NEWSLETTER

Maritime & Offshore

SUBSEA

September 2020

Introduction to the Newsletter

Dear all,

By the start of this year the world was hit by a disruptive wave – COVID- 19.The Corona virus clearly has a huge global impact, most importantly through affecting the health of millions of people and the loss of human lives. The economic impact is also huge: small and large businesses suffer, entire sectors have been at a standstill, take tourism and leisure, and the stock markets suffer from the fear of a second wave of corona cases.

The shipping sector also has experienced dramatic change in recent months. Container liners scipping numerous sailings, bulk shipping is low because of lockdown of industries and transport, cruises were at a standstill and ferries were not allowed to transport passengers. Very restricted crew changes take place, causing stress amongst seafarers. To survive these difficult times many shipowners have to take painfull measures. However, one shipping sector flourishes at this time: the tanker market profitted of the oil price, as this hitted new lows.

This collapse in oil price accounts for a very disturbed oil and gas market. The economic effects of the low oil price will likely reduce E&P activity: at least nine of the world's top planned exploration wells for 2020, both onshore and offshore, are at risk of being suspended. It goes without saying that this cut in E&P investments will have a major negative effect on the offshore services market, including the theme-market for this newsletter: Subsea.

But this unprecedeted worldwide health and economic crisis also has some positive implications: governments and central banks offer huge fiscal and monetary stimulus packages, in order to get the economy back in business as soon as possible: loan guaranties by subsidies, rate and tax cuts, credit insurance and liquidity schemes are just a few to name.

Furthermore, with the highly disturbed supply chains and forced remote work adaption, the benefits of digitalization is becoming more apparent and takes a leap forward. This also accounts for digitalization for the shipping sector. And it seems that the reduction of transport has a positive effect on the environmental situation.

As usual, besides a theme, this newsletter will focus on the several shipping sectors, most of them negatively impacted by the COVID-19 pandemic. The facts are here, but we also have sought for the glimmers in these sectors to encourage our readers and ourselves.

But most of all we wish you and your family a good health. We hope that you and your company will endure these uncertain times and that the next newsletter will reach you in better circumstances

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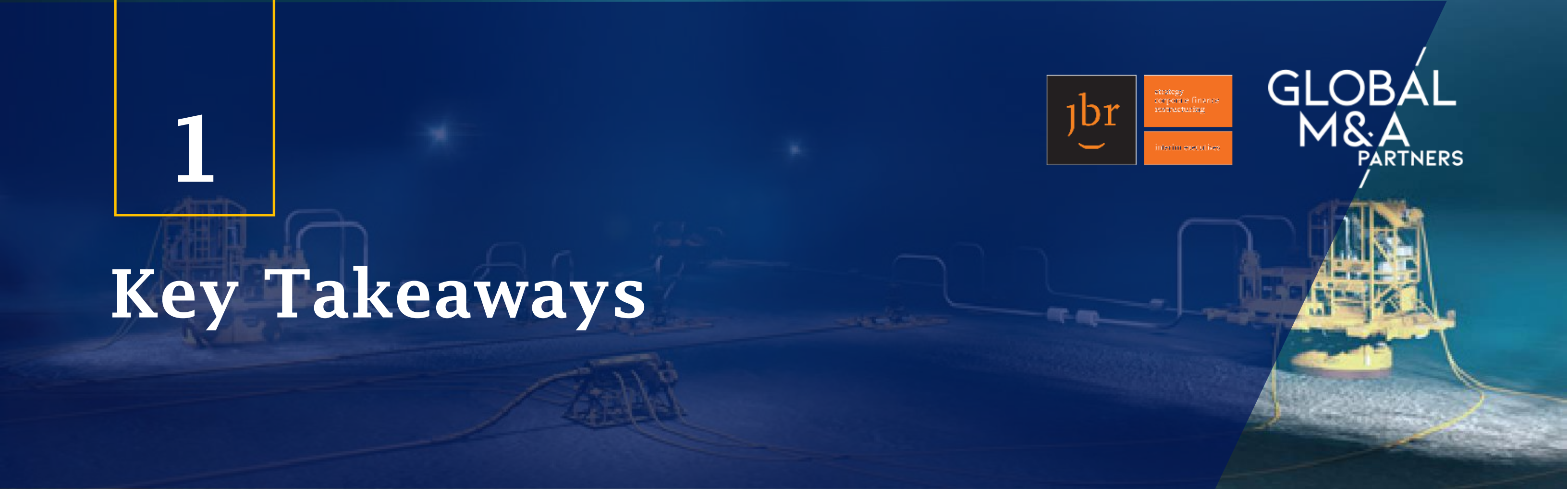
Contents

Despite the fact that 2020 will be a very difficult year for subsea sector, the coming years might be more positive.

For the subsea market the year 2020 is set to be a gloomy year: contract awards are low. However, with the expectation of gradually increasing oil price, with thanks to the easing of lockdown measures and therefor an upcoming demand for oil, oil companies are likely to schedule projects again.

Many big projects that were previously planned to be sanctioned in 2020 will likely be prosecuted in the coming years and with that bring with them a substantial subsea scope, aiding a recovery of the subsea market.

The subsea sector might certainly benefit form the emerging market within the energy transition: suppliers can provide services to support blue and green hydrogen infrastructure, energy storage or carbon capture and storage. In Europe for instance, investments in offshore wind will exceed offshore O&G investment as soon as 2022.



1 Key Takeaways

The global maritime industry is undergoing through stiff challenges on the back of ongoing CoVID-19 pandemic. The downward shift in the manufacturing and production activities have adverse ripple effects on the supply chain that is being translated in the global shipping industry.

While the growth had started declining in 2019 and had touched loss-making levels, the beginning of 2020 has been severely hard on the dry bulk shipping market. Virtually all the sectors are witnessing record dip in volumes and rock-bottom freight rates due to COVID-19 induced lockdown. In the tanker shipping, the industry is facing hard times due to the escalating freight rates against poor market fundamentals. Mismatch between oil production and demand, shrinking tonnage availability, and growing freight rates have collectively led to increase in floating storage. Additionally, the global offshore supply vessel (OSV) is expected to grow at a healthy CAGR of 8.3% from 2019 to 2024 and reach $25 bn in 2024 from $15.5 bn in 2019. North America has been the dominant OSV market with increasing offshore exploration activities in the region including the Gulf of Mexico driving up demand for OSVs. Further, the blow from the CoVID-19 pandemic on the cruise industry is expected to be the most devastating during the coming years. The US State Department suggested the American travelers with underlying health conditions to avoid cruise ships with a fear of increasing the risk of infection in a cruise-ship environment.

Subsea market is classified into wellheads, Flowline connectors, Subsea trees, Control systems, and Manifolds. The industry caters to a wide range of services includes product optimization, repair services, asset management, maintenance, and inspection.

Currently, ~70% of all oil is produced onshore, while that of 30% is produced offshore and ~9% produced around subsea. Going forward, the trend is likely to shift from an onshore-driven towards subsea oil and gas exploration and production on the face of significant deposits of hydrocarbons. Also, ~400 deep-water discoveries have yet to be developed, which will further push the growth in the subsea oil and gas exploration and production.

In light of the postponement of multiple final investment decisions (FIDs) on projects and lower investments in offshore oil and gas, coupled with increasing activity in the offshore wind sector, it is possible that capital expenditure (capex) on offshore wind will surpass upstream O&G spending in Europe in 2022.

The abundant oil supply and reduced demand have taken their toll on the oil price, and consequently annual capex towards upstream offshore oil and gas in Europe is expected to decline from more than $25 billion in 2019 to less than $17 billion in 2022.

Subsea trees, can be used with any hull form, however, are used in association with FPSOs, which represent ~70%-80% of global floating facilities. These systems are suitable to all areal sizes and reservoir geometries, and allow increased flexibility in field layouts, such as multiple drill centers and individual wells. Additionally, they eliminate the requirement of pre-designing the number of well slots on the host facility.

These alternative energy resources explored through wet tree systems reach the industry's current capability of subsea completion technology when used in deeper water for operating under depths of ~9600ft. mobile offshore drilling unit. These wells are finally tied back through a common production system to the floating facility.

The growing energy demand is necessitating to explore alternative potential resources and since the existing natural resources are depleting at considerable rates. With the depletion of offshore oil supply at ~16% by 2030 that accounts for over a quarter of the world's supply, new offshore reserves such as subsea are required to be developed to maintain global supply.

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Global Maritime & Offshore

Overview

The global maritime industry is undergoing through stiff challenges on the back of ongoing CoVID-19 pandemic which has severely impacted the global demand and in-turn stalled the manufacturing activities (Exhibit 1). The impact of CoVID-19 is being witnessed largely on the Chinese manufacturing output that has exerted negative pressure on demand for coal and iron ore during the H1 2020 in line with decline in manufacturing activities. Such downward shift in the manufacturing and production activities have adverse ripple effects on the supply chain that is being translated in the global shipping industry. A global credit rating agency, Moody's has downgraded the outlook for the global shipping industry from 'stable' to 'negative' due to the coronavirus outbreak. Further, decline in demand for container and dry bulk shipping services is anticipated to exert downward pressure on the EBITDA of market participants in 2020.

Exhibit 1: Revised Forecast for Main Shipping Markets (2020)

	Oil tanker shipping	Container shipping	Dry bulk shipping
Impact	• Breakdown of OPEC+ alliance has lifted Saudi Arabian crude oil expoorts significantly • The Corona pandemic is destroying global oil demand growth for 2020	• Blanked saillings have kept the spot freight rates 'artificially' high • Volumes have remained low but Chinese exports of backlogged orders will lift volumes out of Asia	• Freight rates have been hit hard by the coronavirus, seasonality and IMP2020, but smaller sectors are starting to recover • Capesize sector is feeling the most pain, due to low iron are demand
Demand	• **Short-term:** Saudi Arabian exports will positively impact demand	• **Medium-term:** Demand will start to pick up as Chinese manufacturing resumes normal operations • **Long-term:** Lockdwons in Europe and NA will dampen container demand during this period	• **Short term:** China remains weak, but demand elsewhere can lift rates in the market • **Medium-term:** Demand will remain sluggish, but resume to normality in the long-term
Supply	• Due to closures at Chinese yards, deliveries are expected to be a bit lower than previously anticipated • Annual expected fleet growth: Crude oil tanker: 1.8% Product tanker: 2%	• Due to closures at Chinese yards, deliveries are expected to be slightly lower than previously anticipated • Annual expected fleet growth: 2.5%	• Due to closure of Chinese Yards, deliveries are expected to be slightly lower than what anticipated previously • Annual expected fleet growth: 3.1%
Outlook	• Oil product freight rates will be negatively affected by poor demand, but stay above break-even levels • Crude oil tanker freight rates remain strong, but will decline once geopolitical support eases	• BIMCO now expect loss-making average freight rates for the full year • IMO2020 and deteriorating demand-supply fundamentals weakens the outlook	• The fundamentally lower demand will put a damper on earnings • Freight rates are expected to be lower than last year

Dry-Bulk Sector

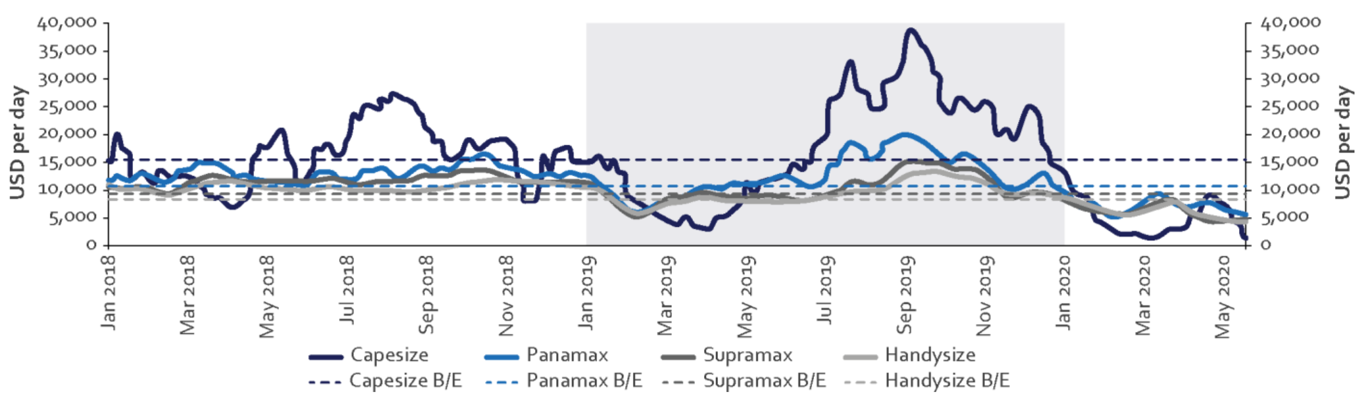
The Pandemic-hit 2020, has been a challenging year for the dry bulk sector. While the growth had started declining in 2019 and had touched loss-making levels, the beginning of 2020 has been severely hard on the dry bulk shipping market. Virtually all the sectors are witnessing record dip in volumes and rock-bottom freight rates due to COVID-19 induced lockdown. The Capesize segment has been the worst hit with earnings staying below the break-even level of average $15,300 per day (Figure 1). Smaller dry-bulk segments have fared better and have managed to keep earnings at around break-even level.

Key drivers for dry-bulk market include imports to China, exports out of Brazil, and US Soy-bean exports to China. As China has started to open up, the import volumes have picked up. However, iron-ore exports out of Brazil have declined by 8.7% in the first four months of 2020, contributing significantly to the low volumes in the capsize segment and offsetting the slight rise in volumes from China.

Additionally, US soya-bean exports to China have decreased nearly 42% compared to 1Q19. When compared to pre-trade war level of 2017, the exports have declined steeply and have dropped by as much as 65.6% (equivalent to a loss of 5.4 mn tonnes, or 72 Panamax loads).

However, it is worth noting that volumes on the main trades of smaller vessels have remained strong. While the rates have been just around the break-even levels due to the pandemic crises, the positive demand developments could potentially push the rates higher as the economy gradually opens up.

