SHIPPING MARKET REVIEW – NOVEMBER 2020

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EXECUTIVE SUMMARY

How to turn the climate agenda into a business opportunity

We present a vision that aims to identify how ships, as an asset class, can re-emerge as an attractive investment opportunity in a zero-carbon future. This is, to some extent, a discussion of end-game scenarios. Whether or not the scenarios actually materialise is not that important; the key thing is that exploring them may allow us to open our minds to alternative trajectories and help us escape the rut of linear thinking.

The shipping industry is struggling to identify a clear pathway towards decarbonisation. The asset base is owned by small and medium-sized players. The fragmented industry structure complicates the articulation and development of an industry-wide strategy for zero-carbon fuels. Many initiatives are currently being reviewed. Costs remain a major issue. There is currently no zero-carbon fuel that can offer a global distribution network at scale which is price competitive with current bunker fuels.

The short- and medium-term outlook is shrouded in uncertainty. The industry's low return on invested capital combined with the increased need to invest has dried up the supply of equity investors and created an environment where there are more sellers than buyers of vessels. We foresee a bumpy transition in the absence of clear long-term guidance from regulators that works to bridge and facilitate the energy transition.

The long-term value play is about reducing the global economy's CO_2 footprint by decarbonising the underlying industries and sectors. To some extent, this means replacing the oil and gas industry, which requires a standardised, scalable and cost-competitive zero-carbon fuel solution that can work across sectors to be identified. The transformation is likely to reshape industries and redistribute value creation.

Shipowners' access to cargo, capital and ports could be at risk if they are considered not to be doing enough to reduce their CO_2 footprint. Their ability to offer a cost-competitive zero-carbon service to their customers will, at some point, be a critical element in the renewal of their licence to operate.

We set out a vision for the future that aims to turn the climate agenda into a business opportunity. The next-generation zero-carbon-fuelled vessels could emerge as an attractive asset class. The route to additional value creation is primarily cost savings through standardisation and economies of scale.

The barriers to entry could be raised – if only for a period – via the development of a zero-carbon fuel supply available to players that actively engage in sector integration. Sector integration is about pooling various sectors' fuel demand to reach critical mass and allow prices to come down. The zero-carbon fuel choice of the future is a global challenge facing all industries and sectors of the economy, not just maritime players. The shipping industry is unlikely to be the trailblazer, but some maritime players actively engaging in the decarbonisation process would be likely to benefit from the change.

The transition is strategically not a fuel-type problem. Shifting to zero-carbon fuel will not, in isolation, form a clear pathway to the future; the ability to yield a return on invested capital will not improve just because the fuel mix changes. The forces at play are more fundamental and will – at some point – begin to redesign the competitive landscape by changing value drivers and business models.

There is little doubt that the first spark will need to come from new regulation, a carbon tax and/or government subsidies, but incentives alone will not be enough. We aim to stimulate a discussion on value drivers and business models that can help reduce existing vulnerabilities and allow additional value to be created.

STAGES OF CHANGE: THE SPARK OF DECARBONISATION

How do we create the first initiative that instigates change?

1

WHAT
'VESSEL OWNERSHIP IN 2020'

- Fragmented asset base
- Fragmented ownership universe
- No entry barriers
- Structural overcapacity
- Little asset differentiation
- Adverse income model in many vessel segments
- Low return on invested capital
- More sellers than buyers

2

WHY
'LICENCE TO OPERATE'

- Ambitious targets to reduce emissions
- Without action, access to cargo, capital and ports could be at risk
- Higher costs but no additional revenue

3

HOW
'RETROFITTING -> 2030'

- Most income models favour retrofitting projects with short repayment periods
- Immediate reductions in vessels' fuel consumption
- Standard solutions drive down profit margins
- Limited long-term impact
- Reduced ability to renew fleets

4

ZERO-CARBON FUEL
'TOWARDS 2050'

- Chicken-and-egg problem
- No zero-carbon fuel supply without an offtake channel
- No offtake channel without a zero-carbon fuel supply
- High prices and low availability without a scaled solution

5

CHANGE
'BUSINESS MODEL INNOVATION'

- Sector integration: Scaled offtake of zero-carbon fuels
- Cost parity with the carbon alternatives
- Barriers to entry
- Zero-carbon logistics (vs. lowest-priced available vessel)

6

SCENARIOS
'UTILITY OR SERVICE'

- Standardised fleet of vessels across vessel segments
- Cost savings from economies of scale
- Higher customer retention
- Lower lifetime costs
- Attractive returns on invested capital from lower costs and cash flow stability

7

SHIPYARDS
'STANDARDISATION'

- Asset standardisation across vessel segments
- Selling uptime
- Software updates across fleets
- Circularity: From cradle-to-cradle

8

SHIPOWNERS
'CONSOLIDATION'

- A consolidated asset base does not need to rely on decade-long M&A activity
- Lower costs: Standardisation and economies of scale
- Additional income: Monetise the data exhaust from a standardised asset base
- Stable income from operation
- Investment grade structures

A PATHWAY TO ZERO-CARBON SHIPPING

Reaching zero-carbon emissions is technically and economically feasible if we work together across sectors

Transition period: How quickly will alternative fuel production and a distribution network be scaled? When will we begin to see a fleet of vessels powered by zero-carbon fuels?

TODAY

'Vessels powered by fossil fuels'

- Fragmented ownership landscape (SMEs)
- Income model: Often buying and selling vessels
- Product: Commoditised service
- Little asset standardisation
- No economies of scale (high costs)
- No additional income
- Few barriers to entry
- Low return on invested capital

Retrofitting of existing vessels up to 2030

?

How do we take the first steps towards sector integration?

A POSSIBLE FUTURE

'Vessels powered by zero-carbon fuels'

- Consolidated ownership landscape
- Income model: Vessel operation
- Product: Zero-carbon logistics
- Highly standardised asset base across vessel segments
- Economies of scale (lower costs)
- Additional income: Data exhaust from vessel operation
- High barriers to entry (zero-carbon fuel supply)
- Low volatility and stable returns on invested capital

2050

VESSELS AS AN ASSET CLASS

The industry's low return on invested capital is reducing the supply of equity investors

The shipping industry is an integrated part of the global economy. There is little to indicate that the service delivered is about to become obsolete. However, critical elements of the industry's architecture need to change before ownership of the vessels that serve the global economy once again becomes an attractive investment opportunity. The global call to decarbonise the shipping industry increases costs while doing little to support revenues.

The world fleet numbers more than 60,000 vessels, sharing few standards. Most fleets are owned by small or medium-sized players. Business models are relatively simple: you either charter out your vessel or you operate it. Most vessel segments have been burdened by surplus vessel capacity for large parts of the past decade. This has driven down freight rates and charter rates. The return on invested capital has been low across vessel segments.

LOW BARRIERS TO ENTRY

Few vessel segments can present meaningful barriers to entry except for some of the more industrialised Liner operations, many of which operate in short-sea trades within specific regions. The more tramp-based operations are working almost without any barriers to entry. Income stability is generally greater for players operating behind some barriers to entry, while much of the value generation in tramp operations is achieved from buying and selling vessels rather than operating them.

THE LACK OF STANDARDISATION RAISES COSTS AND LOWERS PROFITABILITY

The commoditised nature of cargo handling leaves little room for differentiation. The fragmented asset base means few tangible financial benefits for individual owners. The lack of standardisation raises costs and lowers the potential for additional cost savings through consolidation and economies of scale.

ADDITIONAL COST SAVINGS ARE NEEDED

Additional cost savings are available for shipowners that invest to reduce individual vessels' fuel consumption. This is largely a question of investing in and implementing new technology, onshore and onboard the vessels. The industry has progressed in this field over the past few years, demonstrating that the potential is real. Still, a significant part of the fleet is owned by players that earn their money not by operating the vessels but by buying and selling them. This limits the demand for investing in solutions with long repayment periods. Many retrofitting projects are focused on solutions that deliver immediate reductions in individual vessels' fuel consumption.

SHIPOWNERS' LICENCE TO OPERATE IS AT RISK

By implementing new technologies, the industry continues to improve fuel efficiency and reduce operational inefficiencies. These are critical elements for individual shipowners to stay competitive. However, if the solutions that deliver the efficiency improvements are available to all players willing to pay, it will simply drive down margins. Shipowners' medium-term licence to operate is somehow being renegotiated, since lower returns on invested capital limit their appetite to renew their fleets. Those operating their own vessels are in a better position, but not all may have access to the competencies, technologies or capital needed to progress.

LOW RETURNS ON INVESTED CAPITAL LIMIT THE APPETITE FOR INNOVATION

The industry's low returns on invested capital combined with the increased need to invest in new technologies have dried up the supply of equity investors and created an environment where there are more sellers than buyers of vessels. Few new vessels are being ordered, and transaction volumes among existing vessels are currently low.

THE LICENCE TO OPERATE IS UP FOR RENEWAL

The global economy's call to decarbonise is exacerbating existing vulnerabilities across sectors and industries

The demands to advance the climate agenda are starting to affect how businesses operate as they attempt to cut their carbon emissions, ramp up energy efficiency, and adjust to new risks incurred by the introduction of new technologies. The shipping industry is no exception. The global call to decarbonise is increasing the pressure on margins at a time when the shipping industry can scarcely handle any additional financial burden.

The climate agenda is working to reduce total energy consumption and increase energy efficiency across all parts of the economy. The push is global and is transiting through numerous channels. The ripple effects are intensifying and will soon begin to reach the tectonic plates underlying industries and sectors.

THE CLIMATE AGENDA IS REDEFINING THE LICENCE TO OPERATE

The shipping industry has taken steps to address emissions and set ambitious targets towards carbon neutrality by 2050. The case for action is clear. Making progress towards zero-emission vessels will require concerted efforts not only by shipowners but by many actors across the value chain. Shipowners' access to cargo, capital and ports could be at risk if they are considered not to be doing enough about their CO_2 footprint. The time for action is now.

THE CALL TO ACTION IS ON

Mounting scrutiny from the public, the media, investors, lenders and regulators is increasing the pressure. Investors, for their part, are concerned about the effects of climate risk on valuations and access to capital. Climate-related financial disclosures are becoming more common. Institutions and governments are announcing policies on CO_2 and zero-carbon fuels, and some are considering implementing national or regional carbon taxes. There are hopes that a global carbon tax could facilitate the transition.

A FRAGMENTED ASSET SIDE IS STRUGGLING TO CHAIR THE TRANSITION

It seems that the industry's transition is not being orchestrated by the shipowners, although some are investing to be forerunners. It is charterers, ship managers, equipment manufacturers and service providers, among others, which are working to develop and scale new efficiency-improving solutions for the industry that will allow massive cost savings (including fuel) without risking equity in non-scalable vessels that share few standards. This field is often dominated by players that are significantly more consolidated than those in the vessel-owning space.

THE RISK OF STRANDED ASSETS IS ON THE RISE

The forces at play could, at some point, begin to reshape the competitive landscape by changing value drivers and business models. Owners of existing assets in particular are exposed, and the risk of stranded assets is on the rise, with older assets seemingly less exposed than younger ones. Freight rates are low across oversupplied markets and many vessels are at risk of unexpected short-term value depreciation.

NOT ALL VESSEL OWNERS WILL RENEW THEIR FLEETS

The implementation of new technologies, not just related to the operation of the vessel but also the booking and tracking of cargo, is expected to increase competition and reduce margins. We expect that the average small and medium-sized owner, operating a fragmented fleet, will find it increasingly difficult to deliver a return on invested capital justifying fleet renewal.

RETROFITTING EXISTING VESSELS TO EXTEND THEIR LIFETIMES

Navigating the transition while protecting asset values

The short-term challenge is all about the vessels and individual shipowners. The fragmented asset base limits the ability to introduce large-scale refurbishment programmes to extend the lives of existing vessels. Retrofitting existing vessels often represents an attractive business case and is often handled by individual shipowners on a ship-by-ship basis. Still, this can only extend the lives of existing assets and postpone the need to renew fleets; it is not a long-term industry solution.

The industry's path towards lower carbon emissions is clearly related to fleet renewal, since new vessels have more efficient engines than older vessels. The current appetite for fleet renewals is low, however, in the absence of a clear pathway towards zero-carbon shipping.

RETROFITTING IS ONLY A SHORT-TERM SOLUTION

The industry is working to cut emissions on existing vessels. Fuel represents by far the largest share of operational costs, which is why operators have an intrinsic motivation for increasing their fuel efficiency. Many players across the maritime space are working to optimise operational efficiency and traffic planning. The industry has invested large sums in modernising vessels through retrofits and introduction of new technologies both onshore and onboard vessels. However, these actions can only get the industry so far, cutting emissions by maybe 20-30-40% compared with the do-nothing alternative.

RETROFITTING EXISTING VESSELS OFTEN REPRESENTS AN ATTRACTIVE BUSINESS CASE

Additional leaps in energy efficiency are largely possible through the application of new technology. Still, some retrofitting cases fail because repayment periods are too long, and others because the technology required is not yet mature. Nonetheless, retrofitting existing vessels to lower their fuel consumption continues to represent an attractive business case in the years to come.

THIRD-PARTY SOLUTIONS ARE DRIVING DOWN MARGINS

However, implementing the latest industry upgrade, developed by a third-party provider and available to anyone willing to pay, may represent a difficult choice. It is like an arms race. It may deliver short-term value but will also drive up costs. Eventually, it will drive down profit margins. But doing nothing is not an option either.

CONSOLIDATION IS NOT A SHORT-TERM SOLUTION

In past editions of our Shipping Market Review, we have argued that the industry needs to consolidate the asset-owning space. This appears to be a prerequisite for the next generation of digital and zero-carbon vessels, since it is expected to pave the way for cost savings and monetisation of the vessels' data exhaust. But for the current fleet, this is not an attractive option. The fragmented asset base means that achieving economies of scale or higher barriers to entry simply by being owned by fewer players is not possible. Consolidation of the current fleet is unlikely to improve returns on invested capital beyond potential reductions in the cost of capital.

THE BARRIERS TO ENTRY NEED TO INCREASE

Take the current business environment for the major Container Liner companies as an example. The largest companies own and control a significant share of the industry individually but are still price takers in an oversupplied and volatile market. Additional cost savings would not, per se, increase the returns on invested capital to a degree that would change investors' appetite. The barriers to entry need to increase one way or another.

ZERO-CARBON FUELS

Transitioning to a zero-carbon industry is strategically not about the fuel but about the business model

The transition towards zero-carbon shipping is strategically not a fuel-type problem. Shifting to zero-carbon fuel will not, in isolation, form a clear pathway to the future; the ability to yield a return on invested capital will not improve just because the fuel mix changes. The forces at play are more fundamental and will – at some point – begin to redesign the competitive landscape by changing value drivers and business models.

The shipping industry is struggling to identify a clear pathway towards decarbonisation. Some discussions on the industry transition are centred around questions about fuels, safety, regulation and technologies. These are all valid topics, on which there are many unanswered questions, but addressing them in isolation will not establish a clear pathway to the future. The reality is that more fundamental forces are at play. It is true that none of today's business models are able to handle higher costs without compensation in some form or another, but changing the fuel mix will not, per se, increase returns on invested capital.

THE INDUSTRY STRUCTURE AND COMPETITIVE LANDSCAPE ARE UP FOR REVIEW

The call to decarbonise is a long-term ambition that relates largely to the next-generation vessels that have not yet been built. The pathway to a zero-carbon future is a long-term value play that over time may introduce critical changes not only to the shipping industry but to all industries involved.

REPLACING THE OIL AND GAS INDUSTRY...

Change on this scale calls for a global perspective on sector integration. Decarbonisation is a global challenge facing all industries and sectors of the economy, not just maritime players. The zero-carbon fuels of the future will supply multiple sectors and industries at scale to drive down costs and enable a global distribution network to be developed.

...WITH A COST-COMPETITIVE ZERO-CARBON ALTERNATIVE

Zero-carbon fuels present a classic chicken-and-egg problem. Shipowners do not yet have a viable business case for buying zero-carbon fuels, since no such fuel is currently available at cost parity and in a global distribution network at scale. Surmounting the which-comes-first hurdle will involve a large number of groups globally, each playing their part in achieving this.

A GREAT BUSINESS OPPORTUNITY IS ABOUT TO EMERGE

There is no doubt that the introduction of zero-carbon fuels throws up several issues to consider including the use of fuels with low(er) energy content, higher prices, more frequent bunkering and supply concerns. Still, solving these issues represents an extraordinary business opportunity to be tackled within the next decade.

SUPER-SCALING TO INTRODUCE COST PARITY WITH FOSSIL FUELS

The transition enabler seems to be the identification of a zero-carbon fuel that can be produced and scaled to the benefit of multiple sectors and industries at cost parity with fossil fuels. The cost of renewable energy is now below the cost of its fossil counterparts in most power markets. This justifies plans to expand the direct and indirect electrification of other sectors. The shipping industry is considered an obvious sector to electrify indirectly via electrolysis and electrofuels. The most energy-efficient electrofuels are widely considered to be hydrogen, ammonia and methanol, taking into account production, storage and transportation. Other alternatives are also being reviewed.

ZERO-CARBON FUELS INTRODUCE BARRIERS TO ENTRY

The ability to offer a zero-carbon logistics solution to the market represents an attractive business opportunity that also raises the barriers to entry until other players are able to do the same. The future competitive landscape will be defined by the players that can offer and scale the operation of zero-carbon vessels, potentially across vessel segments, at price parity with their carbon-emitting counterparts (i.e. a carbon tax will only help to bridge the gap).

BUSINESS MODEL INNOVATION

The introduction of alternative fuels at scale is some years ahead of us, but it is already beginning to shape the strategic outlook

The long-term value play is about reducing the global economy's CO_2 footprint by decarbonising the underlying industries and sectors. To some extent, this means replacing the oil and gas industry, which requires a standardised, scalable and cost-competitive zero-carbon fuel solution that can work across sectors to be identified. The transformation is likely to reshape industries and redistribute value creation.

The shipping industry has made great strides towards meeting global emission-reduction targets by 2030, but it will need to move to the next level of decarbonisation to reach the 2050 goals. Zero-carbon fuel is an option that could enable the industry to do so. It is a delicate balancing act. The large-scale introduction of zero-carbon fuels could also lead to rapid fleet renewal without much emphasis on existing assets' remaining lifetimes. It would take bold moves and much deeper sector integration to build financial structures and programmes that could help funnel capital into such a shift. The rewards could be extraordinary – but the opportunity may not be available to all shipowners.

PUBLIC OR PRIVATE FINANCING?

The ambition of a zero-carbon future is very inspiring, but how do we light the first spark? And how do we finance it? The rollout of solar and wind energy came after decade-long public subsidies before reaching cost parity with the carbon alternatives. Many people argue that the actual rollout of zero-carbon fuels across the global economy could end up being a slow process without subsidies, new legislation or a (global) carbon tax. They may very well be right. However, let us explore an alternative route that has its origins in sector integration.

CREATING AN OFFTAKE CHANNEL AT SCALE TO KICKSTART PRODUCTION AT COST PARITY

Imagine a situation where leading players across industries (including the shipping space) agree to guarantee an extraordinarily large offtake of a zero-carbon fuel. Such a commitment would allow zero-carbon fuel producers to super-scale production end-to-end. The case for this only strengthens when we include more sectors and industries. Some recent studies suggest that in the not-too-distant future it could be possible to offer zero-carbon fuels to the market almost at cost parity with carbon fuels if production were sufficiently scaled.

