industries:** This company provides offshore drilling services and has a fleet of jack-up rigs.
- **Great Eastern Shipping:** This company has a subsidiary called Greatship Global Energy Services which has a fleet of jack-up rigs and a fleet comprising rig support and supply vessels.

Indirect beneficiaries

- **Maharashtra Seamless:** This company manufactures seamless and API pipes which are used in the offshore industry. These pipes get used up when crude oil is being pumped through them.
- **Shipping Corporation of India:** This company provides logistics support in the form of tugs, barges, etc. to offshore drillers.

International companies

- **Noble Corp**: The company has a diversified fleet comprising jack-up rigs, drill ships and semi-submersibles.
- **Diamond Offshore:** This company has a fleet comprising drill ships and semi-submersibles.
- **Transocean:** It is the largest company in this space, but it hasn’t undergone debt restructuring, etc. The company can give a higher return but also has greater risk associated with it.
- **Borr:** This company has a fleet of jack-up rigs only.

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