Figure 1: Dry Bulk Earnings and Break-Even Levels, 2018-2020



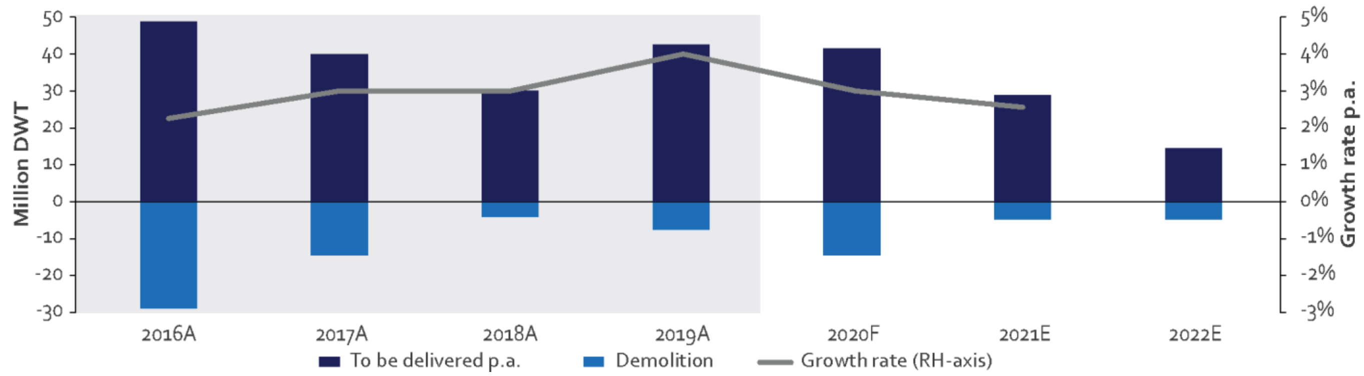
Source: BIMCO, Clarksons

Fleet and Demolitions

While volumes have stayed low, dry-bulk shipping fleet has reached 891.5 mn DWT registering a growth of 1.6% as of May 19, 2020. According to BIMCO, the fleet is expected to grow by around 3% in 2020 adding 39.3 mn DWT to the market (Figure 2).The addition could further exacerbate the excess supply vs. demand situation currently prevalent as evident from the rise in slippage rate for planned deliveries to 35% from 25% before the pandemic.

Lockdown measures taken by most countries have also impacted the demolitions as major shipbreaking nations have closed their respective beaches. Till May 2020, total dry-bulk demolition was 5.4 mn DWT. As per BIMCO estimates, the demolitions could rise to 14 mn DWT from the expected 12 mn DWT due the tepid demand in the dry-bulk market.

Figure 2: Dry Bulk Ship Fleet Growth, 2016A-2022E



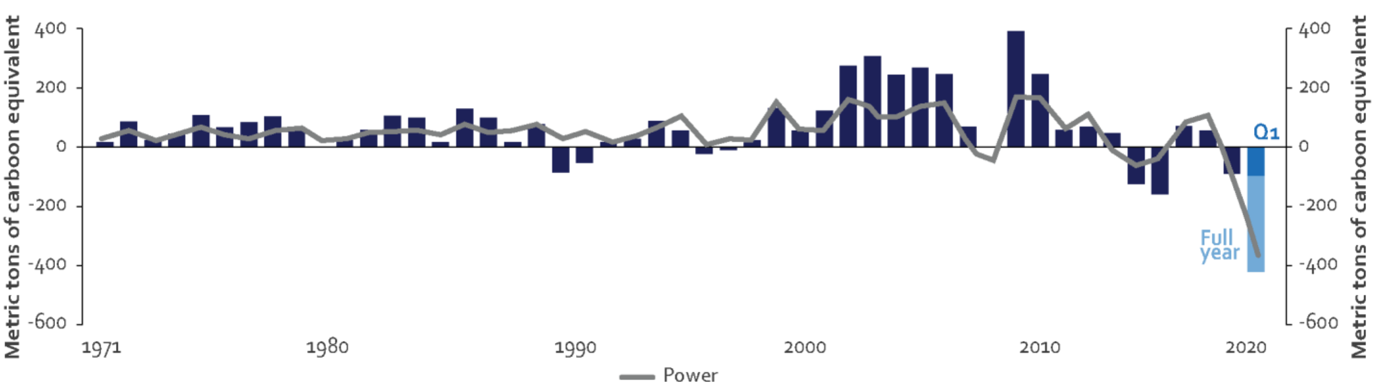
Source: BIMCO, Clarksons **Growth rate for 2022E not available in source.*

Outlook

On the positive side, China, one of the biggest drivers for the dry bulk industry, is gradually recovering and the stimulus measures around housing and construction sectors are expected to boost the demand for raw materials. However, demand for steel and aluminium for the automotive industry have been significantly impacted due to the CoVID-19 crises (Figure 3). For instance, car sales in 1Q20 fell by 41% in China and in April 2020 fell by 41% in the UK that is the lowest level since 1946. Iron Ore is another raw material whose low level of demand is expected to weigh heavily on the dry bulk sector.

Moreover, as per BIMCO estimates, trading in all commodities is expected to fall. For instance, demand for coal is expected to fall by up to 8% due to reduced manufacturing activity because of 'the Great lockdown" leading to low electricity consumption.

Figure 3: Annual Change in Coal Demand



Source: BIMCO

Recent Developments

While the outlook for the year has been mostly negative, the surge in dry bulk rates in the mid of June 2020 has been very heartening for the struggling industry. Rates climbed steeply witnessing a two-fold increase in a week – rates for Capesize 5TC increased from $12,410 on June 15 to $25,511 by the end of the week. Strengthening iron ore demand in the Far East has been a major demand driver in the Atlantic Basin with the Pacific Basin having to compete for vessels.

The surge in rates has been witnessed in all the segments.

Panamax: Tight tonnage count in the north Atlantic for June and improved demand from the US Gulf and EC South America have led to steep increase in rates.

Supramax/Ultramax: Rates have gone up with demand coming from the US Gulf, Asia, and east coast South America.

Handysize: Demand uptick in the Atlantic and the Pacific basin led to stronger rates. There was also strong demand from the Continent and Mediterranean market and the demand outlook for the east coast South America and the US Gulf looks positive

Crew-Change

Maritime transport is also trying to resolve the crew-change issue caused by the travel restrictions due to CoVID-19 with up to 400,000 sailors being stranded either at sea or at home.

Close to 80% of world trade by volume is carried on vessels including container ships, fuel tankers, and dry bulk carriers (United Nations Conference on Trade and Development). However, as over a fifth of the 1.8 mn seafarers who crew the world's 96,000 commercial vessels are due for changeover, the industry experts have warned that a trade logjam is imminent unless governments create "safe corridors" that would allow free movement to sailors. As per maritime rules, sailors are only allowed to spend 11 months at sea.

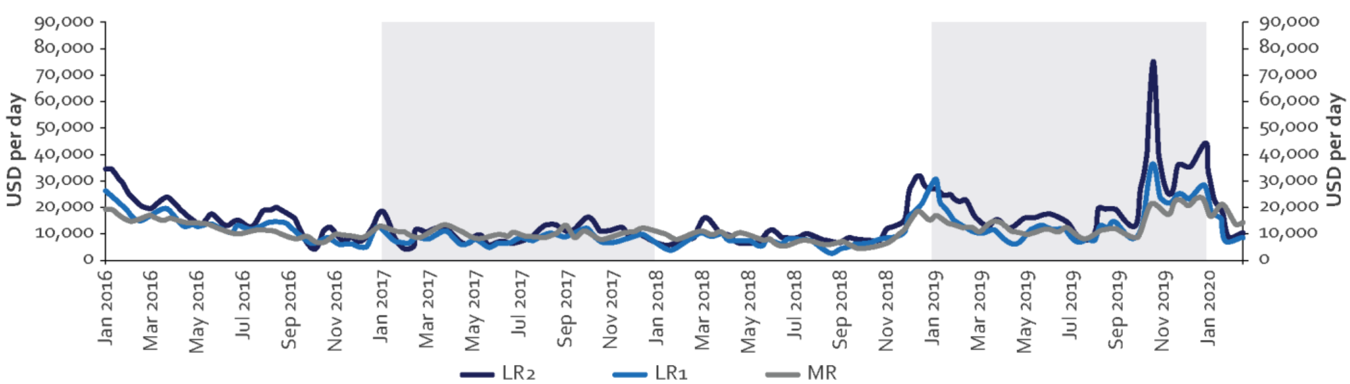
> "There is an urgent need to establish safe corridors between key countries such as Philippines and India and key crew change hubs around the world. We need solutions and global collaboration now."
>
> - Henriette Hallberg Thygesen, Maersk's Fleet and Strategic Brands Chief.

Tanker Shipping

The tanker shipping industry is facing hard times due to the escalating freight rates against poor market fundamentals. Mismatch between oil production and demand, shrinking tonnage availability, and growing freight rates have collectively led to increase in floating storage.

Geopolitical tensions have broken down the OPEC+ alliance and erupted the crude oil tanker spot freight market (Figure 4). Saudi Arabia is capitalizing on the ongoing political turmoil, which has significantly lifted the country's exports. The country is preparing to flood the global oil market in the short run that will bring down the fuel costs and benefit the crude oil tanker industry during downfall in the global oil demand during 2020. Further, BIMCO expects the global oil demand is expected to fall for 2020 y-o-y during the longer term. Such trends will translate into significantly declining the transportation demand for jet fuel.

Figure 4: Oil Product Tanker Earnings (Jan 2016 – Jan 2020)



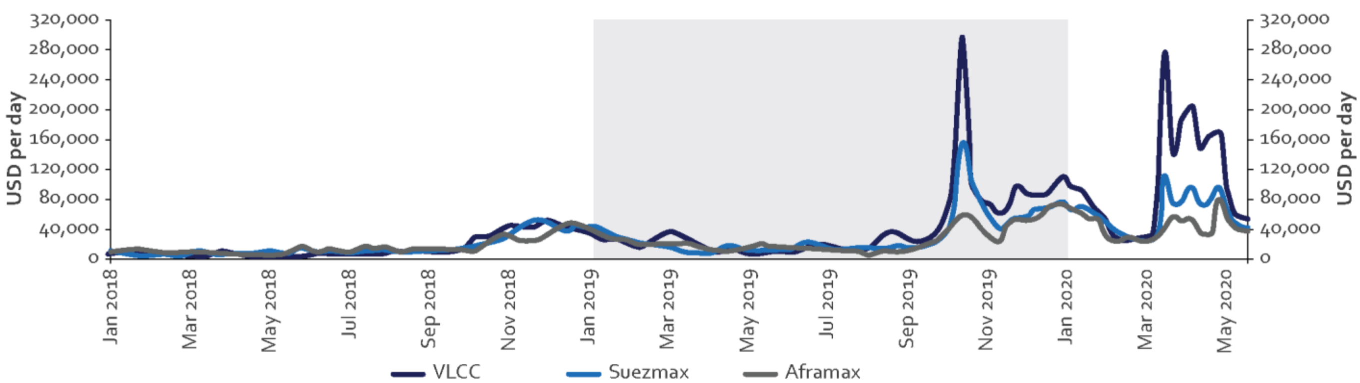
Source: BIMCO, Clarksons
Note: Data updated through to 14 February 2020

The chartering spree from Saudi Arabia, as it prepared to flood the market with its cheap oil in April, led average Very Large Crude Carrier (VLCC) earnings to soar to $279,259 per day on 13 March, with rates staying high until the end of April. However, since then, as oil production has been cut and the reality of an oversaturated market hit home, rates have dropped to $42,547 per day on 22 May (Figure 5). Rates will continue to fall, as the global economy is unable to provide the demand needed to keep them elevated.

Saudi Arabia's steps led to rise in VLCC earnings to US$279,259 per day on March 13, 2020 with rates remaining high until April 2020.

On May 22, the rates have dropped to US$42,547 per day due to production cut that will continue to fall due to unstable demand.

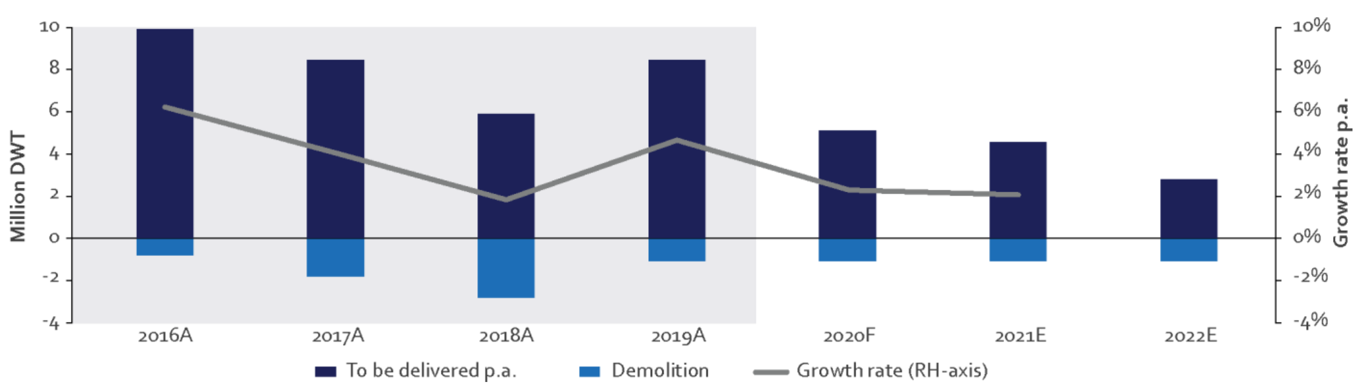
Figure 5: Crude Oil Tanker Earnings (Jan 2018 – May 2020)



Source: BIMCO, Clarksons

The economic activity worldwide has been slowing down since 2019 that will slow down further during 2020. The trade-to-GDP multiplier is anticipated to fail to deliver expected guidance under such conditions. Further, the tankers were not demolished during April 2020 in line with the negative sentiments in the market. The reduction in total tanker fleet reached at 0.6 mn DWT including 0.4 mn DWT product tankers and 0.2 mn DWT crude oil tankers. According to BIMCO, the product tanker fleet is anticipated to expand by 2.4% in 2020 that has grown by 1.1% so far during the year (Figure 6). Additionally, the crude oil tanker fleet is expected to grow by 2.1% in 2020.