SOLVING THE CHICKEN-AND-EGG PROBLEM

When we solve the classic chicken-and-egg problem, we will pave the way for the shipping industry to be decarbonised while creating an extraordinary business opportunity. The oil and gas industry is painfully aware that the global appetite for its core services is waning. Players in this industry are also working to take the next steps towards a zero-carbon future that would allow them to redirect their core services to new areas. The identification of a scalable business case across not just the shipping industry but adjacent domains will allow fuel producers to scale production to an extent that zero-carbon fuels may one day replace fossil fuels.

SECTOR INTEGRATION COULD AMPLIFY THE NEED TO CONSOLIDATE

Vessel ownership in a future of zero-carbon fuels is up for review. For small and medium-sized shipowners, large-scale sector integration could prove difficult, because they bring too little volume to the table. Only the largest shipowners with strong balance sheets seem to be battle ready. Large-scale sector integration could also attract players from other industries and sectors as well as institutional investors. However, that will not be enough. The lifetime costs of owning and operating the vessels will need to decline to balance their income potential. This calls for standardisation and economies of scale.

A PILOT FOR SECTOR INTEGRATION

Sector integration could drive down costs and access to zero-carbon fuels may begin to raise the barriers to entry

The first step does not need to be a global industry-wide solution. It could be that a local utility company kickstarts the process by demonstrating that the potential is real.

Shipping companies could then integrate efforts with connecting industries to facilitate the rollout as a test case.

A regional Ro-Ro player and a Container Liner company could join forces with connecting industries such as land-based truck operators, buses, airports, energy producers and others.

They share regular, high demand for the same zero-carbon fuel, which allows regional production to be scaled.

Cost leadership and price parity are unlikely to materialise in a pilot, but it may work to show that sector integration could drive down costs and that access to a zero-carbon fuel would start to raise the barriers to entry. This could form the preliminary basis for a new industry architecture.

ZERO-CARBON FUELS: WHAT THE FUTURE HOLDS FOR SHIPOWNERS

New fuels may not fundamentally change the game for shipowners over the next decade, but new value drivers may emerge

Many shipowners will be affected by the fuel transition. Historical performance is no longer a guarantee of success. Shipowners need a solid strategy to avoid being outflanked by peers that create competitive opportunities from new market dynamics. Forward-thinking companies are launching transformation processes even when they dominate a market, retooling themselves to ensure that they stay ahead of the pack. Short-term value creation may not prepare players for long-term challenges.

There is no doubt that the call to action is on. But few owners of existing fleets are currently considering ordering new vessels. Orderbooks are running thin across most vessel segments, sparking expectations of higher earnings in the years to come if few new vessels are ordered and demand recovers. Shipyards and OEMs are struggling to fill their orderbooks. Lower-tier players may close. The consolidation push among shipyards and OEMs is concentrating the competitive landscape and could accelerate the standardisation of vessels further.

STRONG FORCES AT PLAY LEAVE LITTLE ROOM FOR NAVIGATION

Similar trends are emerging across multiple frontiers. Large parts of shipowners' ecosystems are characterised by small numbers of large players dominating their respective territories: from producers of main engines to OEMs to pool operators, managers, cargo owners and freight forwarders. The fragmented ownership structure of vessels allows few shipowners to gain an upper hand.

NEW MARKET DYNAMICS COULD EMERGE FROM SECTOR INTEGRATION

The introduction of more expensive fuels that are not as widely available seems unlikely to support additional value creation. Nevertheless, the advent of zero-carbon fuels may open a window of opportunity to establish partnerships that were not previously possible. These partnerships, across sectors, may not, per se, change much, but they may allow some market dynamics to change.

THE FRAGMENTED OWNERSHIP LANDSCAPE MAY CONTINUE

The dynamics of sector integration are likely to favour the largest and strongest shipowners, but the outlook for asset ownership does not necessarily point in the direction of consolidation. Many shipowners may choose simply to wait, retrofit existing vessels and only adopt zero-carbon fuels when a clear pathway has emerged. Adopting such a position could work and could even be very profitable in the years to come. But there is a risk that it may allow other partnerships to grow and that these partnerships could introduce radical changes to the market dynamics. Existing vessels could become obsolete, almost irrespective of their age, if an alternative is introduced that offers more value for the same freight rate. The message is clear: transformation is not an option; it is a business imperative.

THE COMPETITIVE LANDSCAPE IS LIKELY TO CHANGE

Regulatory regimes could tighten without warning. The introduction of a global carbon tax, in one form or another, could supercharge change, blur industry boundaries and redefine the access to value creation. Players that respond to the call to decarbonise with an effective transformation process may reap long-term rewards. Still, new fuels will not fundamentally change the game for shipowners over the next decade, but staying abreast of market changes and understanding how value creation is affected could be the difference between becoming a leader or falling behind. Companies that capitalise on these opportunities faster than the competition could change the playing field in ways that bring rewards beyond the disruption.

ASSET CONSOLIDATION OF STANDARDISED FLEETS OF VESSELS

Scenario 1: Large-scale asset consolidation partly financed by secured green bonds with long maturities

The pathway towards a zero-carbon shipping industry may change the competitive landscape within a decade or two. Imagine a 2040 scenario where consolidated groups of shipowners control a large fleet of standardised vessels. These vessels could reap the benefits of economies of scale, lower cost of capital, cash flow stability and raise the barriers to entry, while broadly operating at cost parity with traditional carbon-fuelled vessels.

The ability to offer customers a price-competitive zero-carbon transport solution is not available to many. Early adopters would need to guarantee a fuel offtake that justifies large-scale production of a zero-carbon fuel. In the shipping industry, it could require a sweeping consolidation of the ownership landscape – potentially across multiple vessel segments – or the emergence of a new type of entity that combines large-scale sector integration with long-term cargo contracts, strong balance sheets and standardised fleets, potentially across intermodal sectors. Vessel ownership does not need to be the core focus of such an entity.

A CONSOLIDATED FLEET OF STANDARDISED VESSELS

The asset consolidation does not need to come after decade-long M&A activity between existing shipowners. Asset consolidation could, for example, materialise in a model where most of the contracting of the zero-carbon fleet is done by large players consolidating the ownership of standardised vessels. Many of these players are likely to have engaged in sector integration to secure a supply of zero-carbon fuels that allows them to offer their customers a premium zero-carbon transport solution before it becomes widely available. These vessels are likely to be operated more cost efficiently than their non-standardised counterparts, since they would reap not only the benefits of standardisation and economies of scale but also the value potential of the data exhaust from a standardised asset base.

FIRST MOVERS COULD REACH EXCLUSIVE AGREEMENTS AND SET INDUSTRY STANDARDS

The first movers that actively engage with other major players across sectors could reach exclusive agreements with suppliers, set industry standards and develop strong relationships not only with customers but also with investors and lenders. By being among the first to develop and market zero-carbon transport solutions, first movers could obtain prime advantages that strengthen their access to cargo, capital and ports. Still, if the market responds unfavourably, then later entrants could capitalise on the first movers' failure to produce a product that aligns with consumers' interests – and the cost of imitating versus the cost of creating is significantly less.

HIGHER BARRIERS TO ENTRY FOR ZERO-CARBON SHIPS

In this scenario, the shipping industry could slowly be divided into two. The standardised fleet of zero-carbon vessels would work to carve out the lucrative (and stable) parts of the market. Long-term zero-carbon cargo volume contracts could be built into the system to introduce some degree of cash flow stability. A zero-carbon fuel supply at cost parity would create a barrier to entry until a similar supply became widely available through a global distribution network at a similar cost. The size of the market available to carbon-fuelled vessels would continuously decline as the zero-carbon fleet was scaled up.

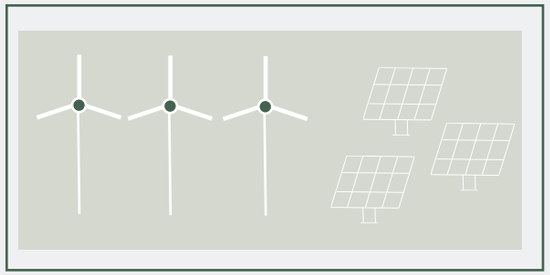
LOWER OPERATIONAL COSTS AND LOWER COST OF CAPITAL

Large owners of standardised vessels powered by zero-carbon fuels offered to the market before the fuels become widely available will be supplying a rather unique product to their customers: a price-competitive zero-carbon transport solution. The standardised fleets would presumably operate at lower costs and be somewhat protected by barriers to entry. Such a platform would be likely to attract the attention of large-scale institutional investors that are working to roll out zero-carbon infrastructures across adjacent domains. Secured green bonds with long maturities could become an attractive source of debt for strong owners of zero-carbon assets.

A PATHWAY TO ZERO-CARBON SHIPPING

Higher ROE: A standardised fleet, operating on a low-priced zero-carbon fuel, would outperform the market through cost leadership

POWER-TO-X: SOLAR & WIND ENERGY

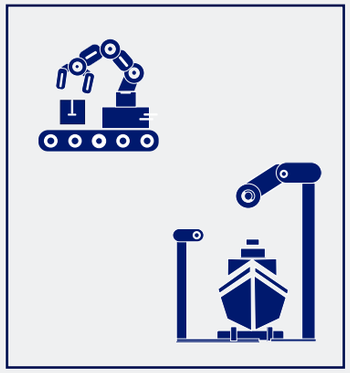


'Scaled production // Guaranteed offtake // End-to-end'

SECTOR INTEGRATION

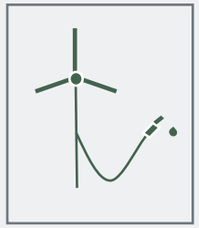
'Multiple offtakes'

STANDARDISED FLEET



'OEMs & shipyards'

ZERO-CARBON FUEL

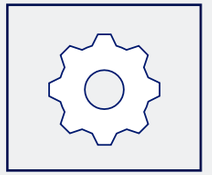


'Production & distribution'

OPERATIONAL EXCELLENCE

'Cost leadership'

CIRCULAR MAINTENANCE



'Cost leadership'

CONSOLIDATED FLEET

'Cost leadership'

ZERO-CARBON SHIPPING

'Unchanged revenue & lower costs'

Source: Danish Ship Finance

DO WE MARKET VESSEL CAPACITY OR ZERO-CARBON LOGISTICS?

Scenario 2: The offtake channel is integrated into the fuel supply – sold as a price per kwh – offering green-shipping-as-a-service

The commoditised nature of cargo handling leaves little room for differentiation. The fragmented asset landscape means that there are no tangible financial benefits for individual owners. Standardisation would lower costs, while a zero-carbon fuel supply at cost parity with carbon alternatives may temporarily raise the barriers to entry. Integration into adjacent domains seems necessary for additional value to be created.

The fuel transition may potentially revolutionise how value is created across sectors and industries. The competitive landscape is likely to change and traditional players may find it increasingly difficult to protect the value of their existing assets. The borders of industries are up for review.

CIRCULAR SPARE PART FLOWS WOULD REDUCE COSTS

The creation of an extraordinarily large fleet of standardised vessels operating on zero-carbon fuel would bring additional business opportunities. Take the introduction of circular spare part flows as an example. Circular spare part flows would not only reduce maintenance costs (and the industry's CO_2 footprint) but would also work to sustain and develop the barriers to entry. Only a large and standardised fleet could scale the benefits of introducing crypto-anchors (i.e. digital fingerprints) that allow spare parts to be identified, tracked and authenticated (including their service certificates and history).

SELLING UPTIME RATHER THAN PARTS

The concept of circular material flows is closely related to that of selling uptime rather than parts (or fuel!). But we could take it even further. We know that the lifetime cost of fuelling a vessel is a much larger expense than buying the vessel (not to mention the onshore infrastructure investments to scale zero-carbon fuel production). We have discussed the potential scenario of a scaled ownership model for vessels in order to create a sufficiently large offtake channel for zero-carbon fuels, but we could turn the question on its head by asking if we could structure a fuel supply that includes the offtake channel (i.e. the vessels)?

BARRIERS TO ENTRY AND CUSTOMER LOYALTY

This line of thinking can be likened to coffee makers selling 'coffee solutions' (i.e. throwing in a 'free' coffee machine with the beans) rather than engaging in fierce price competition with fellow sellers of beans. By supplying the product including the machinery needed to consume it, customer loyalty can be expected to increase, while the seller also raises the barriers to entry for alternative suppliers. In this example, the coffee machine is secondary to the coffee beans. However, customers are not really demanding beans or the coffee machine – they are more likely to want a 'one-click' skilled barista offering latte art to go. Selling that at scale is significantly more valuable than selling beans or coffee machines.

LOW-COST INFRASTRUCTURE PLAY SUPPLYING ZERO-CARBON FUELS ON LONG-TERM CONTRACTS

Cargo owners will demand neither vessels nor fuel. They are more likely to prefer a zero-carbon global supply chain from origin to destination at cost parity with the carbon alternative. For many, this may sound implausible, but imagine if a combination of massive sector integration and super-standardisation were to introduce cost savings to a degree that made it possible. The impact on the competitive landscape of the shipping industry could be extraordinary. Ships could become an attractive infrastructure investment supplying low-cost zero-carbon cargo mobility to the market at cost parity with the carbon alternative.

PERSPECTIVES AND KEY TAKEAWAYS

Growth requires new technology, new methodologies and new paths towards value creation

Traditionally, shipowners have been the cornerstone of the shipping industry. They have built the right vessels, at the right time, and at the right price. They have enabled the global trade expansion throughout past decades. It was a model that worked well when carriers' emphasis was on expansion, but times and market dynamics are changing. The global call to reduce CO_2 emissions is raising costs while leaving revenues vulnerable to overcapacity. Today's market trends highlight the urgent need for change.

Presenting a path to zero-carbon shipping is the study of history before it happens. Just as there are many perspectives on the past, there are many potential future scenarios too, some of which are more likely than others. Some are utopian best-of-all-possible-worlds scenarios, while others are so grim and dark that many would prefer not to think about them at all. Exploring these possible future scenarios is the key to opening our minds to alternative trajectories and helping us escape the rut of linear thinking.

NAVIGATING UNCHARTED TERRITORY

The more we raise the level of abstraction, the more potential future scenarios emerge. In this report, we have presented a range of perspectives that aim to identify how ships as an asset class can re-emerge as an attractive investment opportunity in a zero-carbon future. Many traditional players will clearly continue to own vessels, but we expect their access to attractive deals that can deliver a return on invested capital justifying fleet renewal to be diminished over time.

OPERATIONAL CHALLENGES PREVAIL

In this study, we have not explicitly distinguished between short-sea and deep-sea shipping, albeit our efforts are focused on the latter. Zero-carbon fuels have strong potential to reduce carbon emissions, but one of their challenges is their lower energy content and the comparatively lower amount of energy they can store in a ship's tanks. The lower energy, combined with a less developed distribution network, makes them more suited to short-sea shipping and Liner operations in the short to medium term.

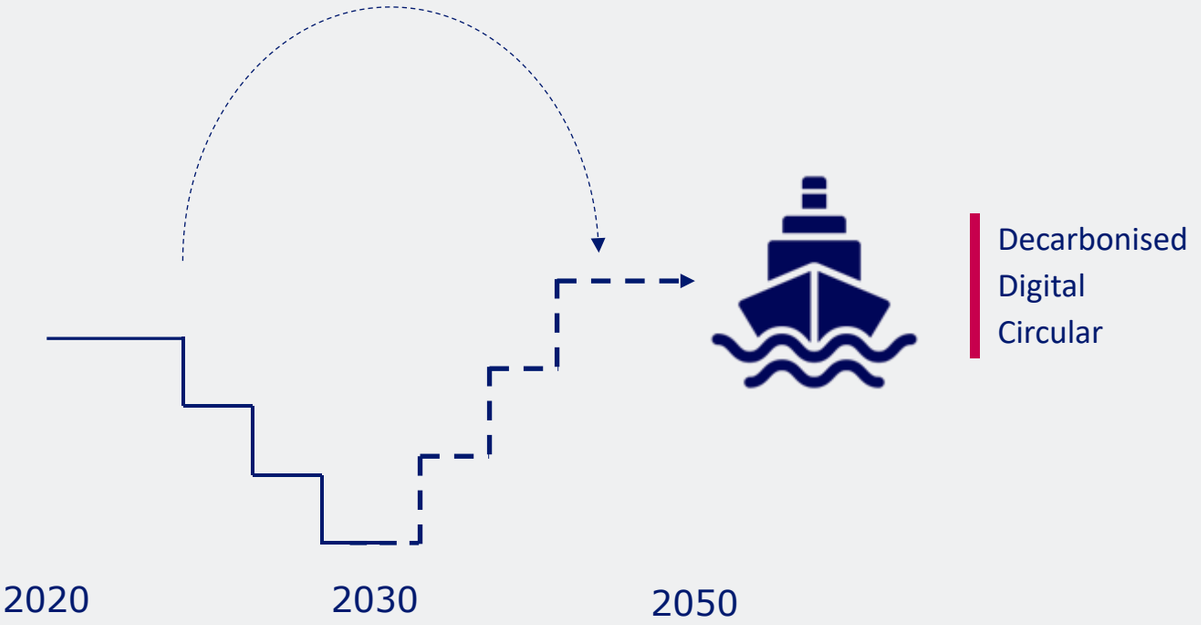
NEW REGULATION CAN DRIVE CHANGE

Climate change is an existential threat to the world. To overcome these challenges, the shipping industry needs a new growth strategy that will transform business models by turning climate and environmental challenges into business opportunities. New international laws can level the playing field and supercharge the transition by turning a political commitment into a legal obligation and thereby facilitate change.

REINVENTING VALUE CREATION IN THE SHIPPING INDUSTRY

We have chosen not to join the debate on new legislation, carbon taxes, government subsidies and numbers but instead have focused our attention on the perspectives of value drivers and business models. This is, to some extent, an invitation to discuss end-game scenarios. It lets us imagine alternative trajectories that may enable us to identify new opportunities – and new challenges. Whether or not the scenarios we have presented actually materialise is less important. The key thing is that exploring them may allow us to open our minds to alternative trajectories and help us escape the rut of linear thinking.

Ships could become an attractive infrastructure investment supplying low-cost zero-carbon cargo mobility to the market at cost parity with the carbon alternative



SHIPPING MARKETS AT A GLANCE

SHIPPING MARKETS AT A GLANCE

Perspectives and key takeaways

OUTLOOK SUMMARY

- ● **POSITIVE**
- ○ NEUTRAL
- ○ NEGATIVE

The market outlook across vessel segments has improved during the past six months, as the effects of the first wave of the Covid-19 pandemic seem to have lowered seaborne trade volumes less than initially feared.

Most vessel segments are benefiting from a low oil price and more manageable fleet expansion, which is easing some of the pressure on freight rates. Still, demand volumes need to recover or more vessels need to be scrapped before freight rates can begin to increase.