Figure 6: Oil Product Tanker Fleet Growth (2016A – 2022E)



Source: BIMCO estimates on Clarkson's raw data

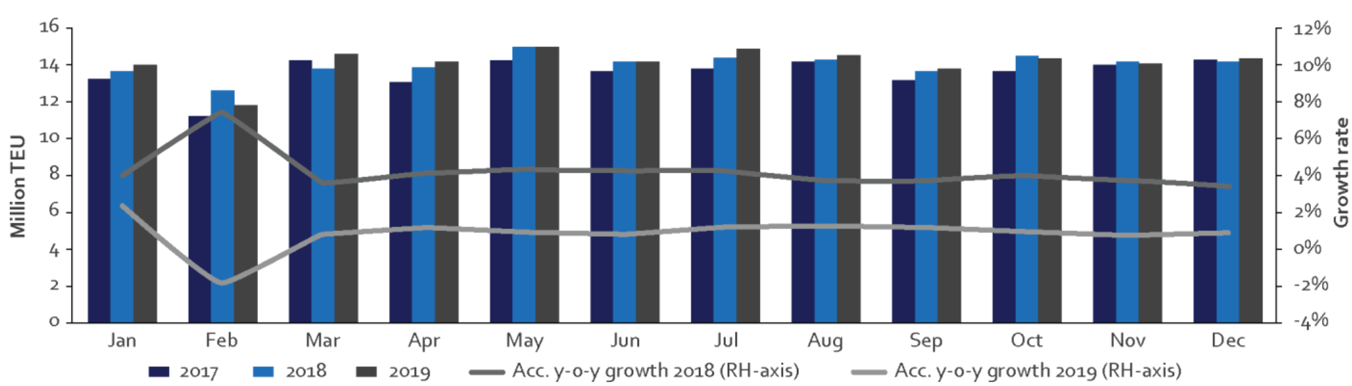
**Growth rate for 2022E not available in source.*

According to BIMCO, the demand for oil products supplied in the US have collapsed: For instance, gasoline fell by 37.7% at 3.1 mn barrels per day (bpd) during Jan 3 – Apr 3. However, the production has recovered marginally to remain at 6.8 mn bpd as of May 15 declining by 16.5% since Jan 3. The supply of jet fuel has fallen by 62.5% since the beginning of 2020, declined to 0.6 mn bpd on May 15 from 1.6m bpd on January 3.

Container Shipping

The container shipping market is expected to witness sluggish growth in demand during 2020, as carriers will face challenges in increasing freight rates to cover their additional costs of IMO 2020 sulphur cap compliance. BIMCO has revised its estimates to negative from a low global demand growth due to declining demand (Figure 7). China's manufacturing sector is anticipated to recover from the lockdown situation during the short term; however, the productivity stands at ~60-75% of capacity. During the medium-term, the exports of backlogged orders will resume and shift out of Asia. But such positive trend will likely to be offset by any decline in the new export orders due to the lockdown situation in Europe and North America. During the long term, the existing crisis may sustain in light of the prolonged lockdown in Europe and North America that will force consumers to remain at home that will further engrave unemployment. BIMCO expects the whole year 2020 will be massively disrupted; however, with a gradual recovery to normal freight volumes

Figure 7: Global Container Shipping Demand (2017 – 2019)

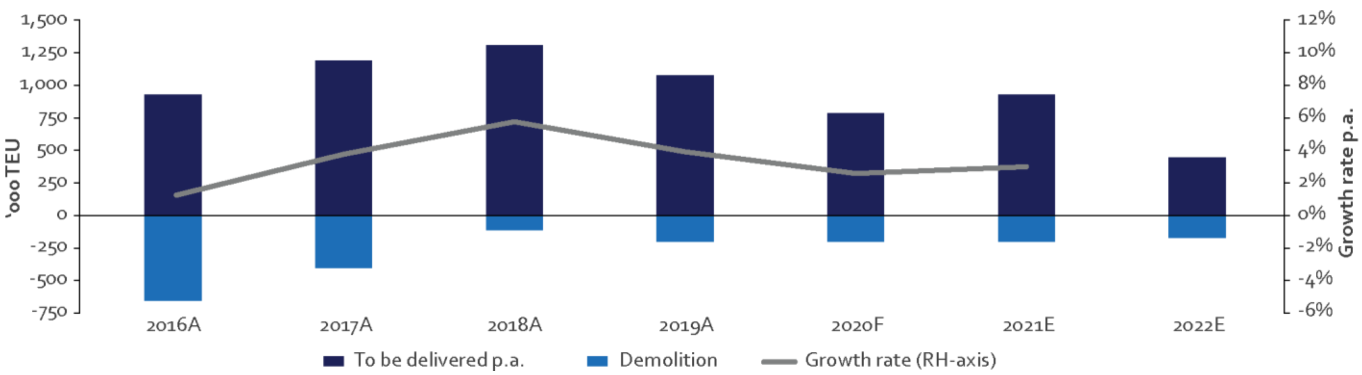


Source: BIMCO, CTS

The supply will also be severely impacted due to the lower than expected deliveries of new built from Chinese yards. For the full year, BIMCO anticipates the average freight rates to remain below last years' level; however, that level is likely to remain loss-making (figure 8). Decline in oil prices has marginally eased out the negative economic impact due to fluctuating demand-supply and increased fuel costs on account of the implementation of the IMO 2020 sulphur cap. Improved market sentiments contrary to the high freight rates will be beneficial in disincentivising ship owners from scrapping even during the existing unprofitable market.

In 2019, the container shipping demand witnessed sluggish growth at 0.8%. The trade-to-GDP multiplier remains low against expected recoveries in GDP growth in 2020. Such trend will restrict growth in container traffic due to declining demand for the goods that are needed to lift the seaborne market.

Figure 8: **Container Ship Fleet Growth (2016A – 2022E)**



Source: Baltic and International Maritime Council **Growth rate for 2021E not available in source.*

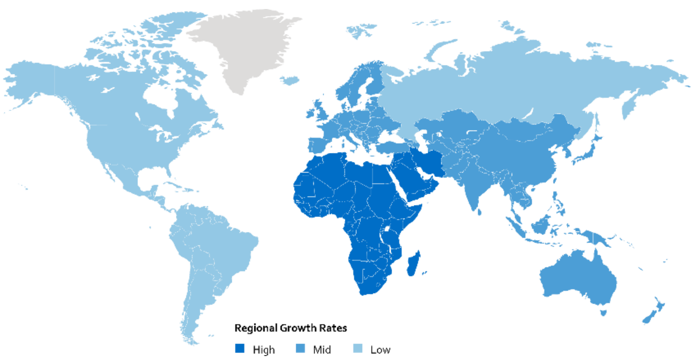
Offshore Supply Vessel

The global offshore supply vessel (OSV) is expected to grow at a healthy CAGR of 8.3% from 2019 to 2024 and reach $25 bn in 2024 from $15.5 bn in 2019. North America has been the dominant OSV market with increasing offshore exploration activities in the region including the Gulf of Mexico driving up demand for OSVs (Exhibit 2). Additionally, increasing offshore activity in Asian countries, especially India could potentially lead to long-term contracts for the OSV providers (Figure 10).

Exhibit 2: **Major Segments in Offshore Supply Vessel**

Source: Market Research Future

Figure 10: Offshore Supply Vessels Market – Growth Rate by Region (2019 – 2024)



Source: Mordor Intelligence

Growth drivers include growing exploration activities, increasing number of offshore wind farm projects, and increasing offshore decommissioning activities.

Buoyed by decline in capex and opex for both offshore oil and gas projects, the demand for OSVs is expected to surge. Additionally, decline in costs has also led to increasing exploration activities in ultra-deep waters and Arctic regions. It could, in turn, further fuel demand for OSVs.

OSV operators are increasingly investing in more efficient and environment friendly battery-hybrid propulsion. Major companies including Tidewater, Atlantic Offshore, and Harvey Gulf International Marine are upgrading their vessels with battery-hybrid propulsion and US-based SEACOR Marine aims to have the largest battery-hybrid-powered OSVs fleet.

Recent Developments

Offshore marine services companies are looking to reduce capacity by selling vessels in view of the lack of demand vis-a-vis global oversupply of offshore supply vessels. The key factor has been downturn in the oil and gas industry that has forced the incumbents to re-evaluate their fleet composition and future fleet deployment. A case in point was the divesture of two anchor handler tug and supply vessels by Maersk Supply Service

> ”As a response to the recent downturn in the oil and gas industry, we have re-evaluated our fleet composition and future fleet deployment.“
>
> –Maersk Supply Service Chief Commercial Officer, Carsten Gram Haagensen

Oil and gas companies are expected to defer as much as $131 bn worth of oil and gas projects that were to be approved in April 2020 (Rystad Energy) due to the crash in oil prices resulting from the supply and demand imbalance in the wake of COVID-19. This could result in up to 10% contraction in volumes and $3 bn in revenue loss for the offshore drillers.

Moreover, decreasing rate of utilisation has resulted in many OSV owners approaching their creditors for yet another round of restructurings. This, in conjunction with the fact that advances in technology have led to higher rate of obsolescence of floating units, is expected to lead to more pressure on OSV companies to right-size their inventories.

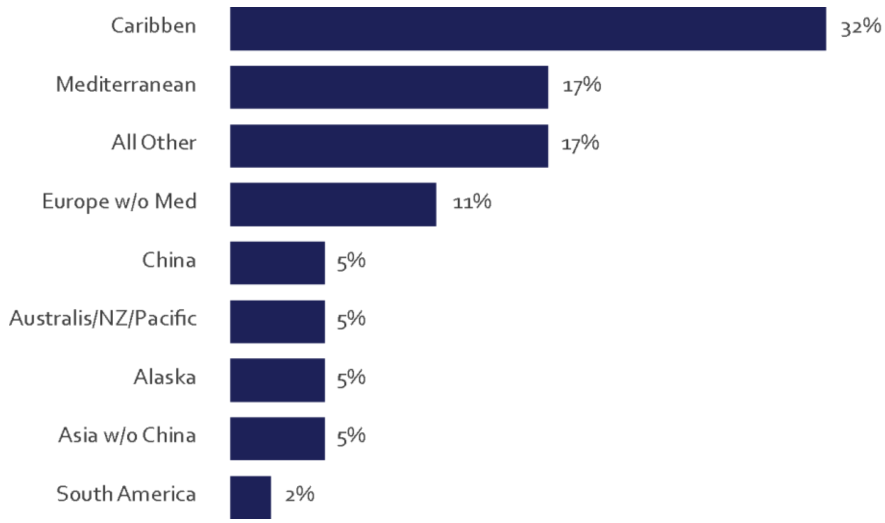
Impact of COVID-19

Offshore operators have had to pare back capex for 2020 as the pandemic crises has led to reduction in exploration programs. Drillers have had to face delays in getting their projects sanctioned, which has resulted in deferred or cancelled tenders, contract terminations, and renegotiation of existing contracts. This could result in supply demand imbalance and pressure on day rates.

Cruise Line

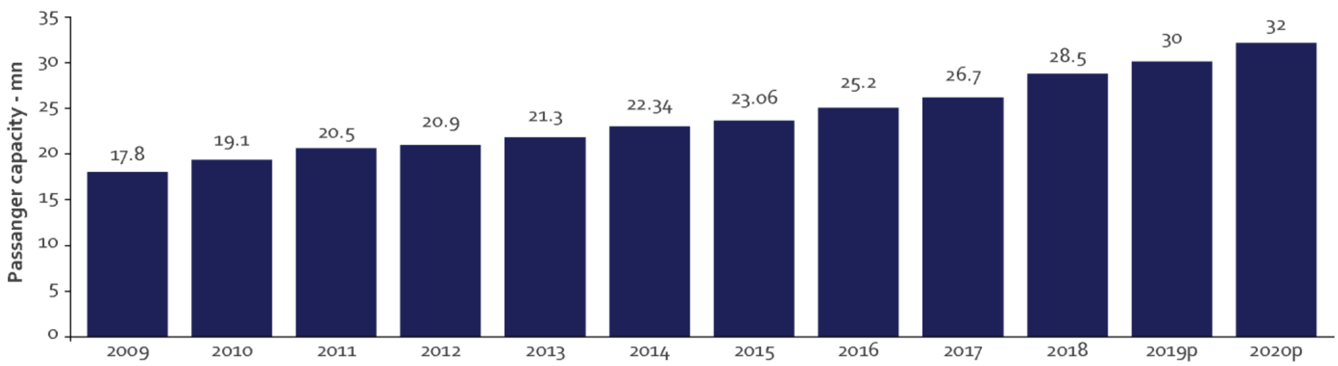
The cruise industry growth will be driven by a record orderbook of over 120 ships with a reduced withdrawal rate of 1-2 ships per year. New ship deployment will be largely driven by the Caribbean region (32%), followed by Mediterranean region (17%), and European region (11%) (Figure 11). Key market participants have initiated their growth plans. For instance, MSC Cruises is planning for the biggest growth with 14 ships on order including 10 megaships, four smaller, and 1,000-guest luxury vessels since the company is focusing on dominating the high-end market. Additionally, Carnival Corporation has 20 ships on order from 2019, extending its own orderbook through 2024. Further, Royal Caribbean Cruises has Caribbean Cruises has an orderbook of 15 ships that has a delivery line through 2026.

Figure 11: Global Scenario of New Ship Deployment by % (2020)



Source: Cruise Line International Association

Figure 12: Passenger Capacity (2009 – 2020P)



Source: Cruise Lines International Association

The global passenger capacity was estimated at 26.70mn, which is expected to reach 32mn in 2020 (Figure 12). Demand for cruise comes from North America making up for almost 59% of the total number of cruise passengers. The coronavirus situation has severely impacted the cruise demand during the first quarter of 2020. Other major markets contributing largely towards cruise shipping industry include Europe (Germany, the UK and Ireland being the three largest European source markets for cruises) and the rest of the world (especially Australia/New Zealand and Asia).

The international tourism is forecasted to decline 60% to 80% in 2020, according to the world tourism organization, UNWTO. In 2020, the cruise traffic is expected to be in the range of six to 12 mn passengers. According to the 2020 Cruise Industry News Annual Report, the industry's overall passenger capacity for 2020 pre-CoVID-19 was estimated at 29.5 mn, In 2021, the industry is expected to witness its capacity grow to 32 mn passengers assuming travel restrictions have been lifted.

Before the CoVID-19 outbreak, the last decade showcased record growth for the cruise industry that was intended to continue during 2020 and later years. According to the CLIA, 32 mn passengers were expected to travel on cruise ships in 2020, growing from 30 mn in 2019. Since 2009, cruise ship passengers grew from 17.8 mn to 30 mn in 2019, growing at CAGR of 5.4% during 2009-2019. Additionally, cruise industry revenues were estimated to showcase faster growth from ~15.7 bn in 2010 to an estimated 31.5 bn in 2020, highlighting a CAGR of 7.2%. In 2019, there were 278 ocean cruise line ships operating across 55 cruise companies and over 500 river cruise ships. The ship operators were planning to add another 19 ships in 2020.

Impact of CoVID-19 on the Cruise Line Industry

The blow from the CoVID-19 pandemic on the cruise industry is expected to be the most devastating during the coming years. The US State Department suggested the American travellers with underlying health conditions to avoid cruise ships with a fear of increasing the risk of infection in a cruise-ship environment. In case of an outbreak, the ships will be necessarily required to force passengers to undergo extra health screening. Additionally, the ships will be required to mandatorily follow the new enhanced cleaning procedures including more frequent cleaning of hard surfaces.

Moody's Investors Service lowered its outlook for the lodging and cruise industry from 'stable' to 'negative' since both industries may face revenue losses in 2020 if the outbreak is not contained. For instance, Carnival, the world's largest cruise company, reported decline in net income of from $3.2 bn in 2018 to $3 bn in 2019 since most of their clients who had previously booked cruise trips are now postponing those trips for several months instead of cancelling them. The cruise shipping industry was projected to sail 32 mn passengers on cruise ships worldwide in 2020 from 30 mn in 2019. The world's cruise companies were scheduled to launch 19 new ships in 2020 to meet the increasing demand. However with the outbreak of coronavirus, the cruise lines started to cancel trips for China or restrict passengers having previously visited China, South Korea, Italy and other regions hit hard by the outbreak.

Unlike the hotel industry, cruise lines are anticipated to recover at a faster pace by redirecting ships to new destinations. The cruise passengers are loyal and are likely to return to cruising after the shock of the outbreak wears off. The cruise lines will initiate offering discounts to entice travellers return to the water.

Port/Terminals

The port and terminals market is witnessing growing usage of Internet of Things (IoT) solutions to improve safety and enhance the operational efficiency at port terminals. IoT operations reduce human effort and increase the efficiency of the operations in the areas including real-time tracking of containers and ships, controlling and enabling access to Closed Circuit TV (CCTV) cameras for the entire port, and tracking and identifying assets and vehicles for complete traceability within the proximity of the port. Additionally, ports and terminals sector is giving a greater emphasis on investing into new technology such as AI and blockchain and transforming into 'Smart Ports', as there are growing threat of cyber-attacks due to having sensitive maritime data points on supply chain such as vessel navigation, cargo handling and container tracking.

According to a market research firm Technavio, the ports and terminal operations market is anticipated grow by **$4.64bn** during 2020-2024, reflecting a CAGR of 2% during the forecasted period.

Impact of CoVID-19 on Ports/Terminals

Due to the recent outbreak of CoVID-19, the container port volumes have declined over the first few months of 2020. The volumes in the main global port fell by 6% in March 2020 compared to the same time previous year. Hence, more blank sailing is occurring leading to deprivation of the container cargo of up to 30% at some ports. This had led to the rationalisation of terminal networks and increase the bargaining power of carriers. For example, in Hamburg (Germany) the terminal charges that were paid after 60 days has been increased to 90 days.

Due to the pandemic, import containers have piled up at ports resulting into congestion. For instance, there has been a rise in congestion in the South Korea's Port of Busan due to the increase in trans-shipment volumes that has been diverted from Chinese Ports due to CoVID-19 lockdown.

Eventually, the global ports are improving as the lockdown is easing. For instance, the US ports handled 1.6 mn TEU in April 2020, 7.8% down compared with the same period during the previous year but recovered from 17% down in March 2020. Cargo ships were also being used for medical and emergency supplies during the CoVID-19 pandemic. Additionally, Mediterranean Shipping

Company (MSC) has developed a Suspension of Transit (SOT) container shipping programme to prepare for a recovery in demand for freight services once the lockdown eases. The programme is built to ensure business continuity and maintenance of vital container carriage services such as the movement of food, fresh produce, medical equipment, and other essential goods. The initiative is also focused on catering to the demand of variety of goods from Asia.

Exhibit 3: Global Top 10 Ports (2019)

Ports	By Container Throughput		Year-on-Year Growth
	2019	2018	
Shanghai	43,300	42,010	3.07%
Singapore	37,200	36,600	1.64%
Ningbo-Zhoushan	27,530	26,350	4.48%
Shenzhen	25,770	25,740	0.12%
Guangzhou	22,830	21,920	4.15%
Busan	21,900	21,660	1.11%
Qingdao	21,000	19,320	8.70%
Hong Kong	18,360	19,600	-6.33%
Tianjin	17,300	16,000	8.13%
Dubai	14,100	14,950	-5.69%

Source: Official websites of various ports, prepared by the SISI

Exhibit 4: Global/International Terminal Operators: By Annual Total Throughput (2019)

Ranking	1	2	3	4	5
	COSCO SHIPPING	招商局集團有限公司 CHINA MERCHANTS GROUP LIMITED	HUTCHISON PORTS	PSA The World's Port of Call	DP WORLD
Throughput (mteu)	123.8	111.7	86.0	85.2	71.2
Growth/Decline (%)	5.5	2.4	1.6	5.2	-0.3

Source: Official websites of various ports

Cosco Shipping handles an annual throughput of 123.8mn teu (Exhibit 4), followed by China Merchants (111.7mn teu), Hutchinson (86.0mn teu), PSA (85.2mn teu), and DP World (71.2mn teu).

> Global container port capacity is projected to increase at a CAGR of ~2% (by confirmed additions). The growth is considerably below the anticipated demand growth indicating easing off from Greenfield projects by investors during 2014 – 2018. The global average utilization is forecasted to grow from 70% in 2018 to 79% by 2023.

The port and terminals operations market is highly fragmented that include domestic and international market players. The market is witnessing stiff competition at regional level in line with larger concentration of vendors in the developed economies such as the US and Europe and the technologically advanced countries such as China, Korea, and Singapore. Companies with greater technical and financial resources develop their expertise in services, which provides them a competitive advantage over the other players. The competitive environment in the market is expected to intensify during the coming years with an increase in services, extensions, and technological innovations

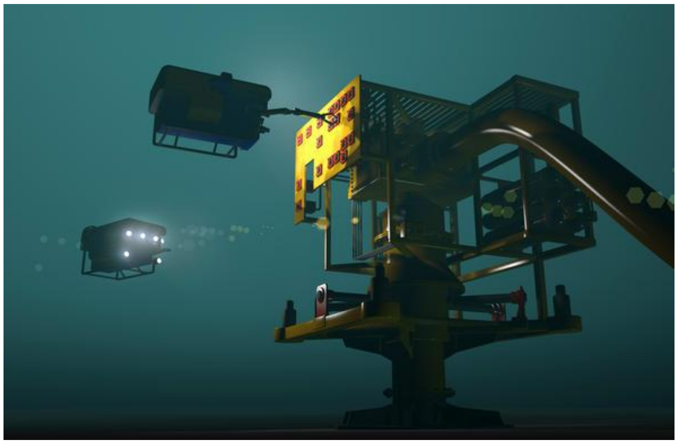
DP World, Hutchison Port Holdings Trust, PSA International, and Cosco are the key vendors in the global port and terminals operations market.

3

Subsea

Subsea Ecosystem

Subsea ecosystem comprises underwater ocean applications, operations, and equipment that are based in the offshore, seabed, and deep ocean water for oil and gas production. Subsea technology finds large-scale application across oil and gas exploration and production, ocean exploration, autonomous underwater vehicles, oceanography, marine engineering, seafloor mineral mining, remotely operated vehicle, submarine communications or power cables, and offshore wind power.



Structure and Equipment

The subsea technology is used for offshore oil and gas production through specialized equipment and production systems. Some of the equipment include:

- Subsea Manifolds and Connection Systems
- Subsea Well-heads
- Umbilical Systems
- Jumpers
- Subsea Trees
- Risers

The subsea oil and gas exploration and production process covers a wide range of processes including:

Subsea Drilling

Subsea Completion

Subsea Production

Subsea Processing and Transport

Flow Assurance and Well Intervention

Subsea Market Overview

Subsea technology is showcasing continuous advancements since its first deployment in Ekofisk field, Norway in the 1970s. These novel technologies are offering technical and economic benefits and useful in relocating specific production operations from platform to seabed. However, these technologies are more vulnerable in a fragile and harsh environment that risks the safety and long-term reliability of these technologies. Subsea technologies strengthen production rates and increase energy production. Subsea technologies have attracted significant investments since 2010 that has supported further development of these technologies.

Offshore Oil and Gas Value Chain

A Broader Value Chain

The value chain of offshore oil and gas comprises discovery, extraction, processing, distribution and consumption of fossil fuels. The value chain is classified into three categories: upstream, midstream and downstream activities and each of these categories requires distinctive competences.

Upstream
Tender and concession
Exploration
Installation
Production
Field abandoning

Midstream
Processing
Storage
Transportation

Downstream
Sales
Distribution

The **upstream** activities cover underground exploration and production (E&P) of fossil fuels by the energy companies in association with a wide range of suppliers and sub-suppliers. The upstream activities for offshore oil and gas exploration and production is witnessing strong traction; however, the procurement of equipment used in such exploration and production faces cost pressure since such equipment requires significant investments in manufacturing with high levels of technologies. Further, the oil & gas exploration activities are impacted by growing uncertainties due to which only a few explorations are viable to be used commercially. A decision to establish production requires a new wave of large investments in field installation prior to the commencement of production.

Key Subsea Technologies

The subsea technologies are growing prominence in offshore engineering in line with growing advancements in seabed oil industry. The technology is critical for flow structure interactions in subsea structures including marine pipelines, subsea protection, and subsea manifolds across various environmental conditions.

- ***Fluid-structure-morphology-soil interaction CFD model***
  A computational fluid dynamics (CFD) model is developed based on the understanding of soil mechanics and flow physics. Such subsea technology uses an open-source CFD code, Open FOAM for model development. Further, a thorough investigation is carried out to understand boundary layer thickness of the incident flow, various configurations of subsea structures, and a wide range of soil properties.

- ***Robotic drilling***
  The drilling technologies have become more efficient in line with growing influx of digitalization, integration of digital twin, machine learning, and big data. Such drilling automation substantially reduces costs and associated risk with environment and allow access and development of previously inaccessible oil resources. However, these upcoming technologies come with expensive testing and excessive time-bound trial runs, implementation, and data collection. The key market participants are

continuously working on R&D activities to develop an autonomous drilling rig for utilizing fully interchangeable, less expensive, accessible, and less risky drilling sensors, systems, and tools.

- ***Deep-sea mining***
  The offshore mining activities are gaining traction on the face of advancements in offshore oil and gas exploration and production technologies. For instance, Nautilus Minerals (a Canadian company) is developing a deep-sea mining project in Papua New Guinea. Further in European region, two European Union sponsored research projects: Blue Nodules and Blue Mining are emphasizing on developing an advanced deep-sea mining system and novel solution for long-term deep-sea mining

- ***Dynamic response of FRP pipelines in unsteady flow conditions***
  Fibre-reinforced polymers (FRPs) are being widely used in offshore installations including umbilical, sea water lift pump column pipes, and risers due to their strong durability in fatigue loading and corroded environments. The durability is helpful in reducing maintenance cost of pipelines made by FRP materials, while the high stiffness of the laminated pipe wall generates stable mechanical behavior in unsteady flow conditions.

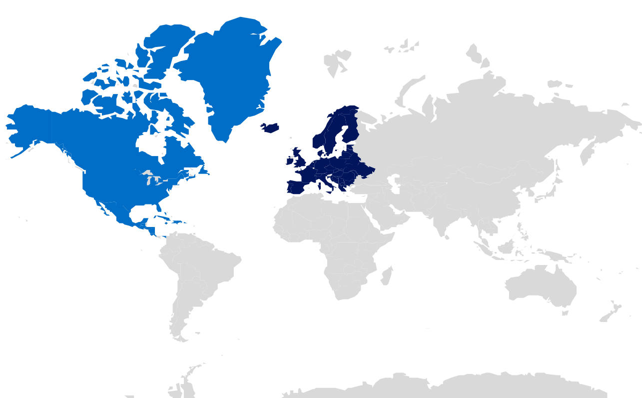
Subsea Profiles

Subsea Wells

Overview

The subsea well access market growth is augmented by growing production efficiency, rising safety concerns, and increasing exploration and production activities worldwide. Further, the market is witnessing continuous growth on the back of rise in offshore exploration and production (E&P) and drilling activities that have led to surge in subsea wells and heavy intervention systems demand in matured subsea wells. Currently, the market is facing challenges in maintaining huge costs of procurement and maintenance of rig-based well access systems that creates an opportunity for the major industry participants to explore cost-effective and time-efficient alternatives. Consequently, the market is expected to evolve with the emergence of rig less systems in the long-term outlook.

Regional Market Overview



- North America and Europe have been the major regions in the subsea well access systems on the back of growing offshore activities in the Gulf of Mexico, and North Sea
- North America is expected to hold its prominence in line with discoveries in the shale reserve in Canada and Mexico
- However, European region is expected to witness average growth and is anticipated to lose its leading position due to the growing emergence of high growth market in the Asia-Pacific and Middle East and Africa
- Further, rise in matured oil fields is encouraging market participants to explore potential offshore oil and gas bases

Key Players

Weatherford International Limited, Aker Solutions, FMC Technologies, National Oil Well Verco Inc., Cameron International Corporation, Proserve and Uztel Limited

Subsea Fields

Overview

The global subsea market is witnessing continuous evolution of several offshore oilfields. Growing integration of novel technologies and contemporizing of execution and project management has played a vital role in the fast-pace development of offshore oilfields. The market participants are focusing on reducing procurement costs, and field ownership costs through an anticipated growth in consolidation.

Major Offshore Oilfields Worldwide

Oilfield	Remaining Reserves (BOE)	Oilfield Overview
Marjan Complex	17,238,800,384	Comprised of the Marjan, Maharah, Lawhah and Hamur offshore fields Operated by Saudi Aramco
Safaniya	17,136,224,734	Owned by Saudi Aramco and is located 200km north of the city of Dhahran in the Persian Gulf
North Field Expansion	11,509,802,413	Located offshore Qatar is anticipated to come online in 2023, peaking at 4600.0 million cubic feet (MMcfd) by 2045 with a projected field life of 58 years
Zuluf	11,366,711,770	Another Saudi Aramco-owned project, located approximately 40km off Saudi Arabia's northeast coast in about 40 metres of water
Upper Zakum	11,064,572,697	Located ~84km off the north-west shore of Abu Dhabi. Second-largest offshore oil field by recoverable resources and the fifth-largest by remaining reserves worldwide

Key Players

Deep Down, Inc., Global Energy Development, Oceaneering International Inc., Aly Energy Services, Inc., Questor Technology Inc., Pulse Seismic Inc., Profire Energy, Inc., Dalmac Energy Inc., Xinjiang Zhundong Petroleum Technology Co., Ltd.

Key Subsea Projects

The industry was expecting many high-budget projects to move ahead this year, with all sectors anticipating abundant opportunities. Several FPSO projects were lined up, especially from Latin America and Africa, including the much-awaited Pecan development in Ghana, and the third and fourth Mero production vessels in Brazil. However, due to the COVID-19 pandemic FPSO awards will likely be limited to a single unit in 2020, Rystad Energy expects. But it is believed awards are set to recover next year, with seven projects likely to be sanctioned.