The short- to medium-term outlook for the shipping market appears brighter than six months ago. The orderbook is at a historically low level and is shrinking rapidly. Today, the orderbook is equivalent to 7% of the fleet. The vast majority of the orderbook (74%) is scheduled to be delivered by year-end 2021.

The first wave of the pandemic primarily affected consumer demand, personal transportation and service sector jobs. While large parts of the global economy have staged a better recovery than initially anticipated, global seaborne demand has been severely impacted by the economic repercussions of the Covid-19 pandemic. Seaborne transport volumes are expected to decline by 4-5% in 2020 compared to 2019 volumes, while most forecasts predict that the lost volumes will be restored sometime during the next 12-18 months.

The effects of the second wave of the pandemic are difficult to predict. They involve the next round of coronavirus outbreaks, labour market dynamics, changes in global spending and investment behaviour, and government stimuli in one form or another. Still, it goes without saying that for the shipping industry it is vital for seaborne trade volumes to increase in times of expanding fleets.

The global economy's call to decarbonise is exacerbating existing vulnerabilities across sectors and industries. The shipping industry is no exception. However, the lower oil price is raising the barriers to entry for zero-carbon fuels, and this will continue until the point where new international laws, or a global carbon tax, can level the playing field and supercharge the transition by turning political commitments into legal obligations and thereby facilitate change.

In the meantime, few new vessels are likely to be ordered. Existing vessels, if they can survive a period of surplus capacity, could be positioned for medium-term value appreciation, driven by longer economic lifetimes. If demand manages to continue growing, many vessel segments may enter a period of higher freight rates and further appreciation in existing vessels' secondhand prices. In segments where demand fails to recoup the lost territory, we see increased risk of unexpected value depreciation.

The transition towards zero-carbon shipping is eventually expected to lead to a massive shift in the asset base. The length of the transition period is uncertain. Existing owners are hoping that zero-carbon vessels can be introduced as part of natural fleet renewal, but the remaining lifetimes of the vessels in the current fleet do not need to be determined by their age. If a zero-carbon fleet that offers more value for the same freight rate can be brought to the market, there could be little to stop it from cannibalising the current fleet. The current fleet could become obsolete – even after a period of increased secondhand prices.

The risk of stranded assets is on the rise, particularly in segments where peak demand could be approaching sooner than previously anticipated. The outlook is highly uncertain for vessels transporting fossil fuels and for Offshore Supply Vessels. Still, peak fossil fuel demand could be years ahead of us.

SHIPPING MARKETS AT A GLANCE

Freight rates are higher despite weakened fundamentals. Earnings expectations are waning and prices remain low.

Utilisation of the world fleet deteriorated during the first ten months of 2020, as the fleet continued to grow while seaborne demand lost steam due to the repercussions of the Covid-19 pandemic. In most segments, freight rates managed to perform surprisingly well during the period, since much of the weakness was absorbed not only by inefficiencies from port delays and crew changes, but also by a large increase in the number vessels idle for more than seven days during the period.

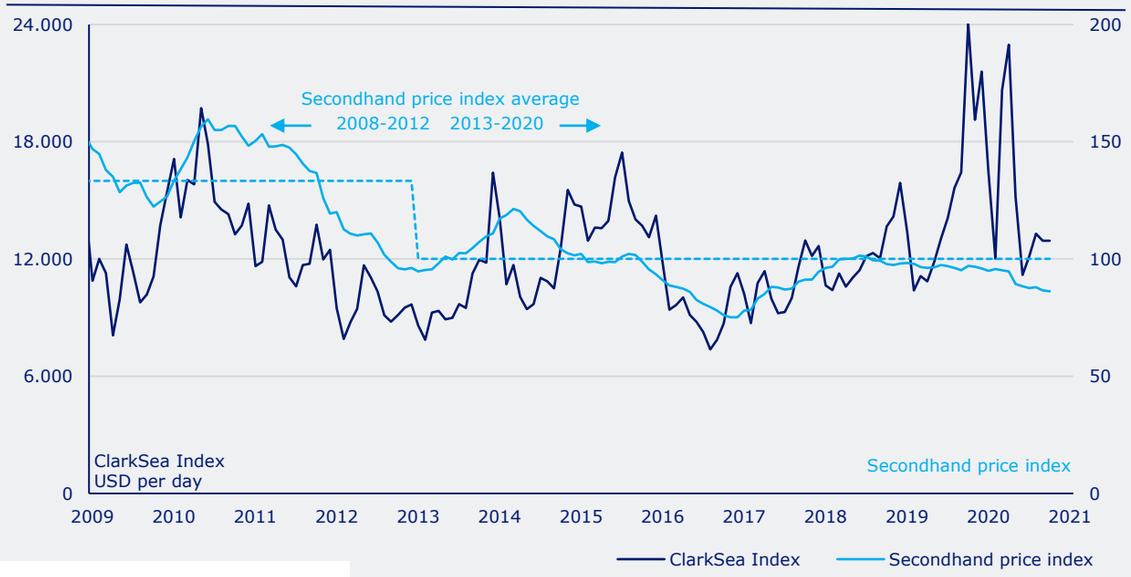
Freight markets have exhibited extraordinary volatility in 2020. In the first half of the year, the overall earnings index, the ClarkSea index, showed the strongest first-half performance for ten years. The index was on average USD 4,500 per day higher than in the first half of 2019, but USD 2,000 per day lower than in the second half of 2019. The earnings index showed great volatility in March and April, reflecting turmoil in the oil markets that caused tankers to be employed for floating storage. From May to October, the index seemed anchored around USD 13,000 per day.

Some segments, not covered by the ClarkSea Index (e.g. Cruise, Ferries, Car Carriers and Offshore), have deep-rooted and specific challenges that are related to the consequences of the pandemic. These segments have had a difficult 2020.

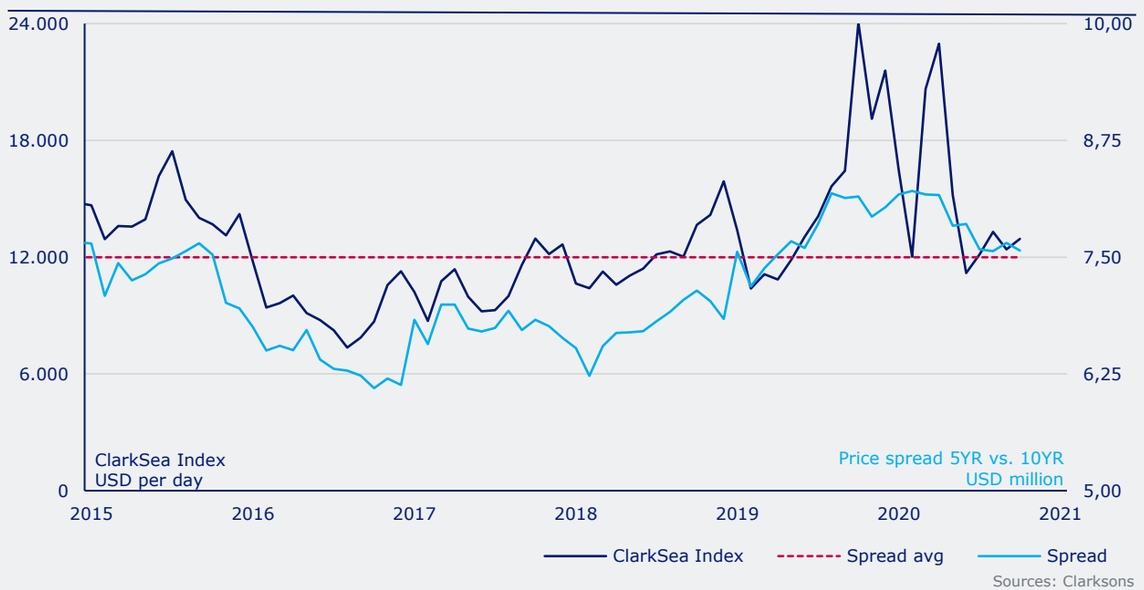
The average secondhand price declined 10% during the first ten months of 2020, but sale and purchase activity has been weak, which leaves some uncertainty over the development. The average newbuilding price declined 2% during the period.

The price spread between a five-year-old and a ten-year-old vessel has declined by 7% in 2020, indicating reduced earnings expectations or a shortening of expected economic lifetimes by approximately two years.

THE CLARKSEA INDEX IS EXHIBITING EXTRAORDINARY VOLATILITY



THE PRICE SPREAD BETWEEN A FIVE AND A TEN-YEAR-OLD VESSEL DROPPED 7% IN 2020



Sources: Clarksons

WORLD FLEET DEVELOPMENT

Supply-side development

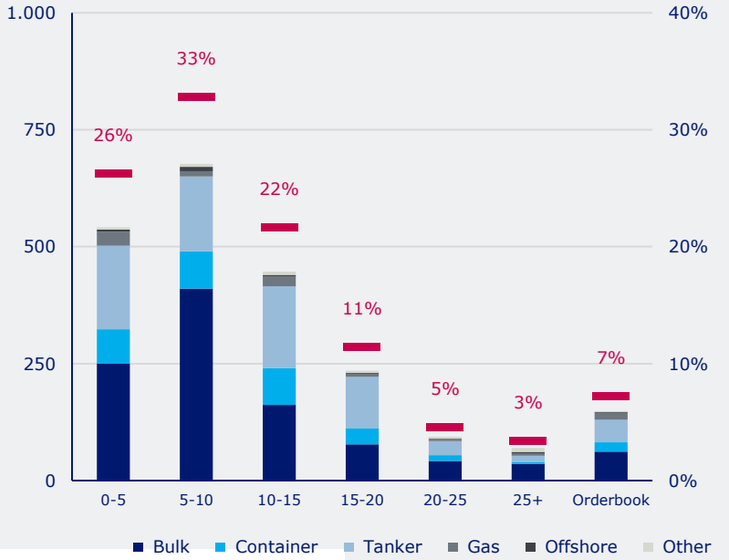
The world fleet expanded by approximately 2.6% during the first ten months of 2020. The active fleet increased slightly more, since the net effect of vessels retrofitted with scrubbers added approximately 0.6% to the fleet. A total of 1206 vessels or 68 million dwt were delivered to the fleet, while only 456 vessels or 18 million dwt were scrapped.

Temporary lockdowns related to the Covid-19 pandemic and supply chain disruption postponed approximately 40% of expected deliveries between February and May. Still, global deliveries are scheduled to meet the pre-pandemic target for this year, although as of August only 80% of orders had been delivered according to schedule. Looking ahead, there are still some risks to the delivery schedule, including financial stress on owners and shipyards, continued supply chain issues, and travel disruption.

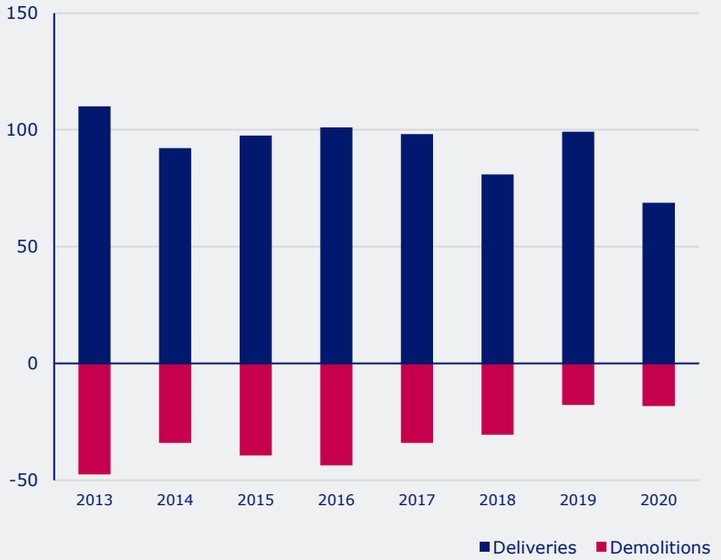
Contracting activity has been remarkably low. Only 498 vessels (27 million dwt) were ordered during the first ten months of the year compared to 974 (58 million dwt) during the same period last year. The low contracting activity combined with a sustained delivery performance has driven the orderbook down to a historically low level.

The orderbook currently equates to 7% of the world fleet and contains more than 3,500 vessels. Three out of four vessels are scheduled to be delivered by year-end 2021. Thereafter, the vast majority of segments are beginning to see a more manageable supply side. Still, it goes without saying that shrinking demand volumes will hamper the absorption of all new vessels entering the fleet in the absence of scrapping. The orderbook for Gas Carriers remains large (LNG: 23% of the fleet; LPG: 12%), while the larger Container vessels and Suezmaxes are running orderbooks above 10%.

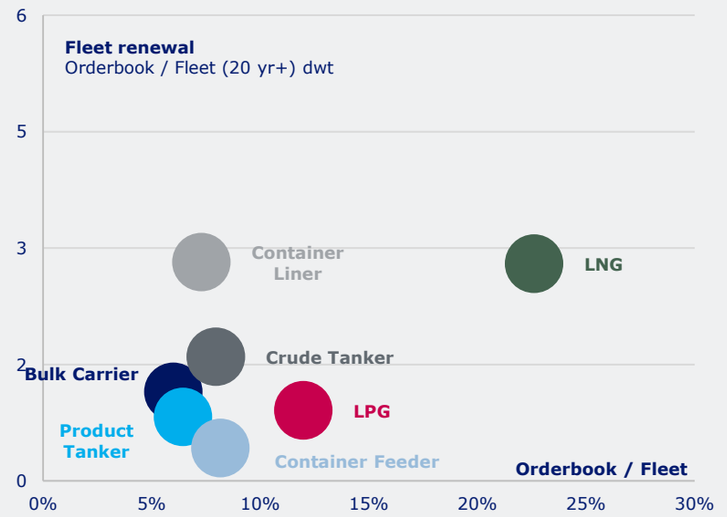
AGE DISTRIBUTION OF FLEET (MILLION DWT)



DELIVERIES AND DEMOLITIONS (MILLION DWT)



FLEET RENEWAL POTENTIAL (DWT)



Sources: Clarksons, Danish Ship Finance

UPSIDE POTENTIAL FOR EXISTING VESSELS

Life expectancy, fleet renewal and the outlook for secondhand vessels

The low overall orderbook clearly brightens the outlook across segments and paves the way for freight rate improvements when demand recovers from the current slump and additional demand improves fleet utilisation across segments. This is the first time for decades that the supply side has become so muted: sale and purchase activity is low, few vessels are being ordered and few vessels are being scrapped.

THE OUTLOOK IS SHROUDED IN UNCERTAINTY

Still, the pathway to zero-carbon shipping remains unclear. Many shipowners are hesitant to order new vessels until the situation becomes clearer and the risk of stranded assets becomes more tangible. Adding to this is the energy transition, which impacts the long-term demand outlook for not only Crude, Product Tankers and Offshore Supply Vessels, but also Gas Carriers (LPG and LNG) and vessels transporting coal. We estimate that approximately 40% of the world fleet currently serves energy production or transportation to some extent.

THE TIMING OF PEAK SEABORNE TRADE VOLUMES IS UP FOR REVIEW IN MANY SEGMENTS

The economic recession unfolding in the wake of the global Covid-19 pandemic has lowered seaborne trade volumes significantly in 2020. Public stimulus programmes are being launched to rebalance national economies, but it seems clear that the energy transition is being prioritised to speed up the decarbonisation of the global economy. Such a shift is structurally negative for seaborne trade. The timing of peak seaborne trade volumes is up for review in many segments. This is especially the case for vessels that transport fossil fuels (i.e. Crude and Product Tankers, LNG and Capesize vessels (coal)), but other segments (for other reasons) – Offshore Supply Vessels, large Container vessels and Car Carriers – are also considering whether peak seaborne demand is approaching. Peak demand is probably years away in most segments, but the potential life expectancy of existing vessels is becoming increasingly important amid the build-up of this risk.

HIGHER LONG-TERM EARNINGS EXPECTATIONS

For vessels that are not set to be scrapped in the short to medium term, the price outlook appears bright. We expect their life expectancy to lengthen, as long as few new vessels are delivered and demand grows. If this situation persists into 2021 and beyond, many vessel segments may enter a period of higher freight rates and appreciating secondhand prices. If the situation proves long-lasting, existing vessels may begin to see their economic lifetimes approach their technical lifetimes and, in some segments, even exceed them.

LOW DEMAND FOR NEW VESSELS IN THE SHORT TO MEDIUM TERM

Many shipyards are struggling, as surplus yard capacity and low ordering of new vessels are quickly depleting orderbooks. Still, ordering of new vessels is likely to stay low until a clear pathway towards zero-carbon shipping emerges at scale. There will, of course, be new vessels ordered. However, we see significant risk attached to investments in vessels that have not been built for zero-carbon trading. True, dual-fuelled engines could mitigate the risk, but these vessels may turn out to be more expensive to operate and maintain than later-generation vessels.

TO RETROFIT EXISTING VESSELS OR TO ORDER NEW?

The decision to order a new vessel in this environment is largely a question of balancing the downside risk associated with new vessels compared with the upside potential from retrofitting and extending the lives of existing vessels. The decision is especially difficult in segments facing the risk of peak seaborne trade volumes, which may soon begin to impact the valuations not only of new vessels but also younger vessels on the water today.

POCKETS OF EXTRAORDINARY RISKS

Not all vessel segments are positioned for asset price appreciation

It is in periods of extraordinarily low demand and surplus capacity that tail risk emerges. It is under these circumstances that vessel prices occasionally but unexpectedly collapse, resulting in very little price difference between young and old vessels. This trend is currently visible in the Offshore market but has in previous decades materialised in other segments. Many segments need to see demand recovers or prices to decline before buyers' confidence will re-establish a market where prices are settled between willing buyers and willing sellers.

TAIL RISK COULD EMERGE IF FEW OWNERS PRESENT THEMSELVES IN OVERSUPPLIED MARKETS

Transaction volumes have been declining across the board for the past few years and are currently low. Normal price dynamics could suddenly be replaced by tail risk if an unusually small number of buyers present themselves in oversupplied markets. This is particularly relevant in segments where fewer owners dominate the asset-owning space. The ten largest players own approximately 50% of the fleets in the Container Liner, LNG and Car Carrier segments. The ten largest players own approximately 25% of the fleets in the Crude Tanker, Product Tanker and Chemical Tanker segments.

RISK IS BUILDING UP IN THE SHADOWS OF ILLIQUIDITY IN SOME SEGMENTS

Secondhand prices depreciated by 10% on average during the first ten months of 2020. Average fleet utilisation dropped by 7-8%. Demand is down by approximately 4-5% and more vessels are about to be delivered. While this may not appear to signal extraordinary risk building up in the short term, the price development in some segments should be seen in the context of a very illiquid market and not misinterpreted as showing stability. There is significant risk associated with the demand outlook in many segments, and the long-term earnings potential is being reviewed across many segments. Unexpected and extraordinary price depreciations could materialise in some segments in the medium term.

FLEET RENEWAL

The world fleet could start to be replaced with zero-carbon vessels within a decade

We expect the transition towards zero-carbon shipping eventually to lead to a massive shift in the asset base. There are many factors at play. The land-based infrastructure producing the zero-carbon fuel of the future needs to be developed. Building a new ship takes approximately two years, while the land-based infrastructure may need three, five or eight years before it can deliver scaled production of the fuel in question with a global reach. That is to say, little is likely to happen at scale before 2025. Some parts of the current fleet could become obsolete when a zero-carbon fleet has been built.