FPSO project per year (count of awards)

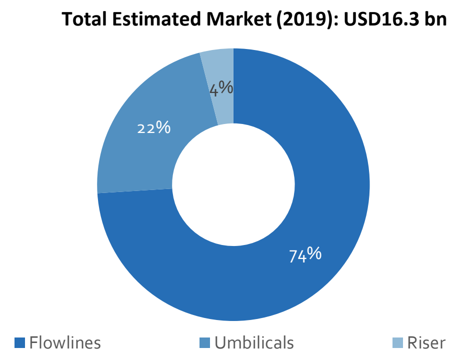
Source: Rysted Energy Dcube

The service sector is already responding to the market downturn with efforts to minimize the effects of falling margins. Many service providers have already begun cutting jobs, including some of the industry's giants.

Consolidation efforts across the service sector are underway and could result in further savings. Major firms have also closed some international facilities and reduced capital expenditure for the year, focusing on preserving balance sheets given the low levels of development activity and the subsequent low influx of orders.

Subsea Umbilicals, Risers, and Flowlines

Market Overview According to Verified Market Research, the global subsea umbilicals, risers, and flowlines (SURF) market was valued at USD5.7bn in 2018 and is expected to reach USD14.5bn by 2025 growing at a CAGR of 12.4% during 2019-2025. The market is expected to achieve such growth in line with the rapid advancement in subsea production systems; however, the volatile environmental condition is expected to hinder the market growth during 2019-2025. Further, high costs of raw materials used for SURF systems require to meet certain criteria for surviving in extreme temperature and pressure conditions may be a decisive factor in selecting such product.



Product Insights

Key technologies in the global subsea market comprise umbilical, riser, flowlines. Flowlines, which are used for facilitating fluids from the host, are expected to have the largest market share of the market.

Water Depth

The technologies used underwater is classified based on water depth into shallow water, deep water, and ultra-deepwater. The larger market of technologies is expected to be controlled by shallow water, which could range between 50-100 meters from the seabed. The technologies used in shallow water includes umbilicals and risers.

Geographic Split

The Global SURF market is expected to be largely dominated by the Asia-Pacific region during 2019-2025. Major countries including China, Japan, and India are expected to support strong growth in demand.

Key Players

Prysmian Group, Aker Solutions, Technip FMC, Subsea 7, Saipem, McDermott International Inc., DeepOcean Group Holding BV, Ocean Installer A, and Actuant Corporation

4

Market Trends

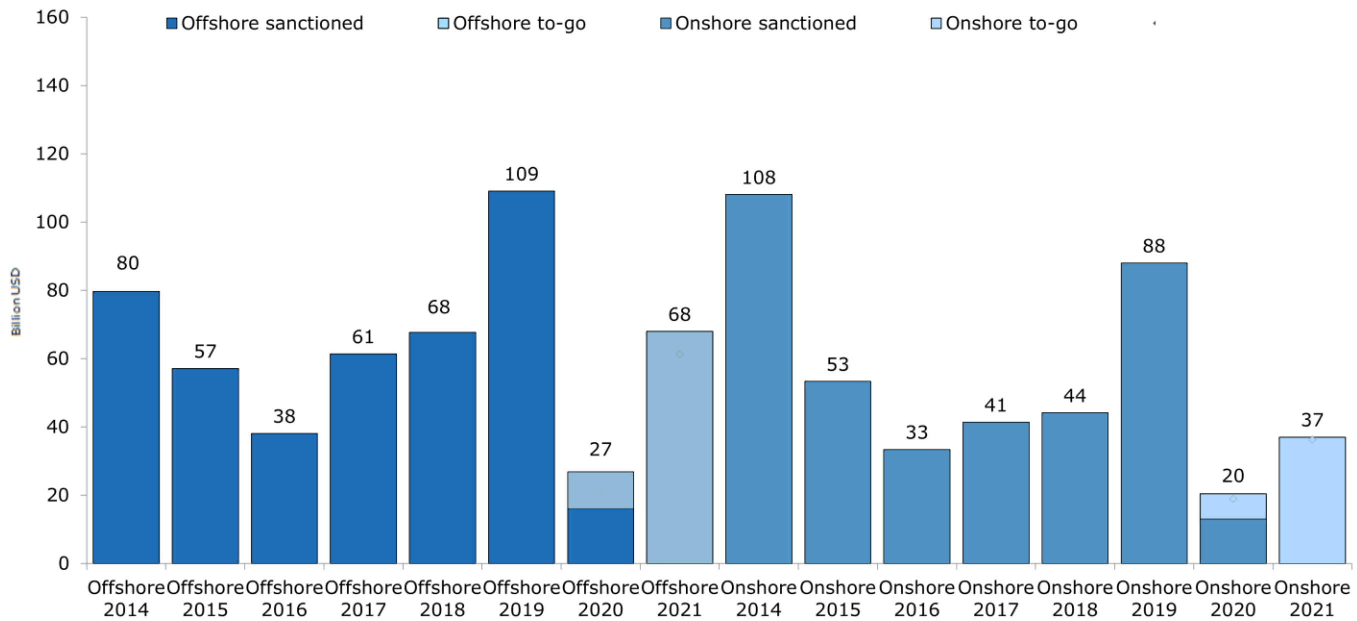
Gloomy year ahead for the subsea market

Just after the oil price crash of 2014-2016 less than 100 subsea tree projects were awarded, an extreme low number. Rystad Energy now forecasts that 2020 will show the same picture as it did four years ago.

Due to the decreasing global oil consumption the average oil demand for 2020 is expected to be 89 million barrels per day, an 11% drop from the demand levels seen in 2019. This has in-turn led the oil price to drop significantly since the beginning of the year. Furthermore, challenges related to quarantaine, lockdown measures, travel, etc come on top of the already difficult times. The year 2020 looks gloomy for all segments in the oil and gas industry.

Global project sanctioning is set for a major decline in regard to 2019. According to Rystad Energy total sanctioning value will end up at around $47 billion, of which about $27 billion is expected to be for offshore projects, with the remaining $20 billion for onshore. In 2019, the total sanctioning value reached $197 billion, with $109 billion going to offshore projects and $88 billion to onshore projects.

Project sanctioning status and forecast by commitment year from 2014 to 2023



Source: Rysted Energy DCube

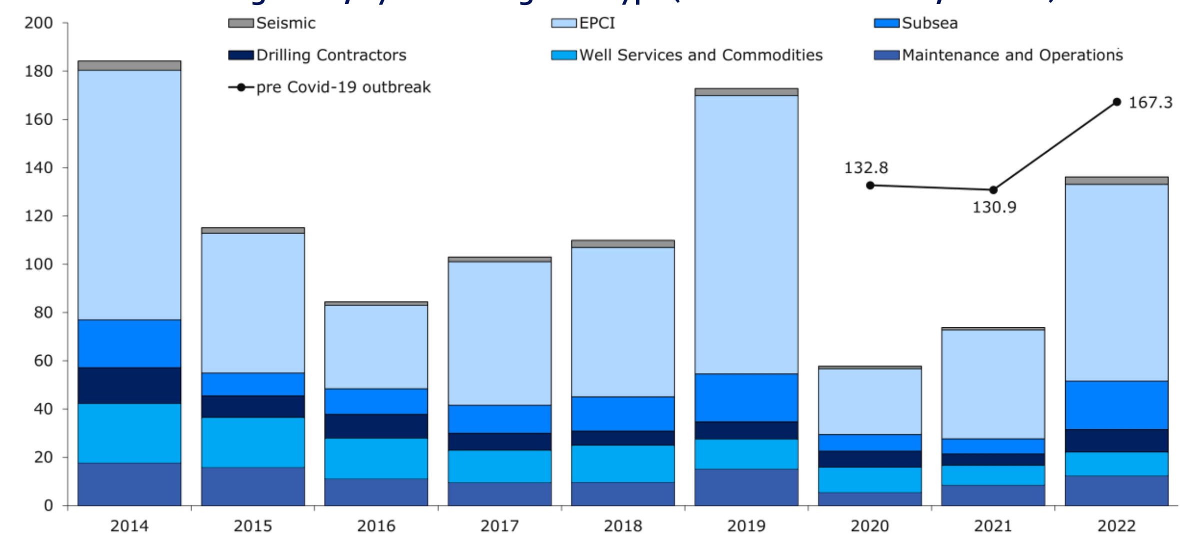
A market opportunity is the emerging market within the energy transition: suppliers can provide services to support blue and green hydrogen infrastructure, energy storage or carbon capture and storage. In Europe for instance, investments in offshore wind will exceed offshore O&G investment as soon as 2022.

Some sparks

In Norway the government announced a tax relief packaage which has helped oil and gas operators improve project economics. This package allowed Aker BP to commence development activities on its Hod redevelopment project by awarding Kvaerner a $106 million contract for the topsides and steel substructure of an unmanned wellhead platform, in addition to the subsea pipelines and umbilicals contract to Subsea 7 in a deal valued between $50 million and $150 million.

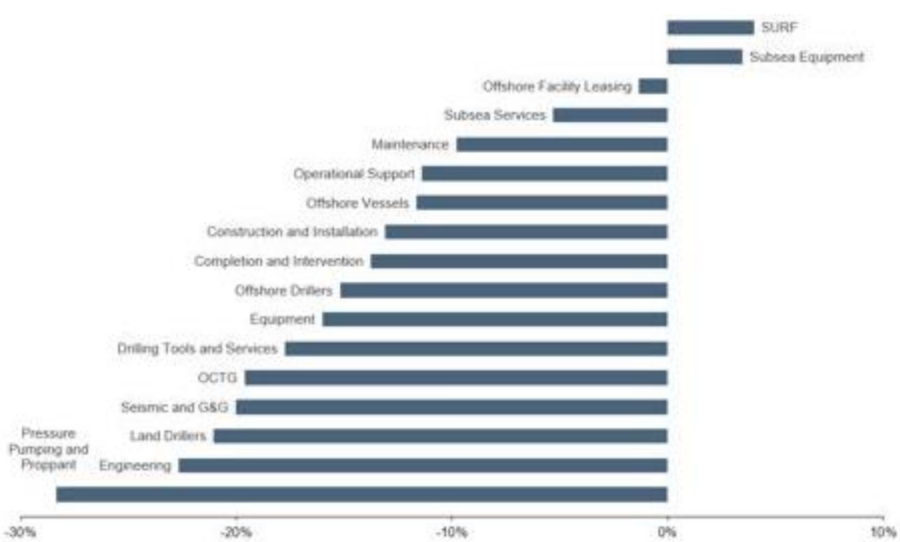
Aker Soutions has been awarded two letters of intend, although both projects are subject to a final investment decision to be taken later this year. The first one concerns the supply of the subsea production system and associated equipment, which includes 15 subsea trees in a deal worth $206 million for the Breidablikk development. The other one is for the subsea production system at the Askeladd West development, valued at $41 million.

Greenfield tendering levels, by service segment type (E&P contract value*, USD bn)



**: EP contract value is the total contracts awards at the time the tenders is estimated being prepared*
Source: Rysted Energy UCube

Change in growth of oilfield service purchases in 2020 compared to 2019 (percentage



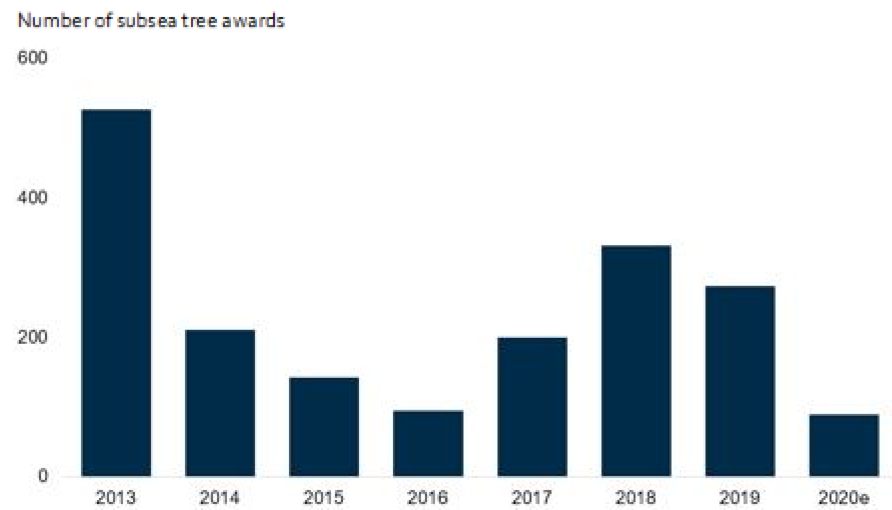
Source: Rysted Energy UCube

Coronavirus Poses Threat to Subsea Market

The subsea market will undoubtly suffer from the crisis. Projects already sanctioned will have its positive effect on results, but as seen above investments sanctioned this year are to be on very low level, even lower than in 2016. Major offshore projects are being pushed out by operators, and for those that are still on the table, service companies might struggle to secure financing in the current market.

2013 was a fantastic year for subsea tree awards, but with the oil crash in 2014 subsea players fell along. In 2016 even less than 100 subsea tree projects were awarded. Meanwhile 2018 and 2019 were good years with both almost 300 projects awarded.

Subsea tree contracts are estimated to plunge in 2020



Source: Rysted Energy Ucube

Development of Collaborative Model

The offshore subsea developers are further enhancing their continued efforts to focus on future growth of the global offshore oil and gas industry through continuously reducing total expenditure (TOTEX) of projects. The global energy landscape is constantly evolving in line with rising onshore production in the US, and clean energy technology allowing market participants to remain competitive and construct a clear pathway for complete energy mix. The industry is inclining towards collaborative efforts to recognize changes in executing operations by sharing expertise and knowledge, embracing commonality, and creating a paradigm shift. The operators are working on identifying a mechanism to alter behavior and culture through Joint industry projects (JIPs), which are long-term projects offering long-term solutions to compete against the technological change worldwide.

The industry's sustainable outlook is relying on four-pronged strategy: enhancing operating efficiency, reducing TOTEX, developing contracting strategies, and digital enablement. The market participants are required to take corrective measures to make ways for operating collaboratively. The companies are required to identify right partners who complement their product/service offerings, share simple contracts for partnerships, and continuous efforts for being innovation.

5

Recent Developments

Saipem Secures EPCI Contracts Offshore Saudi Arabia, West Africa

In Feb'20, Saipem secured several EPCI contracts worth over USD500mn from Saudi Aramco, Eni Anglo S.p.A., and Noble Energy. Aramco offered engineering, design, procurement, installation, and construction of a 36-inch carbon steel pipeline on the existing network in the Ju'aymah area and brownfield services at the associated offshore platform. Eni engaged with the company for executing work on the Cabaça and Agogo Early Phase 1 developments. Noble hired the company to install a 70 kms gas pipeline connecting Alen platform offshore Equatorial Guinea to the Punta Europe LNG complex and Bioko Island.