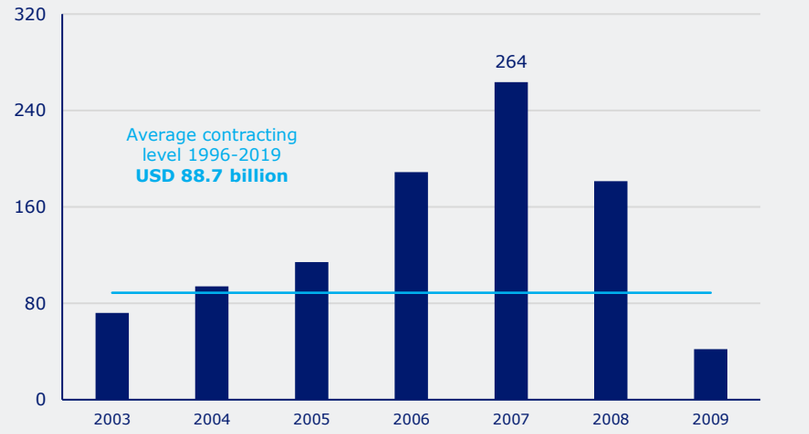
THE MARKET VALUE OF THE WORLD FLEET IS LESS THAN HALF THE MARKET VALUE OF APPLE

The transition will be gradual: not all assets can be replaced quickly, and not all vessel segments are equally likely to be replaced (e.g. large Container vessels, large vessels carrying fossil fuels, Offshore Supply Vessels, large Car Carriers). Still, the transition could take place more quickly than generally expected. Let us look at the numbers. Clarksons estimates that the world fleet is worth approximately USD 950 billion. The annual capital allocation to new vessels varies greatly – the annual average from 1996 to 2019 was USD 88.7 billion, but more than USD 260 billion was allocated at the top of the cycle in 2007. In a scenario where the transition towards zero-carbon vessels happens at an annual average of, say, USD 80 billion, it will take 12 years for the fleet to be renewed. Activity could be quicker when a scalable business model is identified. Following the investment programmes of the past, the current fleet could be replaced by activity in line with that in 2003-2009, when a combined USD 955 billion was invested in new vessels.

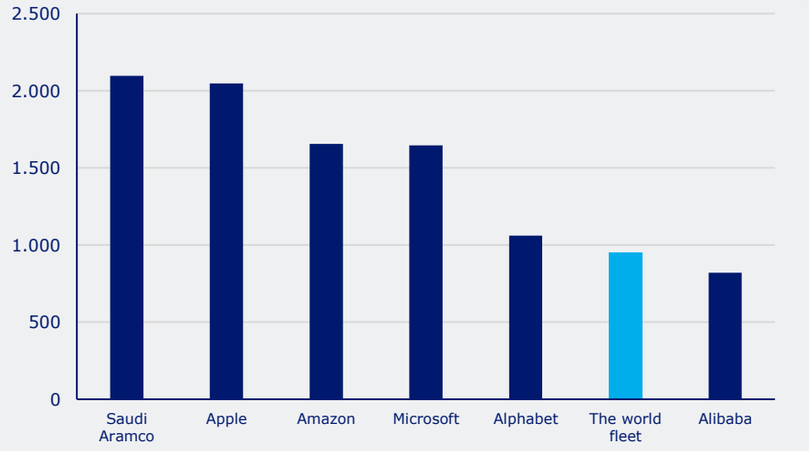
A GLOBAL CONTRACTING BOOM IN THE MAKING WITHIN THREE, FIVE OR EIGHT YEARS?

The global shipyard industry is working to consolidate capacity. Global yard capacity peaked in 2011 at around 80 million cgt but has now come down to 57 million cgt. Global yard capacity is currently distributed among 287 yards globally. The market is heavily fragmented. A group of 58 first-tier yards, accounting for 45% of global yard capacity but 70% of the global orderbook, are performing significantly better than their second-tier competitors. The vast majority of second-tier yards are poised to run out of orders by year-end 2021. Still, within the next three, five or eight years we could begin to see extraordinary contracting activity for dual-fuel and/or zero-carbon vessels. These vessels may not be ordered at all yards, but the high-end yards that are price competitive could start to see the first signs of a boom in the making. Let us hope that not too many first-tier yards will have closed by then.

CONTRACTING, 2003-2009 (USD BILLION)



LARGEST COMPANIES BY MARKET VALUE (USD BILLION)



Sources: Clarksons, Companiesmarketcap.com, Danish Ship Finance

SHIPBUILDING

THE SHIPBUILDING MARKET

Perspectives and key takeaways

OUTLOOK SUMMARY

○	POSITIVE
○	NEUTRAL
●	**NEGATIVE**

The ten-year-long consolidation process has been accelerated by Covid-19, as the scarcity of orders amid the pandemic has put yards under additional pressure. There are 58 first-tier yards that have established themselves as industry leaders, but government support and balance sheet size will determine whether or not they survive. We expect contracting activity to remain low until consensus regarding fuel mix emerges. Yards will need to upgrade their production and the global supply chain in order to build smarter and greener vessels.

The consolidation process has been ongoing for a decade, but the shipbuilding market continues to be burdened by **excess capacity.** Prior to the Covid-19 pandemic, capacity utilisation was slowly improving due to consolidation among yard groups. This attracted the attention of competition authorities around the world, as they saw potential capacity constraints in certain vessel segments. In the meantime, the pandemic has resulted in overall excess capacity expanding again, as a global recession has been added to the existing risks associated with ordering a newbuild: geopolitical tensions, environmental regulations, fuel type considerations and new standards for digital ships.

We expect Covid-19 to accelerate consolidation among small yards and thereby increase the market shares of not only state-owned entities but also shipyards with strong balance sheets or strong group owners.

We have identified a group of 58 yards, covering 45% of global yard capacity and 70% of the orderbook, that attract more orders and retain superior capacity utilisation compared to their peers. Of these, 33 are Chinese, five South Korean, five Japanese, 11 European and four from the rest of the world. We label them **first-tier yards** and the remaining 229 yards **second-tier**.

Most **second-tier yards** seem unlikely to attract enough new orders to survive. Even some of the best-performing **first-tier yards** will likely continue to struggle to utilise capacity in the coming years, as we expect few new orders to be placed. The best-performing yards could begin to incorporate further automation into their production lines to lower unit costs when fewer competitors remain in operation.

The governments in China and South Korea continue to impact the market. They have declared shipbuilding a strategically important industry and selected yards are likely to receive government support in one form or another.

The Japanese yards are generally operating without government support. The Japanese yard industry has largely not consolidated during the past decade. Most players remain independent, but recently we have seen increased yard collaboration through bilateral joint ventures. Individual first-tier yards are generally smaller than their Chinese or South Korean competitors. Their access to foreign orders appears to be becoming increasingly difficult. The Japanese government has initiated funding programmes to attract foreign orders, but further government intervention and increased yard collaboration seem necessary to maintain domestic yard capacity. At present, it seems almost inevitable that the Japanese second-tier yards will diminish in the years to come, whereas many first-tier yards are expected to continue operating.

THE SHIPBUILDING MARKET

The shipbuilding market

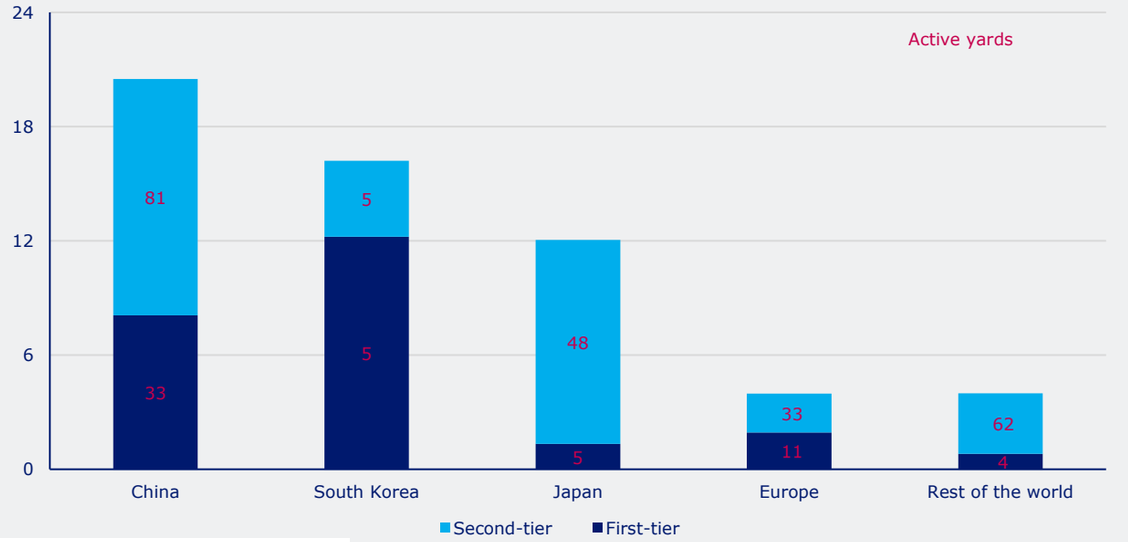
The global shipyard industry has been **consolidating** for the past ten years. Today, 287 yards remain active with an estimated capacity of 56.7 million cgt, but the capacity is unevenly distributed. The first-tier yards dominate the overall yard industry, while some second-tier yards are clinging on thanks to government and group owner support. The remaining are struggling.

The weaker yards among the first-tier group are challenged. In our May report, we identified 64 first-tier yards – this has now come down to 58. In Japan, ten yards were considered first-tier six months ago. While they are delivering vessels on order, only five of them have managed to attract new orders. Government initiatives have been launched to attract foreign orders, but few deals have been closed. A similar situation is playing out among some of the smaller Chinese first-tier yards. The first-tier yards in Europe and South Korea have proved more resilient so far, but their orderbooks are not immune.

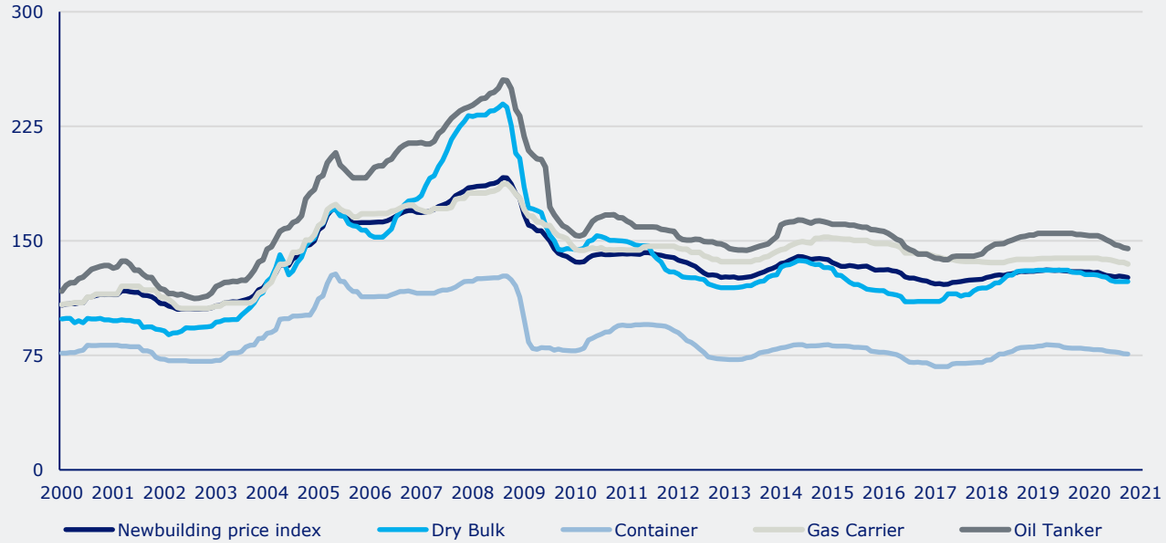
The global yard industry seems to be **concentrated around ten yard groups** which in combination control 70% of the global orderbook. Regulators are increasingly concerned about the level of market competition – and for good reason. The second-tier yards appear to be in a very difficult situation of excess yard capacity. Among this group, 37 yards have already delivered their last order this year, while only six have unexpectedly reappeared in the orderbook. The average second-tier yard is due to deliver its last order within the next ten months. We expect more yards to close, and market consolidation to continue to be focused on the ten yard groups in general and the first-tier yards in particular.

Low contracting and persistent excess capacity caused newbuilding prices to fall by 2.90% across all segments in the first seven months of 2020, mainly driven by Oil Tankers and Containerships. Although nowhere near as severe as the decline following the financial crisis, the development represents another challenge for the shipyards' earnings.

ACTIVE YARD CAPACITY (MILLION CGT)



DEVELOPMENT IN NEWBUILDING PRICE INDEX



Source: Clarksons, Danish Ship Finance

THE SHIPBUILDING MARKET

Delivery, contracting and yard capacity

Demand uncertainty and excess supply across ship segments has pushed **contracting activity** to a 25-year low in 2020. Just 9 million cgt or 380 vessels, divided between 82 yards, were ordered in the first nine months, 50% lower than in the same period last year and equivalent to just 20% of shipyard capacity being restocked. The global orderbook is down 13% to 63.5 million cgt or 2,300 vessels – the smallest since 2003. As a result, the order cover came down from 15 months at the start of the year to 14 months in August.

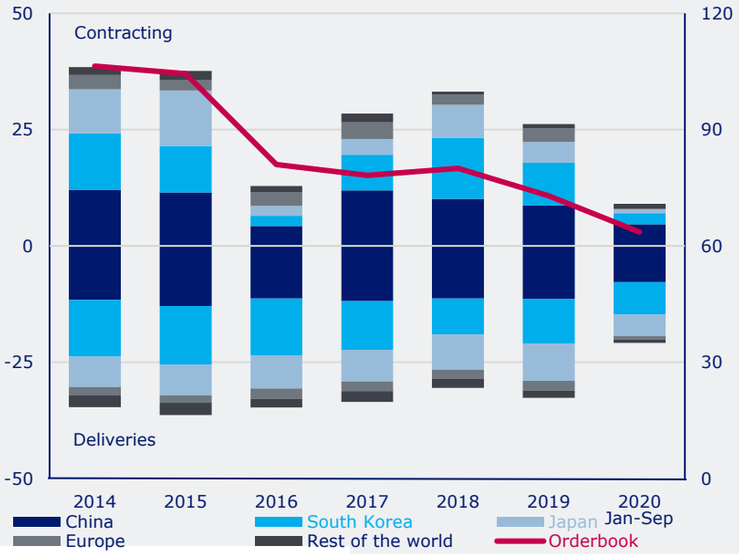
The European yards, which primarily build cruise vessels, were hit hardest with a 95% decline in contracting activity compared to the same period in 2019. South Korea and Japan also struggled, with declines of 60% and 75%, respectively. Domestic ordering kept Chinese yards in operation, with a mere 23% decline in orders. 30% of global orders were placed by Chinese owners at Chinese yards, well above the average of 13% since 2014. This signals that China is reopening strongly after the lockdowns but is also an indication of Chinese state support.

The gap between first- and second-tier yards is widening. The 58 first-tier yards received 72% of global orders in the first nine months and restocked 35% of **yard capacity**, while utilising 60%. The second-tier yards restocked just 10% and utilised 35%.

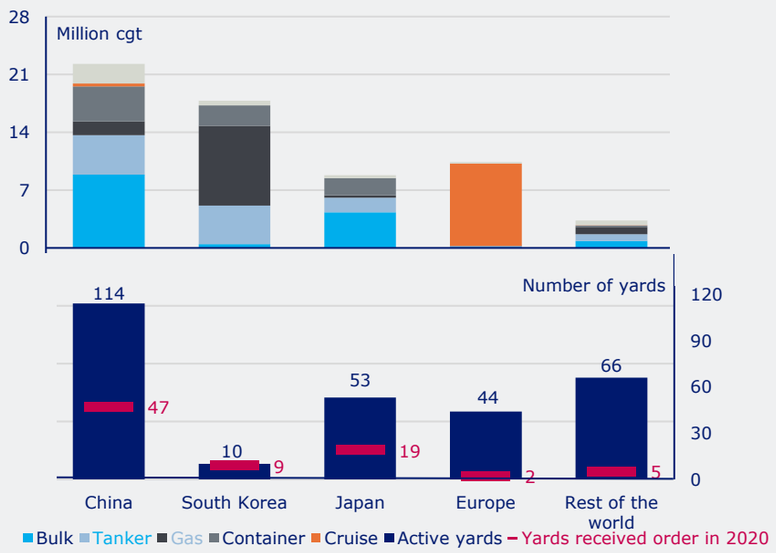
Overall **yard output** has been low but increasing throughout the year. Temporary lockdowns and supply chain disruption led 40% of expected deliveries between February and May to be postponed. The impact first came from China, and then Europe, while Japan and South Korea kept more stable. Global **deliveries** are scheduled to reach 2019 levels, leaving capacity utilisation at 45%, but are currently 20% lower. However, some segments stand out. Yards are relying less on foreign suppliers when building Dry Bulk Carriers, which is why delivery performance has been close to 100% in this segment.

A lack of orders combined with timely deliveries from Japan and South Korea is behind the **orderbook** decline. This decline has meant that the Japanese orderbook is now 45% lower than at the beginning of 2019 (although late order registration could still occur).

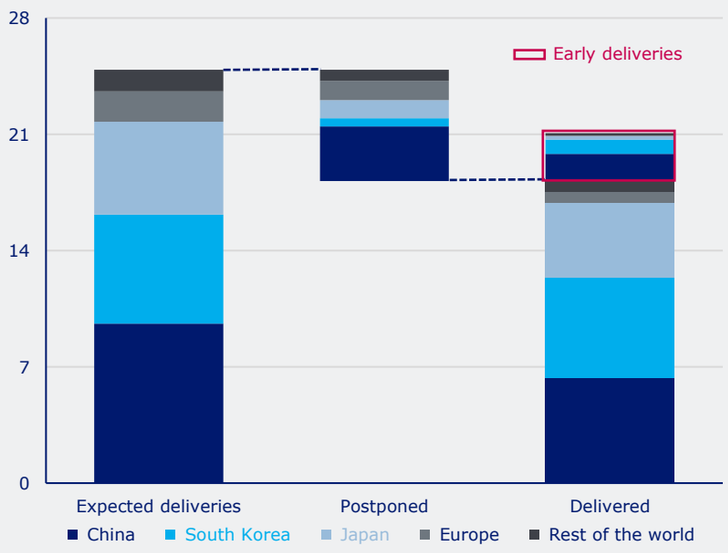
ORDERBOOK – STOCKS AND FLOWS (MILLION CGT)



ORDERBOOK



2020 DELIVERY PERFORMANCE (MILLION CGT)



Source: Clarksons, Danish Ship Finance

THE SHIPBUILDING MARKET

Market outlook

We expect the consolidation drive to continue. Two-thirds of the orderbook is scheduled for delivery by year-end 2021. 59 yards, representing 6% of the global yard capacity, are due to deliver their last orders in 2020, while another 136 yards, representing 27% of global yard capacity, are scheduled to deliver their last order in 2021. Only 34 second-tier yards have orders to deliver in 2022 or later. The 58 first-tier yards are better positioned, but low contracting activity will put all yards with fragile balance sheets at risk.

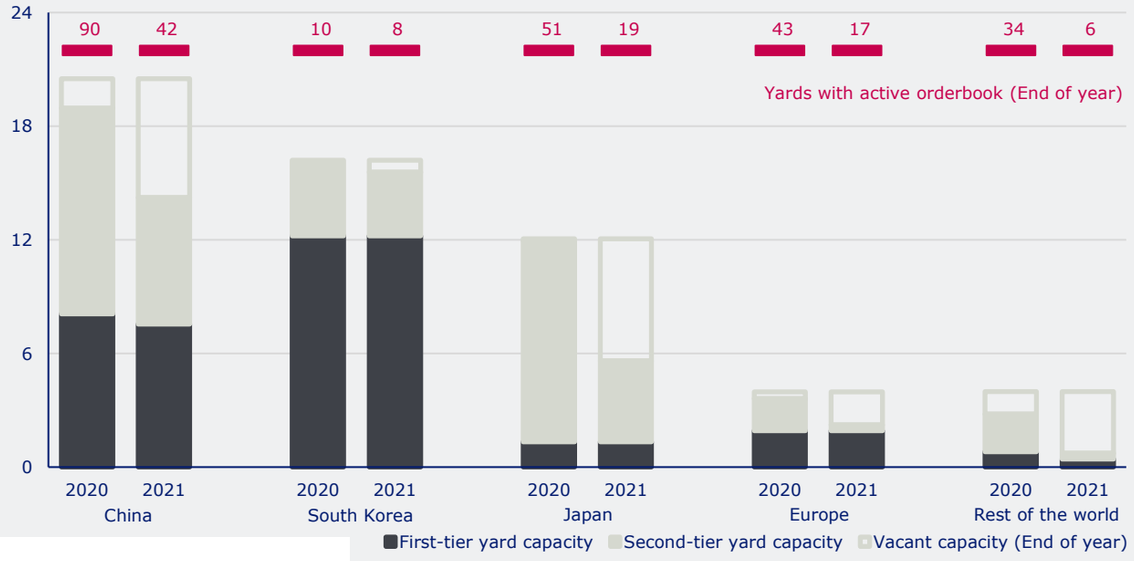
The outlook for Japanese yards is worrying. Nine out of ten orders are scheduled to be delivered by year-end 2021. Experience has shown that Japanese orderbooks could be 20-30% larger than reported, which would clearly ease some of the pressure. Still, 60% of yard capacity is set to be vacant within the next 12-18 months if orders stay absent. Japanese yards are struggling to be price-competitive relative to their Chinese counterparts, at a time when the quality gap is closing.

The European yard industry is struggling in tandem with its Cruise customers. Orderbooks appear to be stable for the 11 first-tier yards beyond 2021, but 30 yards, or 85% of second-tier yard capacity, could be vacant by the end of 2021.

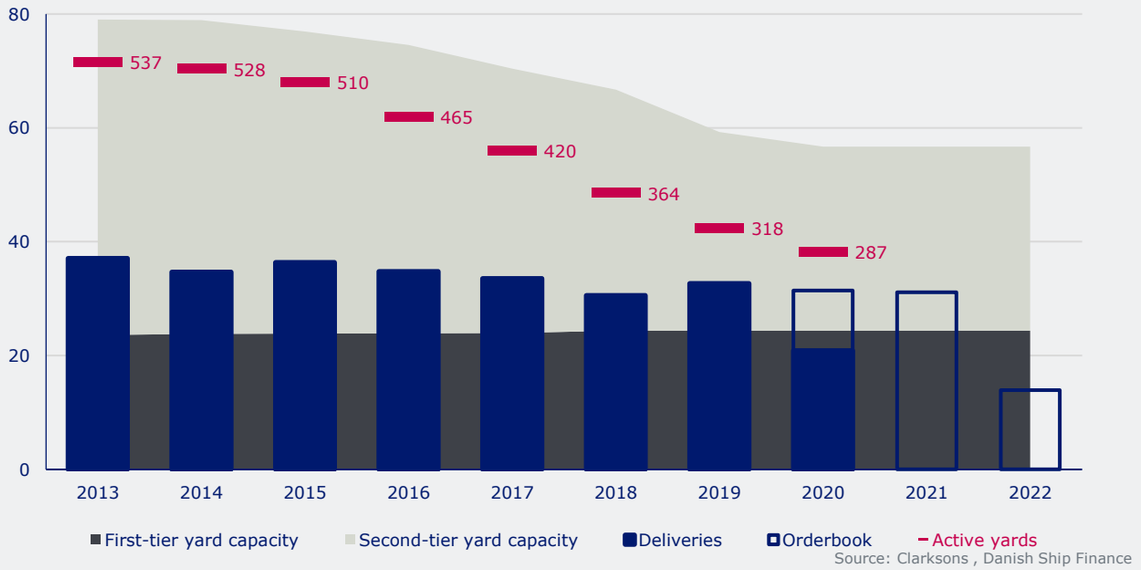
South Korean and Chinese first-tier yards are gaining market share. 93% of China's first-tier capacity has orders beyond 2021, while the South Korean yards have agreements for LNG Carriers from Qatar, Russia and Mozambique that would swell the orderbook of 18.5 million cgt by up to 80%. The second-tier yards in both countries are running out of orders.

We see limited potential for a surge in orders. The move towards zero-carbon shipping is some years ahead of us, which means few new orders are likely to be placed in the interim. We expect the yard industry to be much more centralised around few large yard groups when the next wave of ordering begins.

END-YEAR YARD CAPACITY WITHOUT FURTHER ORDERS (MILLION CGT)



DEVELOPMENT IN ACTIVE YARD CAPACITY (MILLION CGT)



Source: Clarksons , Danish Ship Finance

SHIPBUILDING DEEP DIVE: CARGO FLEET RENEWAL POTENTIAL

Opaque industry outlook will continue to curb contracting activity

Between 2008 and 2012, shipyards delivered an unprecedented number of vessels. Since then, contracting activity has been low, because many vessel segments have been struggling with long periods of excess capacity. The shipbuilding market is endeavouring to reduce surplus shipyard capacity, but few new vessels are being ordered, and hence additional capacity needs to exit the market before balance can be restored.

The appetite for ordering new vessels appears to be weak across vessel segments. The outlook is rather bleak, since there is little indication that ordering of new vessels will increase in earnest until a clear pathway to zero-carbon shipping is identified. The industry has formulated ambitious climate targets up to 2030 and 2050, but it seems premature to expect large-scale fleet renewal within the next three to five years. In the meantime, existing fleets are getting older, which could offer some structural support to the values of younger vessels, in particular.

As renewal potential recovers, yards must be in position. The industry consolidation has led to independent yards diversifying their vessel portfolios, while some yard groups are aiming to form specialised yards by vessel type. However, there are several factors constraining production capacity. Just 65 out of 287 yards have the capacity to build vessels larger than 100,000 dwt and only 60% of global capacity has experience implementing a non-fuel oil engine. While product assortment will be important, yards must build up track records, as vessel owners cannot afford to make wrong decisions.

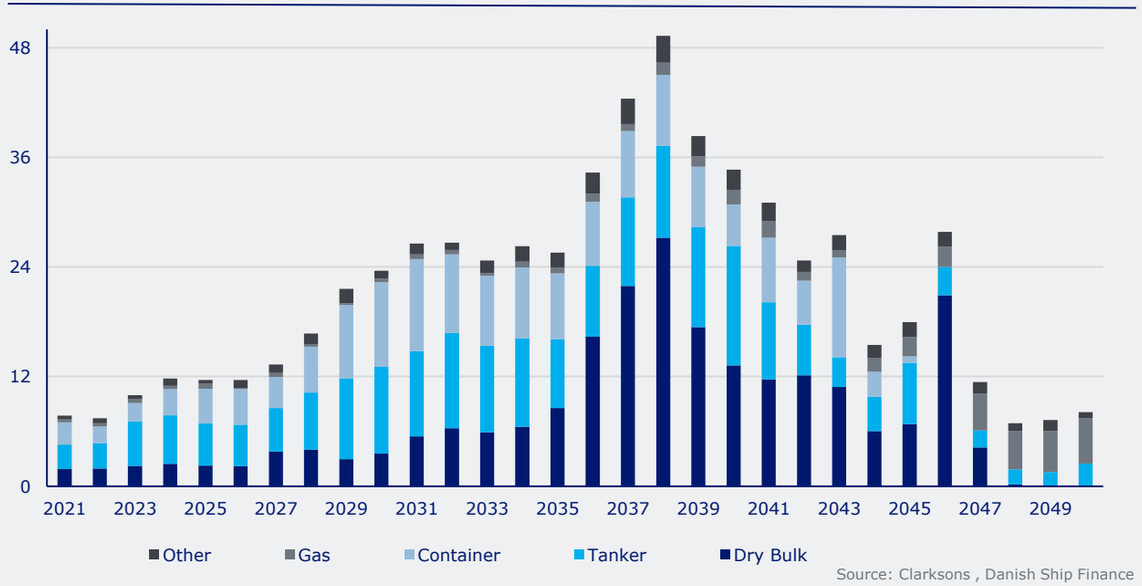
China is dedicated to becoming the market leader in high-spec vessels, but few yards seem up to the task currently. This was recently exposed by Qatar's decision to order just eight to 16 out of more than 110 LNG Carriers from Chinese yards, with the rest from South Korean. The Chinese deal offered superior financial conditions and, as China is intended to be a major offtake channel for the natural gas expansion, it offered a seemingly more important relationship. Hence, the order indicates that the Chinese yard industry is still struggling to build high-spec vessels.

South Korea has a track record of building advanced vessels, and the combined capacity of the five first-tier yards could actually fulfil the majority of demand for new cargo ships until 2030. The huge Qatar order will deploy a minimum of 11% of capacity up to 2027, but more questions circle whether South Korean yards will be profitable when competing with China for low-price cargo carriers, as the need for new LNG Carriers dries up.

We expect the fleet of zero-emission vessels to be highly standardised. This would normally put Japanese yards in a good position, but government support in China and South Korea has left them at a disadvantage. Japanese yards are awaiting state actions to reduce overall vessel prices, without which most will struggle to compete. European yards seem limited to Passenger- and Offshore vessels. They will not be price-competitive on cargo carriers, but Europe will play a significant role throughout the value chain.

The shipbuilding consolidation process has strengthened the focus on production flexibility and the ability to adjust short-term yard capacity. This will still be important, but increased industry transparency and further consolidation in both the shipping and shipbuilding industries may decrease order volatility. We expect conditions to be more stable for yards in a position to build the next generation of vessels.

FLEET RENEWAL POTENTIAL* (MILLION CGT)



*Average demolition age for each vessel type in 2017-2019 is kept constant

Source: Clarksons , Danish Ship Finance

CONTAINER

THE CONTAINER MARKET

Perspectives and key takeaways

OUTLOOK SUMMARY

- ○ POSITIVE
- ● **NEUTRAL**
- ○ NEGATIVE

From a short-term perspective, demand for containerised goods will continue to rise, although it will remain lower than in 2019. If box rates are to be kept at current levels, strict capacity management will have to be maintained. This could prove difficult due to the inflow of new large vessels and pressure from customers. A low orderbook-to-fleet ratio paves the way for a sustainable market recovery in the long term. However, the very low average age of large vessels presents a challenge. Moreover, container demand will face headwind if the global economic downturn is prolonged.

The supply and demand balance has deteriorated in 2020: in the first nine month of the year, global container demand was down by approximately 5% compared to the same period last year while the fleet expanded by 2%. Still, robust capacity management efforts by Liner operators have kept box rates at pre-pandemic levels: up to 30% of capacity on the main lanes has been temporarily reduced by blank sailings, service suspensions and lower speeds (-1.8%). Idle capacity reached 11% of the fleet in May but has declined to 3% during the autumn.

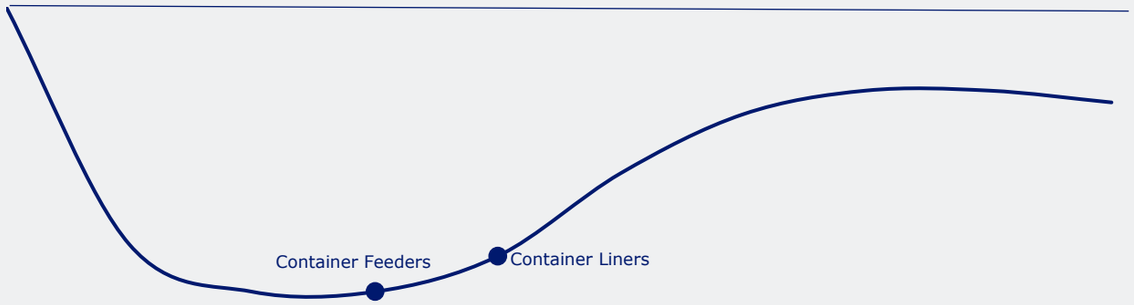
The tight capacity management exercised by the Liner operators placed tonnage providers in an unfavourable position. Charter periods and rates dropped accordingly but are recovering as idle capacity is declining. Secondhand prices for Feeder vessels older than ten years have weakened by up to 30% during 2020. Secondhand prices for larger vessels (8,000+ teu) are currently stable, but this may simply reflect low market liquidity rather than earnings expectations.

A historically low orderbook will provide some support to the Container market in the coming years. The fleet of vessels below 12,000 teu will grow at a slow pace. On the other hand, the large inflow of vessels above 12,000 teu will continue in 2020 and 2021. As a result, capacity will increase across the main lanes and smaller routes as larger vessels replace smaller vessels through cascading.

On the demand side, activity has been rising since June. Growth in e-commerce, stockpiling of goods and Christmas trade pave the way for this positive trend continuing in the fourth quarter of 2020. Transpacific trade is set to benefit the most, while high levels of debt in developing countries could keep a lid on North-South trade. Despite the positive demand trends, global demand volumes are not projected to return to 2019 levels until the second half of 2021. Therefore, Liner operators will have to adjust capacity gradually in order to avoid a drop in box rates. This is a challenge for tonnage providers, as both timecharter rates and durations will come under pressure. Operators' capacity management strategies are likely to face headwinds from their customers, as they will be experiencing less service for the same cost.

So far, the weakness in the global economy has been driven by energy and untraded domestic services, but spillover effects could challenge the Container market in the long term if the current economic situation persists. Moreover, the pandemic has the potential to change global value chains going forward. The latest wave of manufacturing technology enables companies to be less dependent on production in low-wage countries, which could lead to increased regionalised trade at the expense of long-haul trade. The Covid-19 outbreak may accelerate this trend. Increased regionalised trade will support demand for vessels smaller than 5,000 teu, while a slowdown in long-haul trade could challenge the 12,000+ teu fleet operating on the main lanes.

WHERE WE ARE IN THE SHIP VALUE CYCLE



THE CONTAINER MARKET

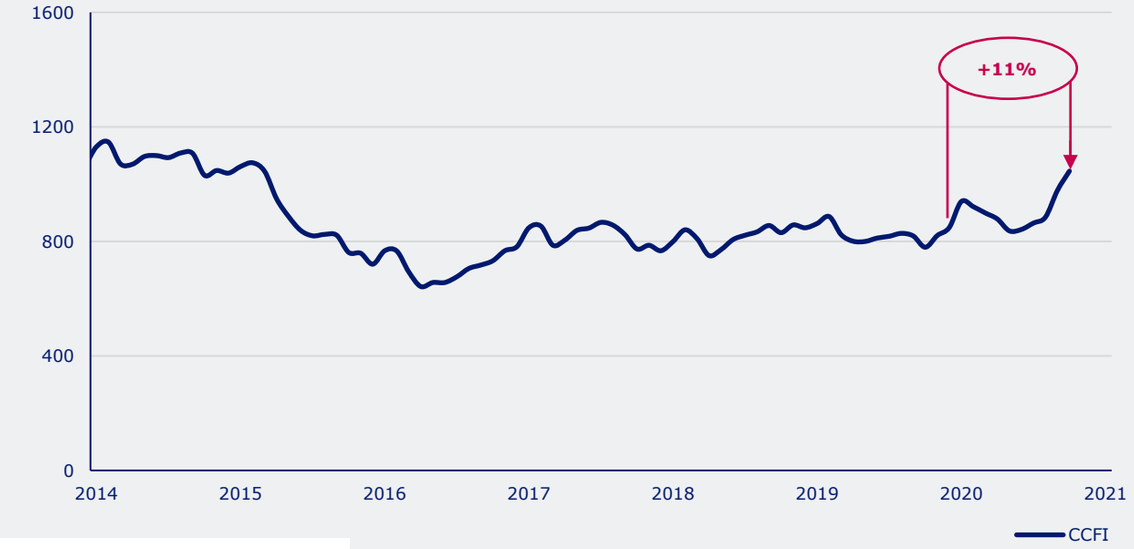
Freight rates and ship prices

Owing to strict capacity management, the **box rate** has been kept at a steady level compared with the end of 2019, while it has increased by 6% since our last report in May. Global Container demand contracted by an estimated 8% in the first half of 2020 due to the global economic recession caused by the Covid-19 pandemic. The east-west and transpacific lanes were hit hardest, with demand declining by 11% and 9%, respectively. Still, increased idle capacity, void sailings and slow steaming limited the drop in box rates to 4% in the same period. In the third quarter, Container demand started to slowly improve as global economic activity rose. Liner operators have been reluctant to increase available capacity, which has supported an increase in the box rate of 24% since June. By the end of October, the CCFI stood at index 1,054 – 11% higher than in January.

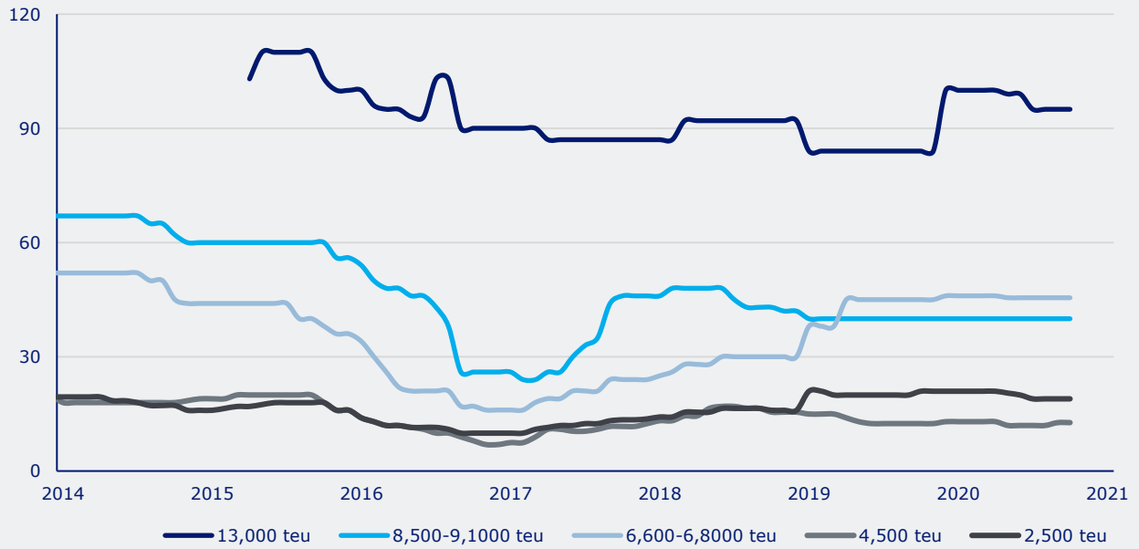
Liner operators' focus on capacity management has put pressure on tonnage providers. As a result, average **timecharter rates** dropped by 33% in the first half of 2020. In the autumn, the market has improved as demand has increased, and rates were up by 18% in October compared with the end of 2019. In order to cope with the uncertainty over future demand, Liner operators have managed to shorten charter periods. Charter periods of less than six months represent 33% of all charter agreements in 2020, up from 18% in 2019. For Feeders, this figure has risen from 64% in 2019 to 75%.