Imodco Delivers Buoy, Subsea Facilities for Virgin Islands Terminal

In Feb'20, Imodco completed construction program for the Limetree Bay import/export terminal in the Caribbean Sea that will accommodate tankers loading/offloading up to 320,000 dwt. Imodco designed, fabricated, and supplied a large semi-taut system, pipeline-end manifold (PLEM) and umbilicals, a Trelline flexible subsea line from the buoy to the PLEM at 41 m (134 ft) water depth, and driven anchor piles.

DOF Subsea Secured Multiple Contracts

In Jan'20, DOF Subsea secured various contracts across North America. DOF will support its multiple clients in subsea installation work in Trinidad, pre-lay and LBL array installation activities in Guyana, and wellhead removal work in Canada. The vessel used in these activities is jointly owned by DOF Subsea and TechnipFMC.

Equinor Issues Contracts for Bacalhau Oil Project Offshore Brazil

In Jan'20 Equinor awarded front-end engineering and design (FEED) contracts for the development of the Bacalhau area located offshore Brazil to MODEC, which initiated pre-FEED activities for the FPSO. Additionally, MODEC will be responsible for the SURF FEED for the Subsea Integration Alliance (SIA) between Subsea 7 and OneSubsea.

Doris Secured Contract from BHP for Engineering Services and Export Pipelines

In Jan'20, Doris won a contract from BHP's subsidiary, BHP Billiton Petróleo Operaciones de Mexico, S. De R. L. De C.V., for offering export pipeline scopes of the Trion project offshore Mexico and engineering services for the SURF. BHP holds 60% stake in the development, while Pemex Exploration and Production holds 40% interest.

SUBSEA

CCC Deploys Leopard for Middle East Subsea Pipeline Inspections

In Jan'20, CCC Underwater Engineering announced plans to initiate the second phase survey of 2,000 kms of pipelines in the Arabian Gulf. The company will conduct inspection of the final 102 of the 316 pipelines using a Saab Seaeye Leopard underwater robot.

Prysmian to supply steel tube Umbilicals for Mero 1 project offshore Brazil

In Jan'20, Prysmian Group secured a contract from the Petrobras-led Libra consortium for delivering steel tube umbilicals for the first-phase Mero oil field development in the presalt Santos basin offshore Brazil. According to Prysmian, this will be the first project in the region to employ STUs.

Ocean Installer to Initiate North Sea Guillemot flowline

In Jan'20, Ocean Installer secured a contract from Dana Petroleum for installation and trenching of the 12-in. flexible production flowline at the Guillemot field in the UK central North Sea that will be tied back to the Triton FPSO in block 21/30.

Deepwater Leviathan gas project secures Israel's energy needs

In Jan'20, Ocean Installer secured a contract from Dana Petroleum for installation and trenching of the 12-in. flexible production flowline at the Guillemot field in the UK central North Sea that will be tied back to the Triton FPSO in block 21/30.

OneSubsea Secured Anchor, Ormen Lange contracts

In Jan'20, OneSubsea won contract from Chevron U.S.A. Inc for supplying multiphase boosting system and integrated subsea production for the deepwater Anchor field in the US Gulf of Mexico. The contract will allow OneSubsea to supply vertical monobore production trees and multiphase flowmeters to Chevron.

Woodside Initiated contracts for Sangomar Phase 1 offshore Senegal

In Jan'20, Woodside and its joint venture partners have approved Phase 1 of the Sangomar field development in the Sangomar Offshore and Sangomar Offshore Deep oil blocks off Senegal. Scope of the work includes procurement, engineering, construction, transportation and installation of the SURF system and associated subsea production systems.

Subsea 7 installs St. Malo Equipment in the Gulf of Mexico

In Dec'19, Subsea 7 secured a contract from Chevron U.S.A. Inc. to install services at the St. Malo field in Walker Ridge block 678 in the Gulf of Mexico. Scope of work includes project management, engineering, procurement, construction, and installation of the multi-phase pump system, and water injection flowline system.

Subsea Gas Link Plans for Western Denmark

In Dec'19, Royal Boskalis secured contract from the Danish Energinet Gas-TSO to develop a new 4-kms subsea gas pipeline from Jutland in Western Denmark to the island of Funen. Scope of the work includes pre-trenching, pipe-pull, cofferdam construction and post-lay rock installation to protect the pipeline.

Aker Awarded Contracts for Ærfugl 2 Offshore Mid-Norway

In Dec'19, Aker BP awarded two contracts for Phase 2 of the Ærfugl-Skarv subsea tieback 210 km west of Sandnessjøen in the Norwegian Sea. Aker Solutions secured contracts worth USD77mn for delivering vertical subsea trees, wellheads, controls, satellite structures, tie-in module and roughly 30 km of umbilicals. The company's engineering and manufacturing divisions in the UK, Malaysia, Norway, India, and Brazil will work on the order and deliver subsea structures during 2020. Subsea 7 won EPCI contract to supply an electrically heat traced flowline running 13.5 kms from subsea location to the Skarv infrastructure.

DeepOcean Secured Contract from Equinor

In Dec'19, DeepOcean AS secured contract from Equinor for subsea IRM services off Norway over a period of nine months. Scope of the work includes subsea ROV operations covering maintenance, inspection, and repair activities on Equinor's assets on the Norwegian continental shelf and associated engineering and project management services.

6

Market Outlook

An Outlook for 2020

In 2020, the oil and gas contractors are expected to witness surge in the global demand. According to Rystad Energy, the number of planned projects to be executed in the new offshore schemes are expected to increase from 160 in 2016 to 250 in 2020. According to Rystad Energy's study on the global service market, the fabricators of liquefied natural gas facilities, providers of subsea installation services, and contractors of floating production, are anticipated to face challenges in catering to the growing customer demand. These market participants are expected to face hinderances in maintaining enough contractor capacity to deal with such surge in volume of business. Such supply shortage may face delays in project completion and increase in costs, which will give allow to the offshore contractors to become the price makers for the first time since 2014.

Market activity

Offshore market is witnessing developments in installation of sub-sea umbilicals, risers and flow lines (SURF); floating production, storage and offloading vessels (FPSOs), and deepwater and LNG projects. In 2019, the FPSO market contractors have secured 13 new orders, which has brought the cumulative orders at various stages of development to 28. Contrary to such growth, the industrial capacity is not enough for on-time delivery of all additional orders during 2020. Similary in SURF market, the suppliers are facing challenges in catering to the market demand despite increasing order books. For instance, ~600 subsea Christmas trees were ordered during 2018 – 2019; however, the subsea contractors are likely to face challenges in installing ~4000 kms of subsea oil and gas flow lines and umbilicals during 2020. Further, deepwater projects have been witnessing growth in new offshore oil projects reaching 10 LNG projects sanctions in 2019 and the seven proposed for 2020. However, these projects may also face delays due to the scarcity in number of experienced engineering, procurement and construction (EPC) contractors capable in tackling the mega-projects planned in such specialized sector.

Contractors Become the Price Makers

The subsea contractors are expected to take control of price making mechanism from the oil companies due to the shortfalls in industrial capacity operated by experienced subsea contractors. Further, these contractors are witnessing new market opportunities in marine r enewables sector.

> **"Deepwater projects are now in a challenging situation as they heavily depend on SURF and FPSO contractors."**
>
> ***- Audun Martinsen,*** *Head of Oilfield Services at Rystad Energy*

7

Subsea M&A Transactions

Enhanced Drilling Holding acquired IKM Cleandrill

In Nov'19, Enhanced Drilling Holding acquired IKM Cleandrill, a Norway-based service company in the field of subsea drilling fluids management from IKM Gruppen for a consideration of USD33mn. The transaction is in line with the Company's aim of developing riserless mud recovery and managed pressure drilling services.

Tekmar Group acquired Pipeshield International

In Oct'19, Tekmar Group acquired Pipeshield International, a UK-based provider of specialised subsea pipeline protection systems for USD 8mn. The acquisition is in line with the Company's strategy of acquiring synergistic offshore energy businesses focusing on subsea technology.

Hunting acquired RTI Energy Systems

In Aug'19, Hunting acquired RTI Energy Systems, a US-based manufacturer of production riser technologies for deep water applications within the offshore oil and gas industry for USD13mn. RTI complements Hunting Subsea operations and will provide with an enlarged product offering into the recovering deep-water offshore market.

Rubicon Partners acquired Cortland Fibron BX

In Dec'18, Rubicon Partners acquired Cortland Fibron BX, a UK-based manufacturer, engineer and designer of offshore and subsea umbilicals, cables, and hoses for USD13mn from Actuant Corporation as Cortland did not fit the Actuant's growth plans for both tools and service segment

Transocean acquired Ocean Rig

In Sep'18, Transocean acquired Ocean Rig, a Cayman Islands-based provider of off-shore contract drilling oil services for USD3bn. The acquisition enhances Transocean's position in ultra-deepwater and harsh environment drilling. The combination also strengthens Transocean's customers relationship and expands its presence in the key markets of Brazil, West Africa and Norway.

Mitsui acquired AKOFS Offshore

In Jun'18, Mitsui acquired 50% stake in AKOFS Offshore, a Norway-based provider of vessel-based subsea well construction and intervention services to the oil and gas industry from Akastor ASA. Under the terms of the acquisition, Mitsui and Mitsui O.S.K. will acquire a 25% stake each in the AKOFS respectively for a total consideration of USD143mn.

Northern Drilling acquired two P3 and ultra-deepwater capable drillships

In May'18, Northern Drilling acquired two P3 and ultra-deepwater capable drillships from Daewoo Shipbuilding & Marine Engineering for USD 592mn. Concurrently, Northern Drilling has received an option to acquire a third drillship, known as the Cobalt Explorer, from Daewoo Shipbuilding at a purchase price of USD350mn with the option period expiring in six months.

Oyat Invest acquired Bardot Group

In May'18, Oyat Invest acquired Bardot Group, a France-based company engaged in providing subsea umbilical risers and flowlines.

TechnipFMC acquired Island Offshore Subsea

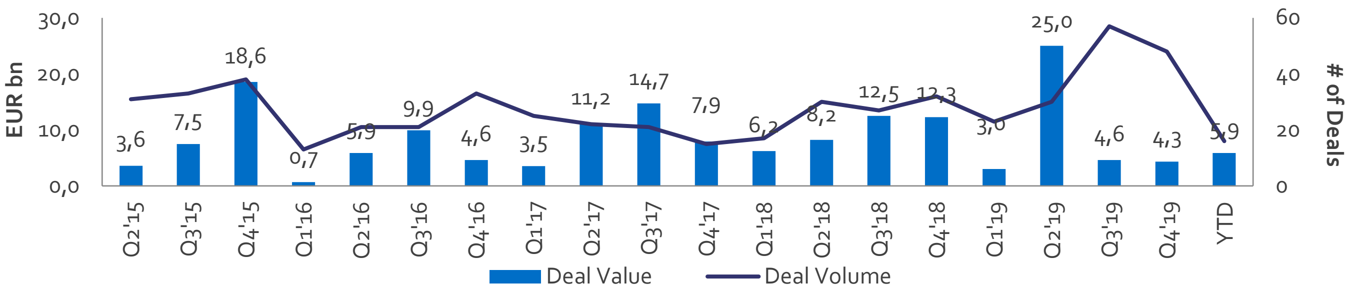
In Dec'18, TechnipFMC acquired 51% stake in Island Offshore Subsea, Norway-based company engaged in developing and implementing customized engineering solutions for Light Well Intervention and other subsea well operations for EUR 872mn. The transaction will further develop and strengthen Island Offshore Subsea's position within RLWI, both in Norway and internationally.

EV Private Equity acquired Aquaterra Energy

In July'17, EV Private Equity acquired Aquaterra Energy, a UK-based company providing riser systems, offshore structures and rental equipment's and services to the oil and gas industry. With a focus on Sea Swift, Well Start and riser analysis, Aquaterra intends for service expansion and new technology launches which will fuel the growth of the business through the investment received.

8

M&A Activity in the Maritime & Offshore Industry



Source: Merger Market

Recent M&A Transactions

Ann. Date	Target	Country Code	Buyer	Country Code	Deal Value (€ mn)	EV (€ mn)	EV/ Rev (x)	EV/ EBITDA (x)
17-Feb-20	DP World PLC (19.55% Stake)	AE	Port & Free Zone World FZE	AE	2,503	23,790	-	-
10-Feb-20	American Steamship Company	RU	Rand Logistics, Inc.	RU	238	238	-	-
07-Feb-20	Hapag-Lloyd Kreuzfahrten GmbH	IN	TUI Cruises GmbH	IN	1,200	1,200	3.9x	27.9x
21-Jan-20	Magellan Midstream Partners (three marine terminals)	DE	Buckeye Partners, L.P.	DE	225	225	-	-
16-Jan-20	Terminal de Conteineres de Paranagua S/A (22.5% Stake)	AE	China-Portugal Cooperation Development Fund	AE	135	987	-	-
16-Jan-20	Intertug S.A. (70% Stake)	SG	Sociedad Matriz SAAM SA	SG	67	88	2.2x	-
03-Jan-20	Krishnapatnam Port Company Ltd (75% Stake)	FR	Adani Ports and Special Economic Zone Ltd	FR	1,468	1,698	5.7x	10.2x
24-Dec-19	Chongqing Guoyuanjian Bulk Cargo Port Co., Ltd. (49% Stake)	HK	Chongqing Port Logistics Group Co., Ltd.	CA	64	-	-	-
23-Dec-19	Long Ridge Terminal LLC (49.9% Stake)	NL	Grosvenor Capital Management LP	CN	135	-	-	-
02-Dec-19	Textainer Group Holdings Limited (47.52% Stake)	SG	Trencor Limited (Shareholders)	HK	255	3,783	6.8x	9.6x
27-Nov-19	Transcontainer OAO	BM	Delo Group	ZA	1,736	1,736	1.7x	8.7x
25-Nov-19	AVIC International Maritime Holdings Limited	US	China Merchants Group Limited	US	374	367	4.8x	17.3x
25-Nov-19	Ameya Logistics Pvt Ltd (50% Stake)	US	PSA International Pte Ltd	US	77	-	-	-
04-Nov-19	PACC Offshore Services Holdings Ltd	US	Quetzal Capital Pte. Ltd.	US	930	930	3.5x	nm
07-Oct-19	International Seaways, Inc. and Qatar Gas Transport Company Joint Venture (49.9% Stake)	BR	Qatar Gas Transport Company	PH	112	-	-	-
01-Oct-19	Teekay Offshore Partners L.P. (26.7% Stake)	BM	Brookfield Business Partners L.P.	CA	156	3,211	2.5x	7.2x
27-Sep-19	KLG Europe Divisions	US	Sinotrans Limited	US	386	386	-	-
19-Aug-19	DryShips Inc (16.65% Stake)	BR	SPII Holdings Inc.	CN	68	596	3.6x	9.9x
08-Aug-19	TransMontaigne Product Services LLC	US	Undisclosed bidder	US	246	246	-	-
06-Aug-19	Dream Cruises Holding Limited (35% Stake)	QA	TPG Capital LP; Ontario Teachers' Pension Plan	QA	436	2,917	-	-
05-Aug-19	SEA-Vista, LLC (49% Stake)	CA	SEACOR Holdings Inc.	US	156	372	-	-
22-Jul-19	Libra Terminal Rio S.A.	IN	International Container Terminal Services, Inc.	SG	176	176	-	-
11-Jul-19	Ridley Terminals Inc (90% Stake)	GR	Riverstone Holdings LLC; AMCI Group	GR	101	128	1.7x	3.3x
10-Jul-19	SCI Cargo Property Assets	CO	Argan S.A	CL	898	898	-	-
01-Jul-19	Topaz Energy and Marine Limited	CN	DP World PLC	CN	953	953	3.1x	5.7x
Mean							3.6x	11.1x
Median							3.5x	9.6x

Source: Mergermarket

The third and fourth quarter of 2019 witnessed a decrease in the deal value and a greater number of deals compared to the same quarter in 2018, with deal value decreasing by 63.2% & 64.9% respectively, and volume increasing by 111.1% & 50.0% respectively. 2020 YTD witnessed a decent activity with a total of 16 transactions having a deal value of EUR 5.9bn in less than two months.