The unpredictability of demand trends, uncertainty of future ship design and limited openings for vessel inspections lower the appetite for S&P. In the second quarter of the year, only nine sales were registered – the lowest quarterly level since 2008. Still, **S&P activity** has shown signs of improvement during the autumn, driven by the Old Panamax and Feeder segments. The almost non-existent S&P activity for large Container vessels has kept the **secondhand price** for five-year-old vessels larger than 8,000 teu fairly steady. For five-year-old Old Panamaxes and 2,500 teu Feeder vessels, prices have declined by 2% and 10% during 2020, respectively. The value depreciation has been most marked for small vessels older than ten years. For example, the price for a 15-year-old 1,000 teu Feeder vessel stood at USD 2.25 million in October – close to scrap value.

AVERAGE BOX RATE OUT OF CHINA (INDEX)



SECONDHAND PRICES FOR A FIVE-YEAR-OLD VESSEL (USD MILLION)



Source: Clarksons, Danish Ship Finance

THE CONTAINER MARKET

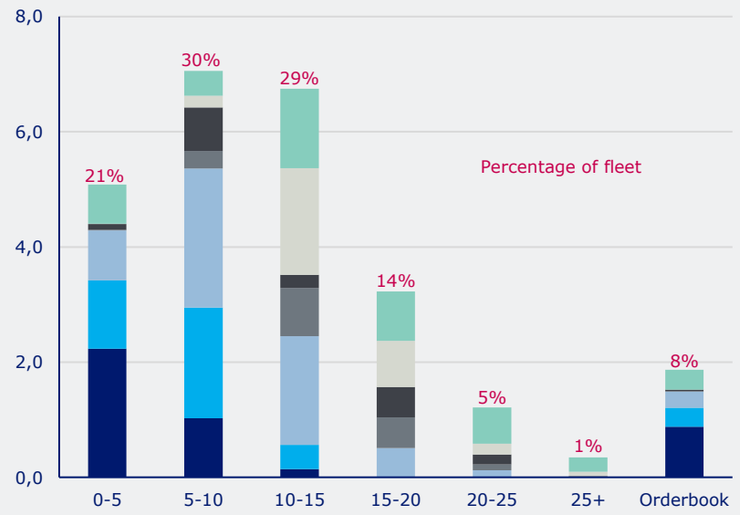
Supply-side development

Until the end of September, 93 vessels totalling 630,775 teu have been added to the fleet, corresponding to 71% of scheduled **deliveries** (86% in 2019). Yard lockdowns and disruptions to shipbuilding supply chains have affected the delivery performance. **Demolition activity** slowed in the first half of 2020, down by 15% year-on-year due to Covid-19 restrictions at recycling locations. However, demolition activity picked up markedly during the summer and by September it was up 13% year-on-year. As a result, the Container fleet grew 2% in the first nine months of 2020 – 1 percentage point lower than in the same period last year. Large vessels continued to drive the fleet expansion. Thus, the 15,000+ teu fleet expanded to the tune of 10%, while the Feeder and 12-14,999 teu fleets grew by 1% and 2% in the period, respectively. The midsize fleet has remained stable.

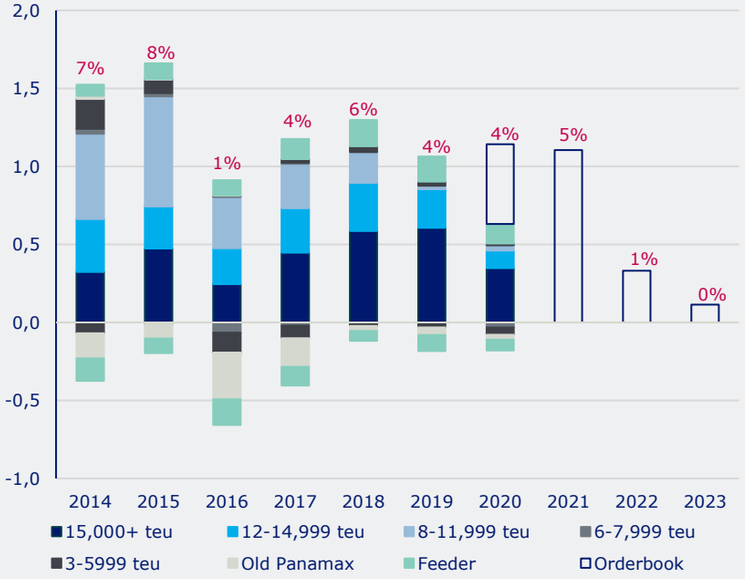
As demand for containerised goods plummeted in the spring, **idle capacity** rose to 11% of the Container fleet (3% due to scrubber retrofitting) – well above last year's average of 3%. Since then, idle capacity has decreased and represents 3% of the fleet by October. Available capacity has been limited further by Liner operators suspending a significant number of services and announcing **blank sailings** (351 in the first half of 2020). Lastly, the average **Container vessel speed** has been lowered by 1.8% this year compared to 2019. These actions have reduced the active fleet capacity significantly.

During the last couple of years, fuel and technology considerations have kept investors from **contracting** new vessels. The coronavirus pandemic seems to have amplified this trend. Only 30 vessels totalling 177,434 teu (five 15,000+ teu vessels, two 12-14,999 teu vessels and 23 Feeders) have been ordered in 2020, corresponding to 0.8% of the fleet, down from 4% in 2019. Newbuilding contracts, albeit being few, show Chinese owners placing orders at Chinese yards. The orderbook amounts to 2.1 million teu, equal to 9% of the fleet – the lowest level in decades. Of this, 65% is scheduled to be delivered by mid-2021.

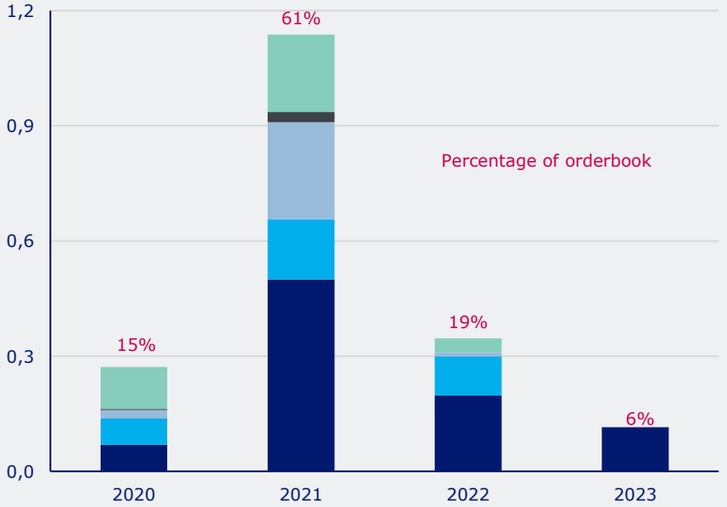
AGE DISTRIBUTION OF FLEET (MILLION TEU)



FLEET DEVELOPMENT (MILLION TEU)



ORDERBOOK BY DELIVERY YEAR (MILLION TEU)



Source: Clarksons, Danish Ship Finance

THE CONTAINER MARKET

Market outlook

In the coming six to 12 months, demand will be the determining factor in the Container market. The unpredictable development of the coronavirus adds uncertainty to future Container trade. Demand on transpacific and Asia-Europe lanes will depend on whether e-commerce and stockpiling of medical equipment can continue to compensate for a decline in trade of industrial components. We expect activity to rise but still at volumes below last year, while local virus outbreaks could cause significant temporary trade disturbances. We expect Container demand to decline by 4-6% in 2020, driven by long-haul trade.

On the supply side, the 12,000+ teu fleet is scheduled to grow by 9% in both 2020 and 2021. This calls for further cascading of capacity from the main lanes to smaller routes in order to align supply with demand, which will increase the competition for smaller vessels, even though the orderbook for vessels smaller than 8,000 teu can easily be absorbed by scrapping of vessels older than 20 years. This year and the next, fleet is set to expand by 4% and 5% without any additional scrapping, respectively.

In the short term, we believe that in order to keep the current box rate levels steady, Liner operators must gradually adjust available capacity to customer demand while monitoring the supply and demand balance closely, preventing a return to the pre-pandemic capacity surplus. For the Feeder and 3,000-4,999 teu fleets, we expect relatively strong regional demand and a favourable supply composition to support freight rates.

From a long-term perspective, the record-low orderbook-to-fleet ratio raises hopes for a future market recovery, but the historically uneven fleet growth between small and large vessels means that continuous cascading of vessels and fleet assessment are required in order to balance supply and demand. Demand volumes are likely to stabilise and resume growth rates of 1-3% once the majority of the global population has been protected against Covid-19 infection. Downside risks to the outlook are a protracted global economic downturn, with high unemployment rates hampering purchasing power and thereby demand for containerised goods, and a resumption of the trade dispute between the US and China.

FORCES AT WORK IMPACTING THE OUTLOOK

Global economy	We expect the recovery of the global economy to be drawn-out and uncertain. This increases the risk of structurally high unemployment. Persistently high unemployment rates will lead to a decline in trade of containerised goods.	✘
Changing supply chains	The Covid-19 pandemic has highlighted the vulnerability of the complex networks of supply linkages. Manufacturing companies are likely to reevaluate their supply chains. This could change distances and routes for containerised goods, increasing the need for flexibility in Liner operations.	✘ ✓
Low orderbook-to-fleet ratio	The orderbook equals 9% of the fleet, which means that parts of the fleet will be able to adapt to future demand. The Feeder and 3,000-4,999 teu vessels are particularly well-positioned.	✓
Cascading of capacity	Deliveries of 15,000+ teu vessels will shape the supply side in the coming years. Smaller vessels will be replaced and redirected to less demand-intensive routes. This will create downward pressure across Liner networks and for tonnage providers with older less efficient vessels.	✘
Market discipline	Strict capacity management among Liner operators has kept the box rate at 2019 levels despite declining demand. Continuous focus on limiting available capacity will be necessary in the coming years.	✓

✘ Negative impact ✓ Positive impact

CONTAINER MARKET DEEP DIVE: GLOBAL SUPPLY CHAINS

The Covid-19 pandemic could accelerate the changes to supply chains and shorten Container trade lanes

In the 2000s, Container freight volumes soared as new communication technologies and China's entry to the WTO enabled the globalisation of trade and supply chains. Global supply chains now account for almost 50% of global trade and fuel demand for Container vessels. An increasing risk of shocks to the supply chains for containerised goods is forcing a reevaluation of these and thereby Container lanes.

Even before Covid-19, trade disputes between the US and China as well as Brexit were constraining demand for containerised goods on the main lanes, while regional trade seemed more immune to these external shocks. We believe this trend could accelerate, as the global lockdowns of economies have exposed the risk of relying on complex networks of supply linkages. Manufacturing companies in high value-added industries are likely to increase stockpiles or consider a regional source of supply in the future.

Recent research suggests that up to a quarter of global trade volumes could move across borders in order to minimise supply chain shocks. Supply chains for containerised goods such as communication equipment, computers and electronics, semiconductors and apparel are highly exposed to external shocks, and we believe increasing numbers of companies in these industries will consider nearshoring some supply linkages in order to reduce the risk of disruption.

Multiple factors indicate a trend towards regionalisation of supply chains. Policies such as America First and the increasing European focus on domestic production of critical technologies endorse domestic manufacturing. Take, for example, a new US law designed to keep Chinese telecommunications companies out of the American network. Moreover, highly skilled talent, a supplier ecosystem, infrastructure and IP protection seem to be vital factors for companies when deciding the location of future plants – and these can be attained thanks to the constant development of manufacturing technology. Back in our May 2016 report, we argued that new technology trends would shape the future of international production. This trend may now accelerate. Robotics-enabled automation, enhanced supply chain digitalisation and additive manufacturing will make cheap labour less important in the future and provide the opportunity to locate manufacturing closer to the consumer.

We believe that the changes in supply chains will take place gradually and over a longer period. Regionalised trade will grow faster as new export hubs for containerised goods emerge closer to the customer. Vessels smaller than 5,000 teu are likely to benefit from this trend. Smaller ships sailing more frequently will enable point-to-point networks to be established and ensure faster turnaround times in ports. On the long-haul main lanes, demand growth could stagnate or even decline, which will intensify the focus on economies of scale in order to minimise costs. Premature scrapping could become a topic among 12-14,999 teu vessels.

We argue that further vertical integration into supply chains could result in an increased profit pool for the Container industry despite shorter distances between trading partners. This will require improved flexibility in Liner operators' pool of vessels. In order to keep pace with changing supply linkages, the pool must be adjusted constantly, and a recalibration of the fleet composition will be necessary. A larger share of chartered vessels in relation to owned vessels could provide Liner operators with the flexibility to swiftly reorient their services across different Container providers according to customer demand and preferences. This puts Liner operators in a privileged position to help make their customers' supply chains nimbler – a potential source of future value creation for the Container industry but implying less operational visibility for tonnage providers.

DRY BULK

THE DRY BULK MARKET

Perspectives and key takeaways

OUTLOOK SUMMARY

- ○ POSITIVE
- ● **NEUTRAL**
- ○ NEGATIVE

In the short term, the Dry Bulk market will be challenged by slumbering industrial output and a large inflow of vessels. We expect pressure on freight rates, while increased value depreciation of older vessels seems likely. Young and smaller vessels benefit from a more positive long-term outlook. Supply growth will be manageable if contracting activity is kept low. The economic recovery after Covid-19 will provide opportunities for increased non-ferrous trade. However, weak fundamentals continue to afflict the Capesize segment.

Rising economic activity served by fewer vessels at slower speeds strengthens the Dry Bulk market compared to at the time of our last report in May. Consequently, the Baltic Dry Index (BDI) has risen from one of the lowest levels ever recorded to index 1,700 – close to the long-term median index. Average timecharter rates are approaching median values too, driven by a well-performing Panamax segment.

Still, market fundamentals are challenging, which is why newbuilding and secondhand prices are failing to follow the positive trend in rates. In general, the gap between secondhand prices of young and old vessels continues to increase, reflecting market concerns over old technology and the growing risk of premature scrapping. Current secondhand prices are unattractive for potential sellers, while buyers are awaiting clarity on how the Covid-19 pandemic develops and the subsequent economic recovery. Consequently, S&P activity in 2020 has hit the lowest level since the financial crisis.

The fleet continues to expand. The inflow of Capesize and Panamax vessels has resulted in fleet growth of 3% in the first nine months of 2020. Demolition of Capesize vessels has increased, but this has only been sufficient to counterbalance 29% of the delivered capacity in 2020. The high demolition activity has lowered the average scrapping age to 26 years this year, from 28 years in 2019. In the Capesize segment, further demolition is needed to reduce surplus capacity. However, the Capesize fleet is young, which increases the risk of shorter economic lifetimes.

The fleet expansion is set to continue in the short term, even though demand is facing headwinds. In 2020, we expect coal and non-ferrous metal demand to drop by 6-10%. These figures are primarily explained by the Covid-19-related decline in global energy consumption and various supply disruptions. Aggregated Dry Bulk demand is set to decline by 3-4% in 2020 despite a relative stable iron ore trade and growth in grain trades. We therefore believe that the Dry Bulk market will struggle to handle periods of surplus capacity over the next nine to 12 months.

The longer-term outlook is brighter. Investors' cautiousness towards newbuildings during the last couple of years has drained the Dry Bulk orderbook. This will keep a lid on fleet expansion and provide the opportunity for a rebalancing between demand and supply, although this will require contracting discipline. This puts the Handysize, Handymax and Panamax segments in an advantageous position, while the low average age of the vessels constrains the rebalancing potential in the Capesize segment. The long-term demand picture increases the pressure on the largest vessels. The two main commodities carried by Capesize vessels face structural challenges. Global power production is moving away from coal as an energy source, while the heyday for iron ore trade is long gone. In contrast, we expect non-ferrous metals to drive future Dry Bulk demand. The Covid-19 economic recovery will be propelled by investments in renewable energy, leading to an increased need for these metals. This will favour vessels in the Handysize and Handymax segments and to a certain extent Panamax vessels.

WHERE WE ARE IN THE SHIP VALUE CYCLE

THE DRY BULK MARKET

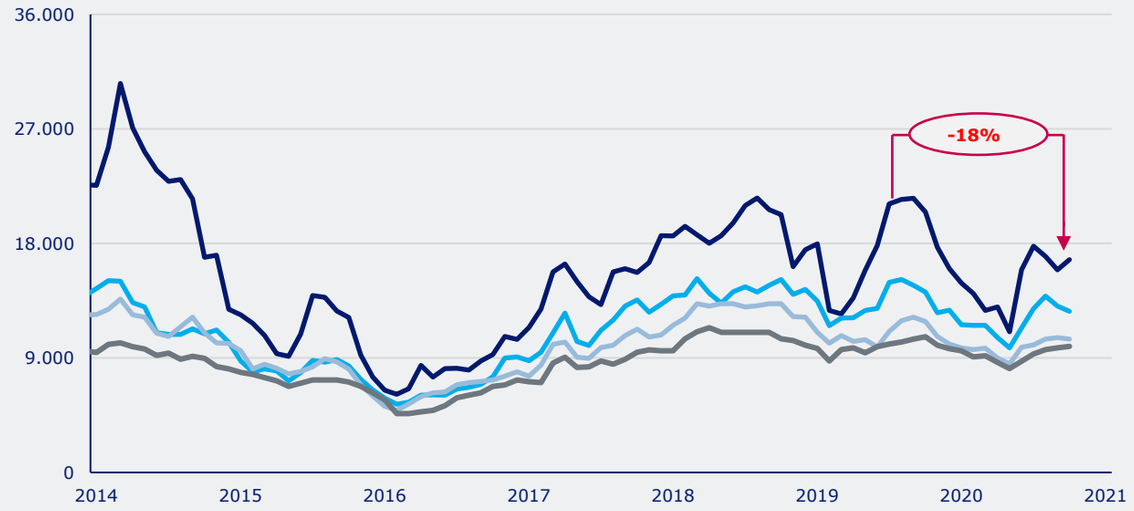
Freight rates and ship prices

In the spring**,** Dry Bulk **spot rates** hit levels below OPEX as the coronavirus outbreak forced a global lockdown of economic activity and constrained global supply chains. Since May, the BDI has increased by 207% to index 1,700, driven by risen economic activity and growing grain trade. The recovery has been supported by slower speeds and idle capacity of 4-5% of the fleet above 65,000 dwt. **Timecharter rates** have been on a rollercoaster ride as well. Since our last report in May, the one-year timecharter rate has risen by 30%, driven by the Panamax and Capesize segments. Nevertheless, declining demand for coal and non-ferrous metal has cut the average one-year timecharter rate by 14% year-on-year.

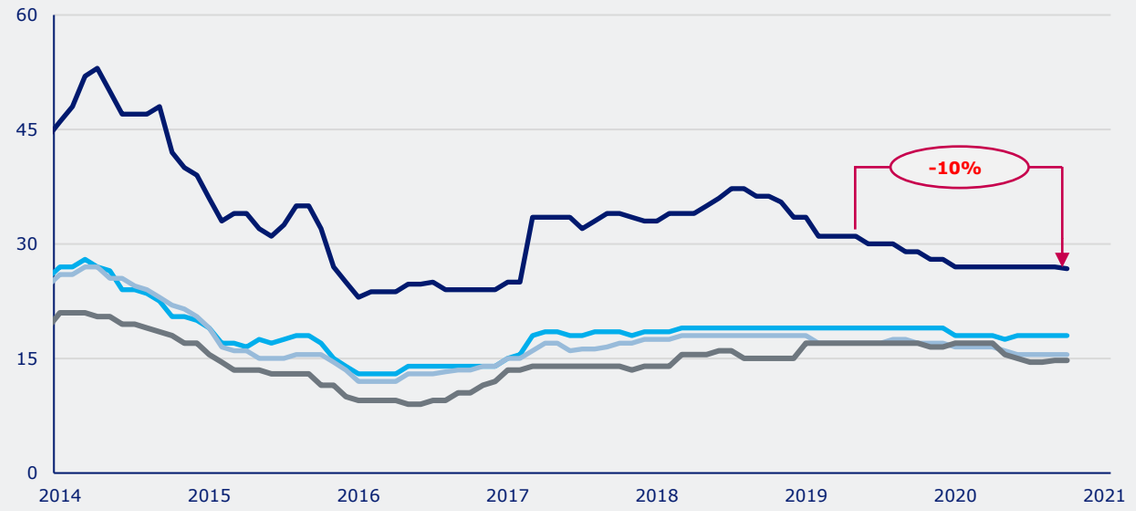
Over the last couple of years, **newbuilding prices** for Dry Bulk vessels have failed to match the decline in **secondhand prices**, but since the end of 2019, newbuilding prices have begun to drop. The average secondhand price for a five-year-old vessel has declined by 8% during 2020, driven by the Handymax and Handysize segments. The secondhand price for older vessels in these segments has dropped by a similar amount. The downward trend for the secondhand price of five-year-old Capesize vessels seems to have halted and stabilised in 2020. In the same period, the value of both older Capesize and Panamax vessels has come down, widening the price gap between young and old vessels. This indicates growing market concerns over old technology and an increased risk of premature demolition.

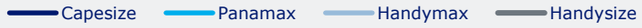
Low **S&P activity** seems to be the main reason for the stability in secondhand prices. Only 2.4% of the Dry Bulk fleet has changed hands in 2020, which is almost half the level in the same period last year. The limited opportunities for vessel inspections may explain some of the reduction. Uncertainty related to future demand seems to have lowered potential buyers' reservation prices, while few sellers find the current prices attractive. S&P activity in the Capesize segment remains low, albeit higher than last year, when activity was almost non-existent. This year, the Panamax, Handymax and Handysize segments are heading for the lowest yearly transaction levels since the financial crisis.

ONE-YEAR TIMECHARTER RATES (USD PER DAY)



SECONDHAND PRICES FOR A FIVE-YEAR-OLD VESSEL (USD MILLION)





Source: Clarksons, Danish Ship Finance

THE DRY BULK MARKET

Supply-side development

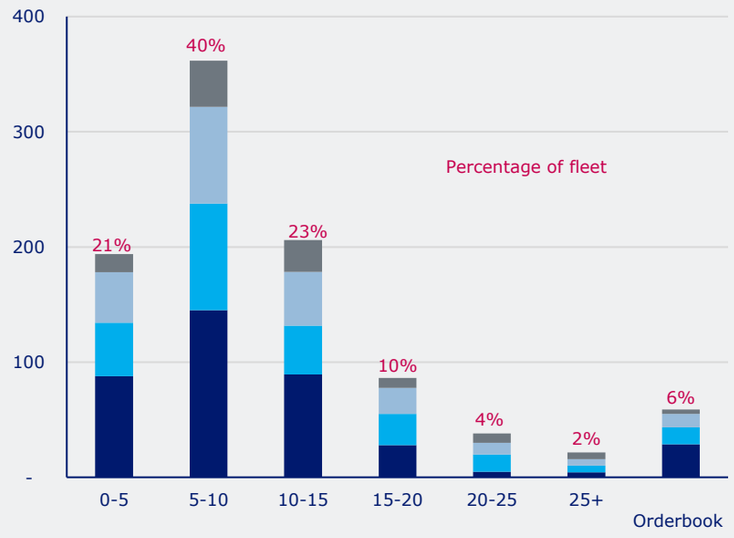
The Dry Bulk fleet is set to expand to the tune of 5% in 2020 – the highest growth rate since 2014. Despite the coronavirus pandemic, **deliveries** of Dry Bulk vessels are up by 41% compared to last year. In the first nine months of 2020, 38 million dwt was added to the Dry Bulk fleet. So far in 2020, deliveries have exceeded the amount scheduled at the beginning of 2020. Capesize and Panamax vessel owners seem to be bringing deliveries forward in an attempt to benefit from temporary improvements in earnings. Meanwhile, owners of Handysize vessels are postponing deliveries in the hopes of a recovery later this year.

Deliveries are outpacing **contracting** activity in 2020. This has lowered the orderbook-to-fleet ratio from 10% to 6% since the beginning of the year, reflecting uncertainty over future demand and vessel design. European owners seem more concerned about these risks, reducing their share of new orders to 10%, while owners from shipbuilder nations have increased their share to 71%. Handymax vessels represent 55% of all new orders so far in 2020. Dry Bulk owners have only ordered 1.8 million dwt since our last report in May.

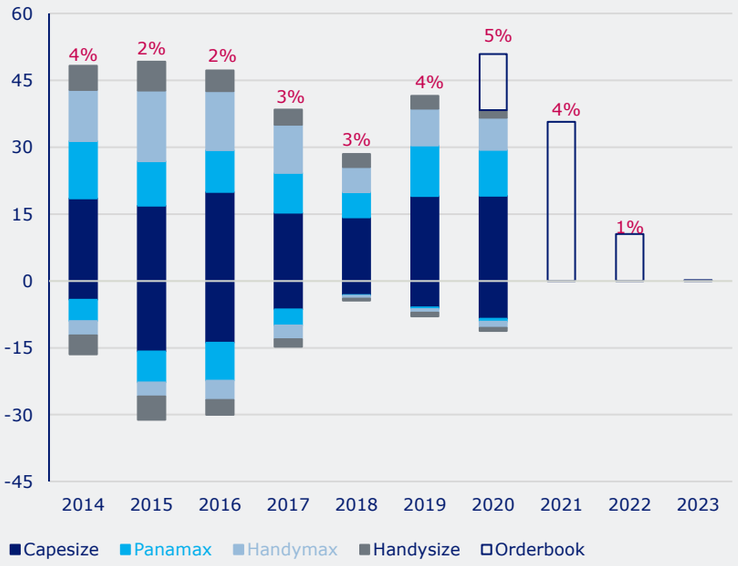
In order to address the market oversupply, almost eleven million dwt has been scrapped during 2020, corresponding to 1.3% of the Dry Bulk fleet, which is the highest level of **demolition** for three years. In numbers, 41% of Dry Bulk demolitions have been in the Capesize segment, despite the fleet being young. Thus, the average scrapping age has dropped to 23.3 years and a vessels as young as 18 years old has been scrapped. Meanwhile, scrapping of Panamax vessels have been subdued, while demolitions have been strong in the Handymax segment and moderate among Handysize vessels.

The **fleet renewal potential** looks promising for the Panamax, Handymax and Handysize segments, as their respective orderbooks can be absorbed by scrapping of vessels older than 20 years. In contrast, a young fleet and a large orderbook implies an increased risk of future oversupply in the Capesize segment.

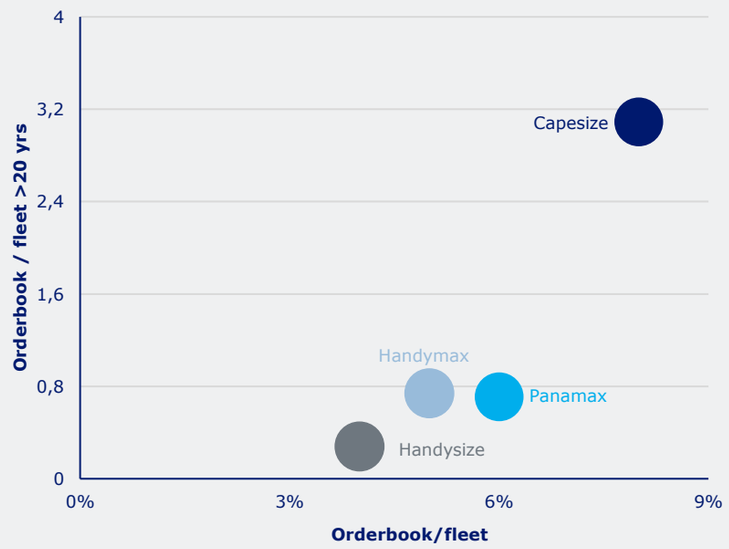
AGE DISTRIBUTION OF FLEET (MILLION DWT)



FLEET DEVELOPMENT (MILLION DWT)



FLEET RENEWAL POTENTIAL (DWT)



Source: Clarksons, Danish Ship Finance

THE DRY BULK MARKET

Market outlook

The coming nine months could prove difficult for the Dry Bulk market. By mid-2021, a further 35.3 million dwt is scheduled to have been delivered, which will result in fleet expansion of 4% without further scrapping (5% for the full year 2020 and 4% for the full year 2021). In addition, the active fleet will grow even faster, since vessels undergoing scrubber retrofitting will drop to 2% of the fleet in the second half of 2020 compared to 6% in the first half. The Covid-19 pandemic continues to hamper Dry Bulk demand, which is likely to be reduced by 4% in 2020. Metal trade will struggle due to coronavirus-related supply disruptions, while coal trade appears to be structurally declining. In contrast, grain trade seems unaffected and we expect demand to grow by 2-4% in both 2020 and 2021.

While we expect the Dry Bulk market to weaken in the short term, we remain cautiously optimistic about the outlook beyond mid-2021, as we see several factors that could offer support to market fundamentals. On the supply side, the lowest orderbook-to-fleet ratio in 20 years paves the way for a rebalancing of the Dry Bulk fleet. The Handysize and Handymax segments could potentially see their fleets shrink if scrapping of older vessels and the subdued level of contracting activity continue. In contrast, the Capesize market is challenged by the scarcity of scrapping candidates. Thus, a rebalancing of the fleet in this segment is likely to take longer.

On the demand side, we argue that the Covid-19 pandemic has altered the essential market drivers. Investments in renewable energy are likely to play a key role in the post-Covid-19 economic recovery, while the incentives to retire coal power plants are building. These factors will accelerate the decline in demand for non-coking coal and have a severe negative impact on demand for Capesize and Panamax vessels in the long term, although financial stimulus plans and low inventories of coking coal and iron ore are likely to soften the demand drop. Meanwhile, investments in renewable energy could spark demand for non-ferrous metals, which are crucial for renewable energy technology. Handysize and Handymax vessels will benefit from this, although as demand rises, so will parcel sizes, which will support demand for Panamaxes and small Capesize vessels. Still, the long-term demand and supply drivers are advantageous for vessels in the Handysize and Handymax segments and unfavourable for Capesize vessels, while Panamax owners must tread carefully.

FORCES AT WORK IMPACTING THE DEMAND OUTLOOK

Front-loaded orderbook	Two-thirds of the orderbook is scheduled be delivered within the next nine months, expanding the fleet by 4%.	✘
Weak global economy	The IMF projects the global economy to contract by 4.9%, which will lead to a short-term drop in demand for Dry Bulk commodities.	✘
A young Capesize fleet	An average fleet age of nine years, very few scrapping candidates and an orderbook equal to 9% of the fleet complicate the recalibration of the Capesize segment.	✘
Low orderbook-to-fleet ratio	A historically low orderbook-to-fleet ratio raises hopes for a future balance between demand and supply in a Dry Bulk market notoriously characterised by oversupply.	✓
Future demand drivers	The post-Covid-19 economic recovery will alter the demand picture for Dry Bulk commodities. Coal's share of Dry Bulk demand is likely to decline, while demand for non-ferrous metals will strengthen.	✓

✘ Negative impact ✓ Positive impact

DRY BULK MARKET DEEP DIVE: DELIVERY OF THE ORDERBOOK

The low orderbook represents an opportunity for a market recovery

By mid-2021, the Dry Bulk orderbook will equal 2.8% of the Dry Bulk fleet, assuming no new vessels are contracted, which could keep fleet growth low for several years. However, over the next 12 months, the fleet is set to expand by 4.1%, primarily driven by the addition of vessels larger than 80,000 dwt.

The Dry Bulk fleet is currently 89% larger than it was in 2010 measured in dwt, which has resulted in oversupply across subsegments and continued to put pressure on freight rates and ship values. The expansion of the Dry Bulk fleet now seems to be easing and a historically low orderbook is creating potential for a recovery in future earnings. Nevertheless, we expect fleet growth to cause trouble for Dry Bulk owners over the coming nine to 12 months.

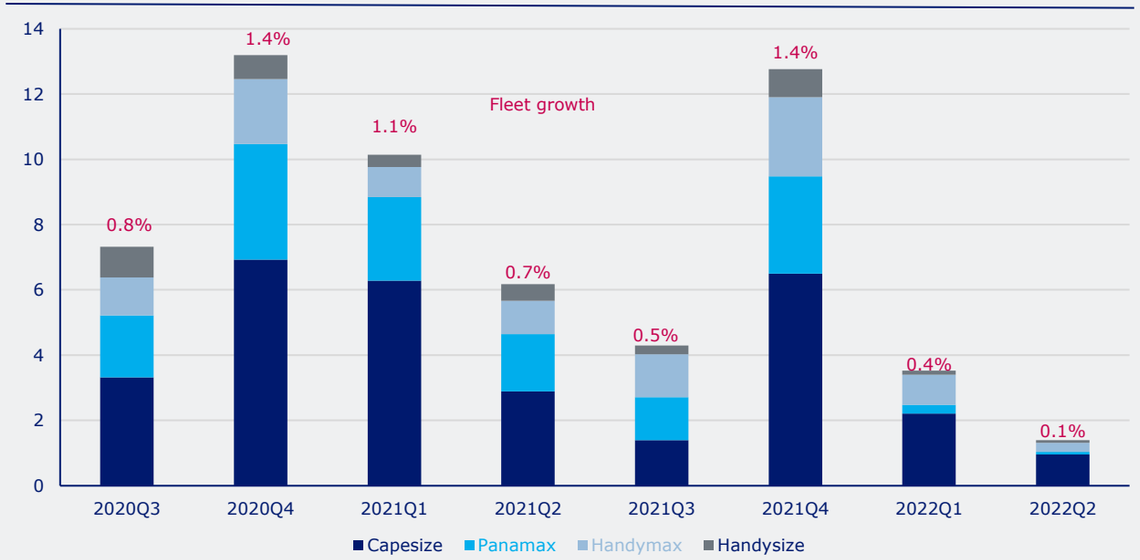
In the last quarter of 2020 and the first quarter of 2021, the inflow of new vessels will cause the fleet to expand by 1.4% and 1.1%, respectively. In this period, 104 vessels will qualify as scrapping candidates, since they will all be older than 20 years and up for special surveys. If all these vessels were to be scrapped, fleet growth could ease by 0.3 and 0.2 percentage points, respectively. Scrapping potential is largest in the Handysize and Handymax segments, while the inflow will be driven by Panamax and Capesize vessels. At this point, scrubber retrofitting will only affect the active fleet marginally. Due to seasonality, demand for Dry Bulk commodities is likely to peak in the fourth quarter of the year, providing a much-needed helping hand for the fast-growing fleet. However, Chinese New Year, low agricultural production and seasonally unfavourable weather conditions for mining will hamper Dry Bulk demand at the beginning of 2021. Consequently, competition among the expanded fleet will increase, intensifying the pressure on earnings – especially for larger vessels, for which the fleet rebalancing potential is low.

Going into the second quarter of 2021, fleet growth is set to drop to 0.7%. Potential scrapping could reduce this figure to 0.5%. Still, large vessels will drive the inflow, while small vessels will drive the potential outflow. We expect demand to increase, as it will be dry season for Brazilian mines and due to rising Chinese industrial activity and agriculture trade. As a result, demand growth and supply growth will start to align. Nevertheless, the large inflow of vessels in the previous quarters will continue to cause trouble for the Dry Bulk market and keep freight rates at low levels.

Apart from a large amount of deliveries scheduled for the fourth quarter of 2021, fleet growth looks set to be manageable from mid-2021 onwards. Low fleet growth is essential for restoring equilibrium between demand and supply. Since 2010, Dry Bulk demand has increased at a CAGR of 2.5%, while the fleet has grown at a CAGR of 4.9%. In the future, demand must grow faster than supply for the market to recover on a long-term basis. We believe the future demand picture is blurred. If contracting activity is kept low, demand has the potential to outpace fleet growth in the Handysize, Handymax and Panamax segments by the end of 2021. In the Capesize segment, a young fleet, a constant inflow of new vessels and changes to the underlying demand drivers will cause trouble, and we expect the fleet to continue to grow faster than demand in the long term.

The low orderbook currently suggests potential for a sustainable market recovery, but it could be several years before available fleet capacity for all segments becomes aligned with Dry Bulk demand.

DRY BULK DELIVERIES (MILLION DWT)



Source: Clarksons, Danish Ship Finance

CRUDE TANKERS

THE CRUDE TANKER MARKET

Perspectives and key takeaways

OUTLOOK SUMMARY

- ○ POSITIVE
- ○ NEUTRAL
- ● **NEGATIVE**

The short to medium-term outlook is bleak. Global oil demand remains weak, oil inventories are high and fleet availability is set to increase as vessels return from floating storage. The recent rise in coronavirus cases is weighing on the recovery in global oil demand. Nevertheless, a low orderbook brightens the long-term outlook, while there is still a great deal of uncertainty over the timing of peak oil demand. We expect freight rates and secondhand prices to recover after 2021.

The Crude Tanker market has seen extraordinarily strong earnings in 2020, despite global oil demand weakening significantly.

Oil markets tested uncharted territory during the first half of the year. Saudi Arabia increased production massively in response to Russia balking the agreements to further reduce output. Simultaneously, measures put in place to control the Covid-19 pandemic, caused global oil demand to collapse. Global oil supply was slow to adjust and onshore oil inventories were filled quickly, which led to the extensive use of Crude Tankers as floating storage.