Key M&A Transactions

Carnival Corp Selling Ships to Cut Costs

In Jun'20, Carnival Corp, a cruise company, entered into preliminary agreements for the disposal of six vessels. The company is working toward additional agreements. The company reported a loss of $4.4 bn in 2Q20.

Maersk Tankers spins off ZeroNorth

In Jun'20, Maersk Tankers spun off ZeroNorth to accelerate digitalization of shipping with its Optimise software to address CO_2 emissions and boost earnings. ZeroNorth has 6 customers and over 300 vessels use Optimise software. Increased adoption of the software could lead to decline in CO_2 emissions by 50 mn metric tonnes and increase in industry's revenue by up to $12 bn over the next five years.

Maersk Supply Service Divests Vessels

In Jun'20, Maersk Supply Service divested Maersk Advancer and Maersk Asserter vessels to an international buyer due to insufficient commercial opportunities in the wake of COVID-19 pandemic. The divestment will help in right-sizing the supply side of the OSV market.

Norden Forms Strategic Partnership with Diamond S Shipping

In Jun'20, tanker shipping companies Norden and Diamond S Shipping have formed a strategic partnership, DiaNor, which will be marketed and operated through Norient Product Pool. As part of the partnership, the two companies will consolidate their tanker fleets. Diamond S will contribute 28 ships and subsequently Norient Product Pool will manage a combined fleet of 150 medium range tankers.

Mitsubishi Heavy Industries Seeks to Merge with Mitsui E&S' Shipbuilding Unit

In Jun'20, Mitsubishi Heavy Industries announced that it is in talks to acquire the shipbuilding unit of Mitsui E&S. The merger will help the companies compete better in a business that is rapidly consolidating. The Mitsui E&S' shipbuilding unit's sales fell by around 40 % year-over-year in FY2020.

Sembcorp Marine Demerging from Sembcorp Industries

In Jun'20, Sembcorp Marine, a builder and operator of a repair facilities in Singapore for the offshore, marine and energy industries, announced a $1.5 bn recapitalization plan backed by its current parent company Sembcorp Industries and investment firm Temasek. After the demerger both the companies will focus on their individual operations. The current parent company will hold 70% stake in Sembcorp marine after the completion of the demerger.

Teekay Corporation acquires an undisclosed stake in Teekay LNG Partners LP

In May'20, Teekay Corporation has agreed to acquire an undisclosed stake in Teekay LNG Partners LP. Teekay LNG will issue 10.75 mn newly-issued Teekay LNG common units to Teekay. The transaction is to eliminate all of the Partnership's incentive distribution rights (IDRs) between both the parties. The implied equity of the transaction is $974 mn.

Haefen und Gueterverkehr Koeln AG acquires Imperial Shipping Services GmbH (ISS)

In May'20, Haefen und Gueterverkehr Koeln AG agreed to acquire Imperial Shipping Services GmbH (ISS), a Germany-based shipping services provider for European inland waterways, for $247mn. The deal complements Haefen's investment portfolio for logistics and freight transport companies and will also expand Haefen's services in chemical and gas shipping.

Lürssen and German Naval Yards Kiel

In May'20, Lürssen and German Naval Yards Kiel (GNYK) decided to consolidate their military and naval surface shipbuilding activity through a joint venture.

Royal IHC Reaches Agreement for Acquisition and Refinancing

In Apr'20, Royal IHC entered in a Heads of Agreement with an industry consortium of major players, including HAL Investments, Ackermans & van Haaren, MerweOord, and Huisman, in the maritime sector and its existing syndicate of banks to acquire and refinance IHC Merwede Holding B.V.

Active Capital Company Acquired Delta Coastal Services

In Mar'20, Amsterdam-based private equity firm Active Capital Company acquired a majority stake in dredging and coastal reinforcement company Delta Coastal Services.

MPC Container Ships raised $13m

In Feb'20, Norway-based MPC container ships raised $13 mn (NKr125m) in a private placement with investments from Star Spike Ltd, CSI Beteiligungsgesellschaft mbH, and Pilgrim Global ICAV. MPC Container owns and operates a portfolio of container ships with strong focus on the feeder segment between 1,000 and 3,000 TEU.

Port & Free Zone World FZE (PFZW) acquires DP World in $2.7bn deal

In Feb'20, PFZW, a subsidiary of Dubai World Corporation (DWC), agreed to acquire 19.6% stake in DP World, a UAE-based business of international marine terminal operations and development. This deal will enable DWC to focus on its strategy of transforming from a global port operator to infrastructure-led end-to-end logistics provider. The deal values DP World at an enterprise value of $25.8bn.

GATX Corporation sells American Steamship Company (ASC) business segment to Rand Logistics

In Feb'20, Rand Logistics has signed an agreement to acquire ASC, a US-based transportation company operating a fleet of self-unloading vessels, for a consideration of $260mn. The combination will create growth opportunities for both Rand Logistics and ASC and result in improving customer service and shipping capacity.

TUI and Royal Caribbean joint venture – TUI Cruises acquires luxury brand Hapag-Lloyd Cruises

In Feb'20, TUI Cruises signed a contract to acquire Hapag-Lloyd Kreuzfahrten, a Germany-based provider of luxury and expedition cruises. Hapag-Lloyd Cruises which is valued at $1.3bn will be the second pillar of the successful joint venture, providing an ideal starting point for accelerated growth in TUI's Cruise division.

CSAV Increased Stake in Hapag-Lloyd

In Jan'20, Chilean Compañía Sud Americana de Vapores acquired majority stake in Hapag-Lloyd, German shipping major, for approximately $300 mn.

Magellan Midstream Partners sells select marine terminals to Buckeye for $250mn

In Jan'20, US-based owner and operator of refined petroleum pipelines have acquired three marine terminals from Magellan Midstream Partners. The terminals are located in Connecticut, Delaware and Louisiana. The sale aligns with Magellan's strategy of optimizing its asset portfolio by divesting non-core assets.

China Merchants Port (CMPort) transfers 22.6% equity of (TCP) to (CPD) Fund

In Jan'20, CPD Fund, a China-based fund managed by China-Portugal Development (CPD) Fund has acquired 22.6% stake in Terminal De Containeres de Paranaguá (TCP), a Brazil-based container port terminal operator, for a consideration of $150mn. This equity transfer is the first time for CMPort to bring in strategic investors for its overseas existing terminal assets

Sociedad Matriz SAAM enters the Columbian towage market, consolidates its presence in Central America and expands operations in Mexico

In Jan'20, SAAM has agreed to acquire 70% stake in Intertug, a Columbia-based provider of port and harbour assistance and specialized terminal operations, via a capital increase and share purchase, for a consideration of $75mn. The deal values Intertug at an enterprise value of $98mn.

Adani Ports and SEZ (APSEZ) acquires controlling stake of 75% in Krishnapatnam Port Company (KPCL)

In Jan'20, 3i Group via 3i India Infrastructure Fund and CVR Group have agreed to sell 75% stake in KPCL, India-based business of handling containers, coal, break bulk and other bulk cargo, for a consideration of $1.6bn. The transaction will accelerate APSEZ's stride towards 400 MMT by 2025 and will increase its market share from 22% to 27% in hinterland catered by KPCL.

PON Holdings Acquired RH Marine Group

In Dec'19, Amsterdam-based PON Holdings announced decision to acquire Parcom Capital's majority stake in RH Marine Group, which operates three subsidiaries including Radio Holland Group (Rotterdam), VBH (Amsterdam) and Aerius Marine (Hamburg). The subsidiaries cater to a range of maritime segments and customers across the world.

Global Ship Lease Acquired Two Post-Panamax Containerships

In Nov' 19, Global Ship Lease acquired two 2004-built, 6,080 TEU post-Panamax containerships on long-term charters (52 – 60 months charters) for an aggregate purchase price of $24.5 mn. The vessels are expected to generate aggregate adjusted EBITDA of around $21 mn over the term of the contracted charters.

China Merges Its Two Shipbuilding Firms

In Nov' 19, the two state-owned Chinese shipbuilding firms, China State Shipbuilding Corporation (CSSC) and China Shipbuilding Industry Company, merged to form a bigger shipbuilding firm. The merger will allow the new company to compete with leading companies in the global maritime industry. The new entity will retain the brand name of China State Shipbuilding Corporation Ltd.

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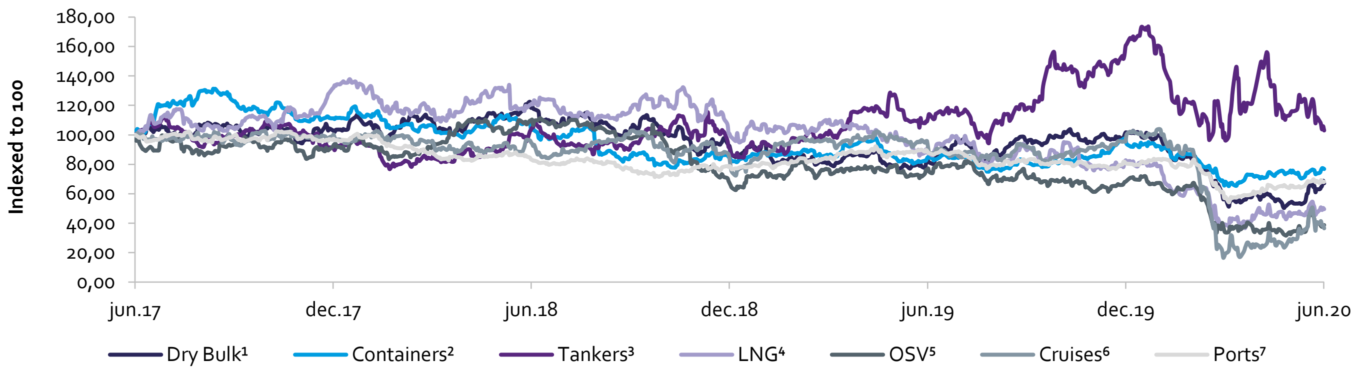
Share Price Performance

(% Change)	Dry Bulk	Containers	Tankers	LNG	OSV	Cruises	Ports
3Y	(32.9%)	(23.2%)	3.0%	(50.5%)	(61.3%)	(63.5%)	(31.9%)
1Y	(18.1%)	(8.7%)	(5.7%)	(44.3%)	(48.9%)	(61.9%)	(23.6%)
6m	(33.9%)	(20.5%)	(35.8%)	(40.1%)	(43.2%)	(61.8%)	(15.6%)



Source: FactSet as of 20 Feb' 2020

Notes:

1. Includes Pacific Basin Shipping, Star Bulk Carriers and Great Eastern Shipping
2. Includes A.P. Moller – Maersk, Evergreen Marine, Cosco Shipping and Orient Overseas
3. Includes Frontline, Euronav and Tsakos Energy Navigation
4. Includes GasLog, Teekay LNG Partners and Golar LNG
5. Includes Bourbon, Solstad Offshore, Tidewater and SEACOR Holdings
6. Includes Royal Caribbean Cruises, Carnival Corp and Norwegian Cruise Line Holdings
7. Includes DP World, China Merchants Port Holdings, Adani Ports & SEZ, Dalian Port and International Container Terminal Services

Over the past three years, Tanker industry has shown a continuous growth in its performance and has outperformed the other sectors in the maritime industry. The tanker market had a positive 2019, but the first half of 2020 has been volatile due to the impact on demand from the CoVID-19 pandemic, coupled with the excess of crude oil that flooded the market in H1 2020. While the tanker market declined in Feb'20, it was strong again in Mar'20, mainly due to a low oil price and a lack of agreement within OPEC+ regarding further production cuts. The price, already at a low level, fell by another 30% overnight. This resulted in significantly increased oil trading – and sharply rising rates in the tanker market. In a short space of time, rates in the VLCC segment rose from around $25,000/day to $150,000 – $200,000/day. In the Suezmax segment, rates rose to $70,000 – $100,000/day, depending to some extent on geographical area.

Container stocks have had the most direct impact of slowing economic growth in the shipping industry, with demand for containerised goods being one of the first things to be affected. Many players are cutting down the number of voyages and providing short-term storage for clients as the industry faces its biggest downturn since the 2008 financial crisis.

The share prices of Cruise line stocks have underperformed over the last three years. In 2020, the industry has been shut down due to government regulations regarding the CoVID-19 pandemic. In Mar'20, Centers for Disease Control and Prevention (CDC) imposed a "No Sail Order" for all cruise ships and renewed the order on April 9, 2020. The order is expected to stay in place for 100 days up to July 24, 2020, or until further notice.

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Peer Analysis

Company Names	Country	Country	Share Price (€)	% of 52-Week High	Market Cap (€m)	EV (€m)	LTM Enterprise Value/ Rev(x)	LTM Enterprise Value/ EBITDA (x)	Net Debt/ EBITDA (x)
Dry bulk									
Star Bulk Carriers	Greece	GR	6.54	60.8	628	1,912	2.6x	10.8x	7.3x
Pacific Basin Shipping	Hong Kong	HK	0.13	63.9	646	1,302	0.9x	6.5x	3.3x
Great Eastern Shipping	India	IN	2.51	56.6	369	533	1.1x	2.7x	0.8x
Mean							**1.6x**	**6.7x**	**3.8x**
Median							**1.1x**	**6.5x**	**3.3x**
Containers									
A.P. Moller - Maersk A/S	Denmark	DK	993.84	77.4	18,919	33,171	0.9x	6.1x	2.0x
COSCO SHIPPING Holdings	China	CN	0.27	68.6	3,324	20,706	1.1x	9.2x	5.8x
Orient Overseas	Hong Kong	HK	3.63	55.3	2,274	2,573	0.4x	4.3x	0.5x
Evergreen Marine	Taiwan	TW	0.33	79.1	1,573	6,094	1.1x	8.4x	6.1x
Mean							**0.9x**	**7.0x**	**3.6x**
Median							**1.0x**	**7.2x**	**3.9x**
Tankers									
Euronav	Belgium	BE	7.66	65.4	1,648	2,766	2.7x	4.4x	1.8x
Frontline	Bermuda	BM	6.80	57.4	1,343	3,178	3.2x	7.8x	4.5x
Tsakos Energy Navigation	Greece	GR	2.07	50.7	198	1,547	2.7x	6.2x	4.8x
Mean							**2.9x**	**6.1x**	**3.7x**
Median							**2.7x**	**6.2x**	**4.5x**
LNG									
Golar LNG	Bermuda	BM	7.22	43.8	707	3,063	7.4x	13.4x	nm
Teekay LNG Partners	Bermuda	BM	11.45	77.0	873	3,749	7.0x	9.9x	6.7x
GasLog	Monaco	MC	2.85	21.1	230	4,004	6.7x	9.7x	7.0x
Mean							**7.0x**	**11.0x**	**6.8x**
Median							**7.0x**	**9.9x**	**6.8x**
OSV									
SEACOR Holdings	United States	US	26.29	57.8	535	845	1.2x	10.2x	3.8x
Tidewater	United States	US	5.31	25.1	214	289	0.7x	5.4x	1.4x
Solstad Offshore	Norway	NO	0.06	30.2	17	2,964	5.9x	22.0x	21.9x
Mean							**2.6x**	**12.5x**	**9.0x**
Median							**1.2x**	**10.2x**	**3.8x**
Cruises									
Carnival Corporation	United States	US	15.94	34.1	12,063	22,798	1.2x	4.7x	2.4x
Royal Caribbean Cruises	United States	US	49.42	40.6	10,348	22,545	2.4x	8.8x	4.6x
Norwegian Cruise Line Holdings	United States	US	16.29	30.3	4,176	10,289	1.8x	7.8x	5.2x
Mean							**1.8x**	**7.1x**	**4.0x**
Median							**1.8x**	**7.8x**	**4.6x**
Ports									
DP World	United Arab Emirates	AE	14.47	95.3	12,045	25,434	3.7x	9.2x	4.4x
Adani Ports & SEZ	India	IN	4.10	75.6	8,326	11,192	8.1x	13.2x	3.2x
China Merchants Port Holdings	Hong Kong	HK	1.10	68.2	3,808	8,981	8.9x	18.4x	7.4x
International Container Terminal Services	Philippines	PH	1.75	68.1	3,504	7,283	5.0x	9.9x	5.0x
Dalian Port	China	CN	0.08	66.6	1,012	1,667	2.0x	5.4x	3.0x
Mean							**5.5x**	**11.2x**	**4.6x**
Median							**5.0x**	**9.9x**	**4.4x**
Overall Mean							**3.3x**	**8.9x**	**4.9x**
Overall Median							**2.5x**	**8.6x**	**4.5x**

Source: FactSet as of 19 Jun' 2020

Recent Development of Key Players

Carnival to sell six cruise ships as bookings dry up and reported a loss of $4.4 bn

In Jun'20, Carnival Cruise has reported a loss of $4.4 bn in the last three months and planned to sell six cruise ships as bookings were cancelled due to CoVID-19 pandemic. Revenue dropped to $700.0 mn in March-May period of 2020 from $4.8 bn for the same period in 2019, as the booking dried up and the corporation's cruise line stopped sailing.

SE Asian ports need to invest billions as shippers seek alternatives to China

In Jun'20, Ports in South-east Asia plans to invest up to $13 bn to upgrade the terminal capacity in order to handle the expected shift in sourcing away from China that has been triggered by COVID-19 supply chain disruptions. An estimated amount of $13 bn investment is required to increase the port capacity in Vietnam, Thailand, the Philippines, Myanmar, Indonesia, Cambodia, Singapore and Malaysia

Tampa port lands $20 mn grant to expand container berth

In Jun'20, The US Department of Transportation has awarded a $19.8 mn grant to Tampa Bay port to help expand its shipping container operations by 60%. The grant allows the port to move up a $55 mn project to build a new 1,300-foot-long berth and a 30-acre container yard.

Svitzer wins two contracts to bolster African towage business

In Jun'20, Svitzer secured a five-year contract to provide harbour towage and pilot transfer services for Nacala Logistics in Mozambique. Additionally, the company secured a five-year extension of its current contract with Egyptian LNG assisting the onshore Idku LNG plant to operate four tugs, two mooring boats and one pilot vessel.

Kongsberg thrusters for fully electric tug

In May'20, New Zealand's Ports of Auckland Limited and Damen Shipyards Group partnered to develop a fully electric ship handling tug to conduct emissions-free operations by 2040. Kongsberg Maritime's azimuth thrusters have been selected to power a fully electric ship handling tug.

DP World joins with TradeLens to digitize global supply chains

In May'20, DP World integrated with TradeLens, a blockchain based digital container logistics platform developed by A.P. Moller – Maersk and IBM. The collaboration is expected to connect DP World's 82 marine and inland container terminals, as well as feeder companies and logistics divisions.

HMM unveils world's biggest container ship

In Apr'20, Hyundai Merchant Marine (HMM) announced plans to launch the biggest container ship in the world with a vessel capacity of 24,000 teu. The ship is expected to be delivered by September 2020 with optimised hull design to improve energy efficiency and reduce carbon emissions.

Solstad Offshore to dispose of 37 vessels on restructuring plan

In Apr'20, Solstad offshore announced its plan to dispose-off 37 older vessels as a part of restructuring plan, bringing down the group's fleet of vessels to 90. The fleet consists of a mix of PSVs, AHTS vessels and OCVs/CSVs. Additionally, the company planned to covert $959 mn debt into equity in a bid to strengthen the group's balance sheet and liquidity.

Fairplay expands into new towage market

In Mar'20, Fairplay Towage has opened operations in the Canary Islands, Spain to provide towage, ship manoeuvring and berthing support services in the port of Las Palmas.

Swire Shipping strengthens Asia operations with new build vessel

In Mar'20, Swire Shipping has strengthened its operations in Asia with the deployment of a newly-build 2,400-teu vessel onto the Southeast Asia to Papua New Guinea and Solomon Islands route. The 2,400 teu feeder vessel is built at CSSC Huangpu Wenchong Shipbuilding that features three 45 metres uprated cranes, non-containerised cargo capability, pontoon weather tight hatch covers, and a hull form design for fuel efficiency.

India to invest US$9 bn in new deepwater container port

In Feb'20, the Indian government announced plans to develop a large deep-water port on its western coast with an investment of more than $9 bn. The port will be built at Vadhavan near Dahanu in the state of Maharashtra by a joint venture led by Jawaharlal Nehru Port Trust.

Evergreen Line launches new digital platform

In Feb'20, Evergreen Line launched GreenX, a new digital platform for customers to get instant quotes and book secured space with prioritised equipment supplied by the carrier. The platform is powered by BlueX Trade, a neutral freight tech supplier that builds ocean cargo networks to link the shipper community with Evergreen Line services.

Maersk to pilot 600 kWh containerized battery system on container ship

In Nov'19, Maersk Cape Town has installed a 600 kWh marine battery system in a trial on board to improve vessel performance and reliability while reducing CO_2 emissions. Additionally, the battery system will support the generators with up to 1,800 kVA of power during rapid changes in electrical load such as thruster operation.

Abbreviations

US – United States

UK – United Kingdom

UAE – The United Arab Emirates

BIMCO – Baltic and International Maritime Council

DWT - Deadweight Tonnage

MN – Million

BN – Billion

IMO – International Maritime Organization

WTO – World Trade Organization

IEA – International Energy Agency

OPEC – Organization of Petroleum Exporting Countries

MBP – Million Barrels Per Day

VLCC – Very Large Crude Carriers

TEU – Twenty-Foot Equivalent

OSV – Offshore Supply Vessel

USD – United States Dollar

PSV - Platform Supply Vessel

CAGR - Compound Annual Growth Rate

CLIA - Cruise Lines International Associations

FRPs - Fibre-reinforced polymers

E&P – Exploration and Production

BOE – Barrel of Oil Equivalent

MMcfd – Million Cubic Feet

FPSO – Floating Production Storage and Offloading

FLNG - Floating Liquefied Natural Gas

WAG - Water-Alternating-Gas

SURF – Subsea Umbilicals, Risers, and Flowlines

LNG - Liquified Natural Gas

BCFD – Billion Cubic Feet

MBD – Thousand Barrels Per Day

TOTEX – Total Expenditure

JIPs – Joint Industry Projects

PLEM – Pipeline-End Manifold

FEED – Front-End Engineering and Design

SIA – Subsea Integration Alliance

IMF – International Monetary Fund

CFD – Computational Fluid Dynamics

R&D – Research and Development

11

Global M&A Partners

Highlighted Transaction

Tramarsa Flota S.A.

PSA Marine (Pte) Ltd

PSA Marine (Pte) Ltd, a subsidiary of PSA International Pte Ltd, acquired 100% of the shares of Tramarsa Flota S.A.

Singapore
Peru

JBR & Macroinvest

Advisor to the seller

PSA Marine (Pte) Ltd, a subsidiary of PSA International Pte Ltd, acquired 100% of the shares of Tramarsa Flota S.A., Naviera Tramarsa S.A. and Diving del Perú S.A.C.

swissterminal

DP WORLD

DIVESTITURE of a minority stake of Swissterminal Holding AG to DP World.

Zetra International

Advisor to the seller

DP World, a leading global trade enabler, and Swissterminal Holding AG, the leading container terminal operator in Switzerland, have entered a strategic partnership.

UCS Underwater Cutting Solutions

Ashtead Technology

UCS is a market leading offshore engineering specialist providing cold cutting, dredging and coating removal services

Zeus Capital

Advisor to the seller

Zeus Capital acted as financial adviser to the shareholders of Underwater Cutting Solutions on its successful sale to Ashtead Technology

eolos FLOATING LIDAR SOLUTIONS

PRORSUM CAPITAL

The Swiss investment company PRORSUM AG provides growth equity to a spanish start-up that develops floating LIDAR buoys

Switzerland
Spain

JBR

Advisor to the seller

Prorsum AG provides a significant capital injection in EOLOS.

JBR acted as advisor to EOLOS and its shareholders

SUBSEA

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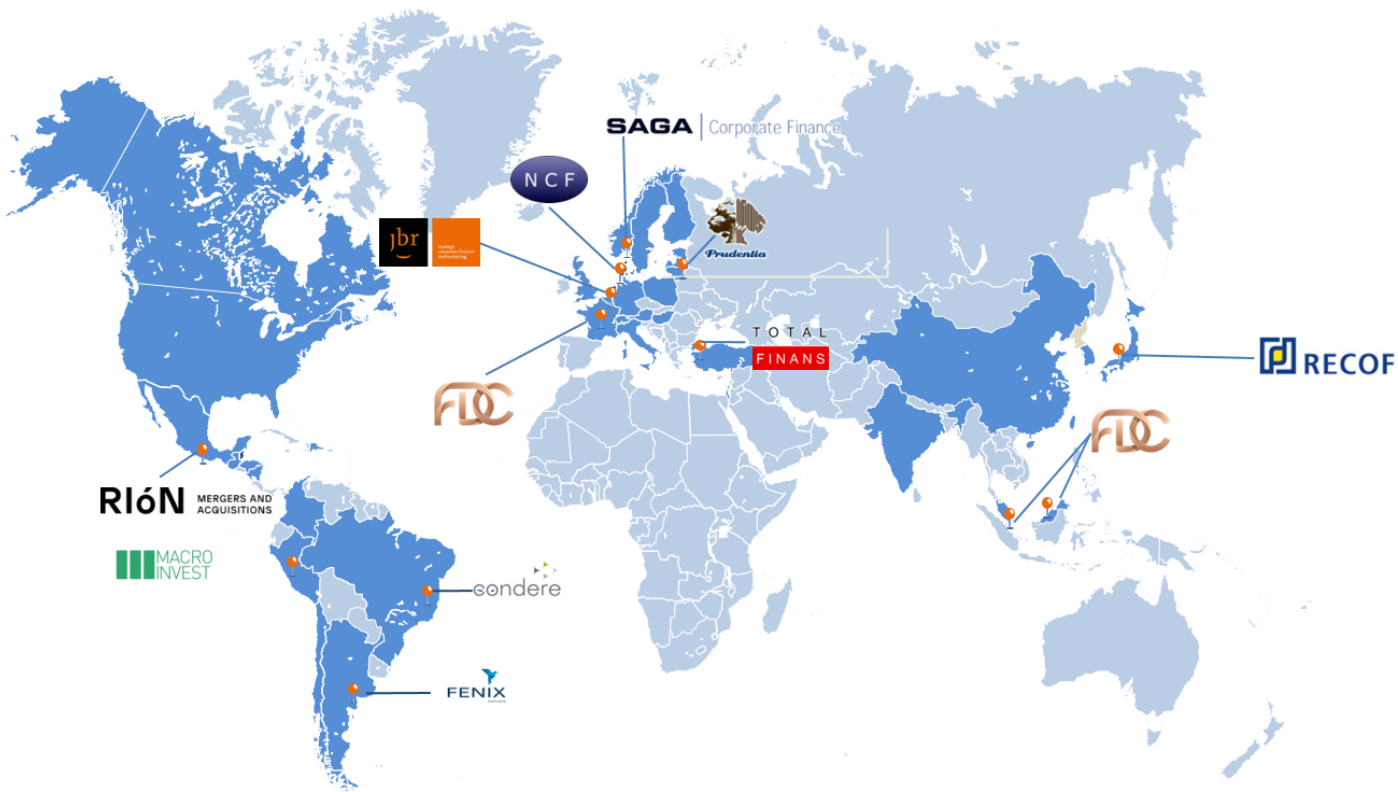
Ben Vree

Ambassador Maritime and Offshore

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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