At the peak in May, more than 250 vessels (12% of the fleet) were engaged in floating storage activities. This figure had come down to 8% by July and has since remained relatively stable.

Further unwinding of floating storage will release vessels into a low market, but the pace uncertain. Many charterers have managed to renew contracts at lower rates, and may continue to do so until demand returns, or more onshore storage becomes available.

The fleet is struggling to be fully employed, even though the worst of the impact from the pandemic on global oil demand appears to be over. Still, rising infections and the resultant reintroduction of containment measures in several regions continue to weigh on the recovery in global oil consumption.

A widening oil price contango in September stimulated increased interest in the use of floating storage, although a significant uptick in storage levels has yet to be seen.

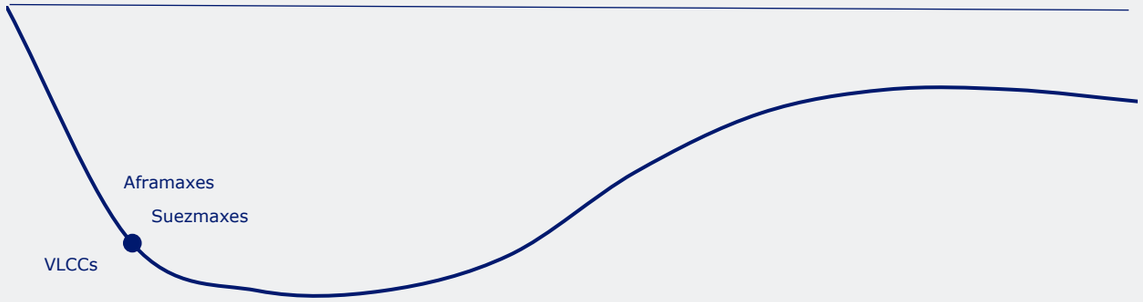
The short and medium-term outlook is bleak, since the combination of weak oil demand and high inventories implies little new demand for Crude Tankers, while further unwinding of floating storage will increase the available supply of Tankers.

Overall, the Crude Tanker market looks likely to experience a period of low freight rates heading into 2021, although the rebalancing of oil markets will eventually lead to more positive trends returning.

The long-term outlook is brighter, but still subject to the uncertain timing of peak oil demand. If demand continues to grow, freight rates and secondhand values are likely to recover from 2022.

The outlook is strongest for the larger vessels. VLCCs will dominate the growing Asia-bound volumes, while Aframax Tankers will experience diminishing crude oil demand from Europe. Increased localisation of refinery capacity may switch some regular crude oil trades to oil products as well. This will primarily effect Aframax Tankers. Suezmax Tankers are facing a similar mixed picture. While an expected sharp reduction in US exports in the wake of the low oil price may reduce the number of long-haul trades substantially, Suezmaxes may regain some trades as a result of the prospective expansion of Middle Eastern crude oil production destined for India and South East Asia.

WHERE WE ARE IN THE SHIP VALUE CYCLE



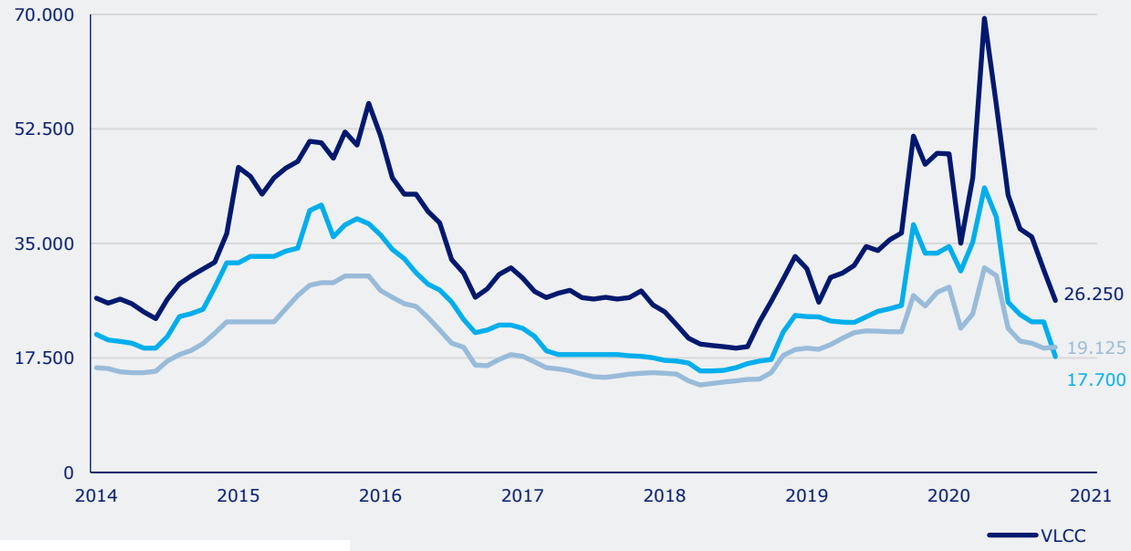
THE CRUDE TANKER MARKET

Freight rates and ship prices

The Crude Tanker market was strong during the first nine months of 2020. VLCC TCE **spot rates** averaged USD 62,000 per day, up 50% from 2019. This surge was propelled by a fall in global oil demand of 20-30% in March-April, while Saudi Arabia made a supply push, sparking a fleet contraction as vessels were used for floating storage. This resulted in record-high Tanker earnings for a short while. Since then, **freight rates** have been steadily deteriorating, as the unwinding of floating storage outpaced the recovery in oil demand. In June-July, the market was supported by China taking advantage of the low oil price to fill inventories. Similar volumes were seen in August-September but by then most Aframax and Suezmax Tankers had returned from floating storage.

Crude volumes in 2020 are expected to be 5-6% lower than in 2019, while third quarter oil supply was 8-9% below last year. **One-year timecharter rates** are, as of October, settled at USD 26,250, USD 19,125 and USD 17,700 for VLCCs, Suezmaxes and Aframaxes, respectively. These rates are on average 50% below April levels, and recent fixtures have shown even lower rates for three to six-month charters.

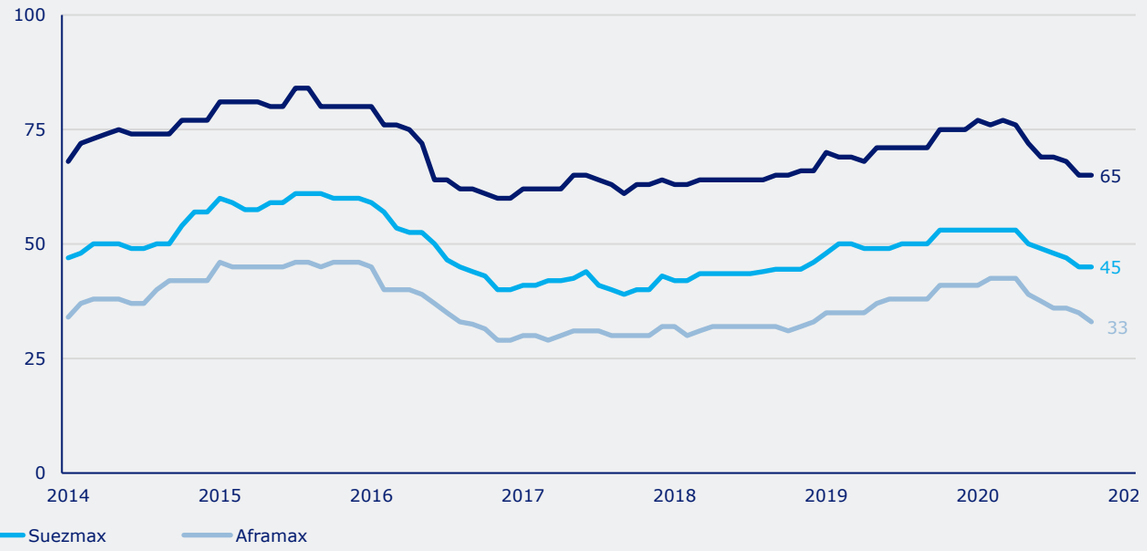
ONE-YEAR TIMECHARTER RATES (USD PER DAY)



The **secondhand price** for a five-year-old vessel started the year at a four-year high, but has come down 15% on average, even though freight rates were spiking. The value depreciation reflects concerns over long-term oil demand. Some observers have begun to speculate whether peak oil demand could be behind us, while others maintain the argument that it will not peak any time soon. We believe there may be some additional years of growth ahead of us. Still, it seems likely that Covid-19 has accelerated the green transition. A 15% drop in secondhand prices may translate to a three-year shortening of a vessel's economic lifetime.

Sales activity among VLCCs has been high in 2020. Activity was initially driven by floating storage speculation for older vessels, but as the year has progressed, it has levelled more out between ages, although vessels due for their third or fourth special survey have dominated the picture. In the first nine months, **newbuilding prices** fell 7% and 9% for Suezmaxes and VLCCs, while the Aframax price only declined 2%.

SECONDHAND PRICES FOR A FIVE-YEAR-OLD VESSEL (USD MILLION)



Source: Clarksons, Danish Ship Finance

THE CRUDE TANKER MARKET

Supply-side development

Deliveries have been low in 2020 versus 2019. Lockdowns at Chinese yards are partly responsible for this, but fewer deliveries are scheduled. Fleet expansion is set to be 4.6% in 2020 with 13 million dwt delivered in the first nine months and 6.2 million scheduled for the rest of the year. However, we expect some slippage, caused both by yards being unable to deliver on time and owners postponing deliveries due to low freight rates.

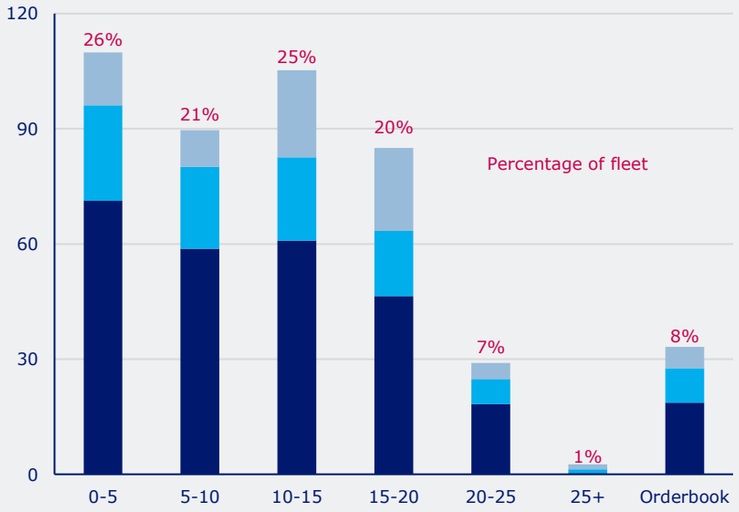
Since April, the **active fleet** has been reduced by the use of vessels as floating storage. After a peak in May at 12%, around 8% of the fleet is still being used for this purpose. Most Aframax and Suezmax Tankers had returned to the fleet by July, while the share of VLCCs used as floating storage has been stable at around 10%. In addition, an average of 5.5% of the fleet has been idle since June. In June-July, this was caused by congestion at major Chinese ports, while in August-September it was due to a lack of trades.

Scrubber retrofitting have also taken capacity out of service temporarily. However, in the next six months, more vessels are likely to enter service than exit to get retrofitted.

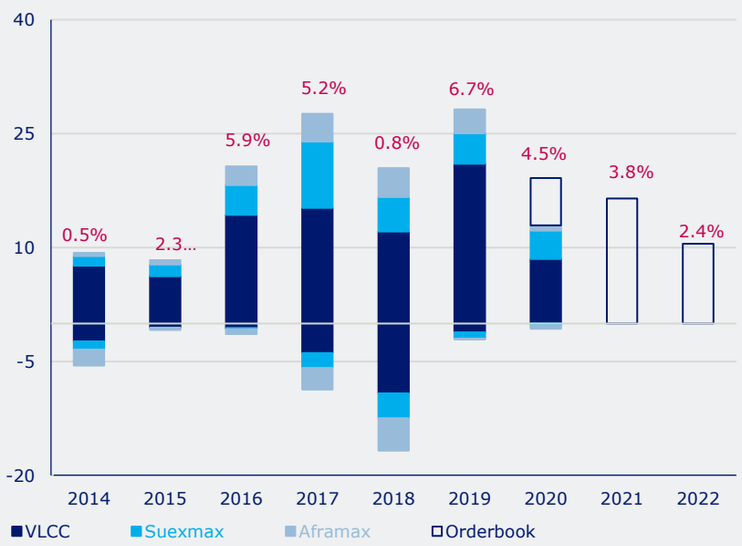
Contracting activity was limited to just 8.2 million dwt or 39 vessels in the first nine months, 37% lower than in the same period last year. Low newbuilding prices have been eclipsed by increased risks related to long-term oil demand and future vessel specs, while fuel-efficiency gains have diminished due to the low oil price.

High **demolition activity** in 2018 and favourable earnings conditions meant that there was almost no scrapping in 2019 and 2020. This combined with a steadily declining orderbook has increased the **fleet renewal potential**. The orderbook represents just 8% of the fleet, which mirrors the share of vessels older than 20 years. In particular, the VLCC and Aframax segments could balance out the orderbook by scrapping vessels older than 20 years. In the Suezmax segment, the vessel supply is slightly more unbalanced. We anticipate scrapping across segments soon as vessel supply is well above demand in the current oil trading environment. Older vessels returning from floating storage seem the most obvious candidates.

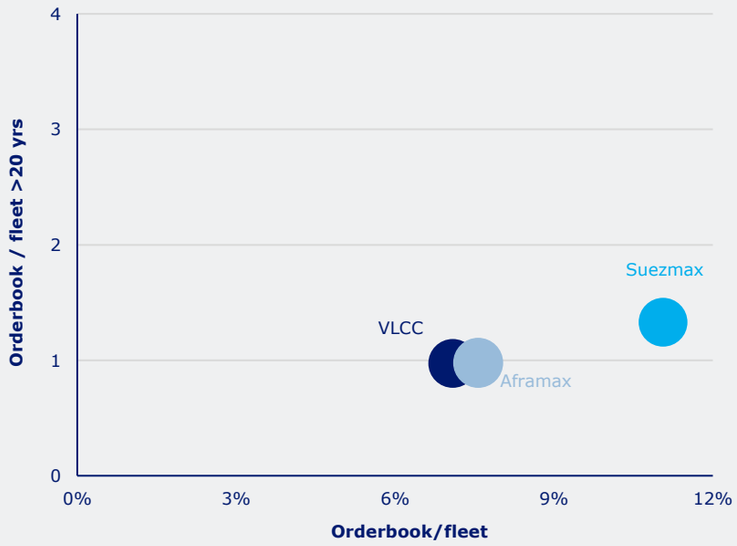
AGE DISTRIBUTION OF FLEET (MILLION DWT)



FLEET DEVELOPMENT (MILLION DWT)



FLEET RENEWAL POTENTIAL (DWT)



Source: Clarksons, Danish Ship Finance

THE CRUDE TANKER MARKET

Market outlook

The short-term outlook is bleak. Onshore and offshore oil storage is still elevated. This will cap vessel demand to some extent, while the return of most of the 140 vessels in floating storage will increase the active fleet. This will put freight rates under further pressure, as seaborne crude volumes are unlikely to return to 2019 levels until late 2021.

Gross fleet growth is set to 1.5% in the rest of 2020 and 3.8% in 2021. However, scrapping is likely to pick up, as oversupply is building up. Before end-year 2021, 83 vessels are due for their fourth special survey. In addition, 22 vessels have passed fourth special survey but are in floating storage or idle, and may struggle to find employment. Scrapping these will balance out 90% of the capacity scheduled for delivery in the period.

Asia will continue to drive crude oil demand. Chinese imports are already above 2019 levels, and we expect the rest of Asia to follow suit in late 2021. European demand may not recover at all as nations try to build back greener. The working from home trend is also likely to continue to curb gasoline and jet fuel demand in developed countries.

Most US shale oil producers are unable to profit from an oil price below USD 45-50 per barrel, a level that oil futures indicate will continue. The amount of active drilling rigs has fallen 65% since March. Output from most shale wells drops by 70-90% after two years. If the oil price stays low, US exports are may fall massively by late 2021. This will mainly affect long-haul trade to Asia, in favour of the Middle East – reducing tonne-mile demand.

From a longer-term perspective, we may see more changes to trade flows. Many European refineries have long been burdened by surplus capacity and risk closing. Such closures would lead to imports being switched from crude oil to oil products. In addition, the Middle East is securing some of the demand growth in India and South East Asia by gearing local refinery expansions to Middle Eastern sour crude.

A manageable vessel supply-side represents an upside. Global decarbonisation will impact the Crude Tanker market negatively in the long term, but opportunities may arise in the medium term if vessel supply falls below demand. The large number of ships built in 2008-12 may become coveted, as most owners are reluctant to order new vessels.

FORCES AT WORK IMPACTING THE DEMAND OUTLOOK

Covid-19 and second wave	Another round of restrictions to control the pandemic will keep oil demand low.	✘
Refinery expansion	Most refinery expansions are closer to oil production, which will reduce travel distances.	✘
Supply-side	Increased risks attached to newbuildings are keeping contracting low, while demolition potential is high.	✓
Low oil price	A low oil price is reducing the competitiveness of US shale production. This could lower US exports and reduce travel distances.	✘
Global decarbonisation	The drive to cut carbon emissions will impact the Crude Tanker market negatively in the long term.	✘

✘ Negative impact ✓ Positive impact

CRUDE TANKER MARKET DEEP DIVE: ACTIVE FLEET DEVELOPMENT

The active fleet will be expanding ahead of demand until end-year 2021

Long-term structural challenges are deterring owners from ordering newbuilds, while high earnings in 2019 and 2020 have caused scrapping potential to build up. However, temporary fleet contraction due to scrubber retrofitting and vessels being used as floating storage may not support freight rates for much longer.

We estimate the total Crude Tanker fleet at 410 million dwt or 2,060 vessels, not counting those used as long-term storage. As of October, the active fleet was much lower, at around 370 million. This is mainly explained by the 33 million dwt or 140 vessels used as temporary floating storage. The return of these to the fleet will not only have a massive effect but will mean a double-whammy for the supply-demand balance.

The orderbook is thin but frontloaded. Three out of four vessels are due for delivery by end-year 2021. This inflow will be 6.2 million dwt in Q4 2020 and 16.5 million in 2021.

Furthermore, the narrow price spread between LSFO and HSFO is curbing the impact from scrubber retrofitting. Between Q2 2019 and Q1 2020, a monthly average of 4.2 million dwt left the active fleet for about a month to be retrofitted with scrubbers. This number was 2.3 million in Q2-Q3 2020 and is expected be just 0.8 million in 2021 – and could decrease further, as owners seem to increasingly be cancelling planned retrofits.

The pace at which floating storage is unwound is hard to predict. The low oil price, low oil demand and low refinery margins may mean a slow drawdown. Many charterers have already found new, cheaper contracts, and may continue to do so until demand returns or the elevated onshore storage levels decline. However, we find another surge in floating storage unlikely. The major oil producers have complied with production cuts set by OPEC+ and the oil price's contango does not seem steep enough to attract speculators.

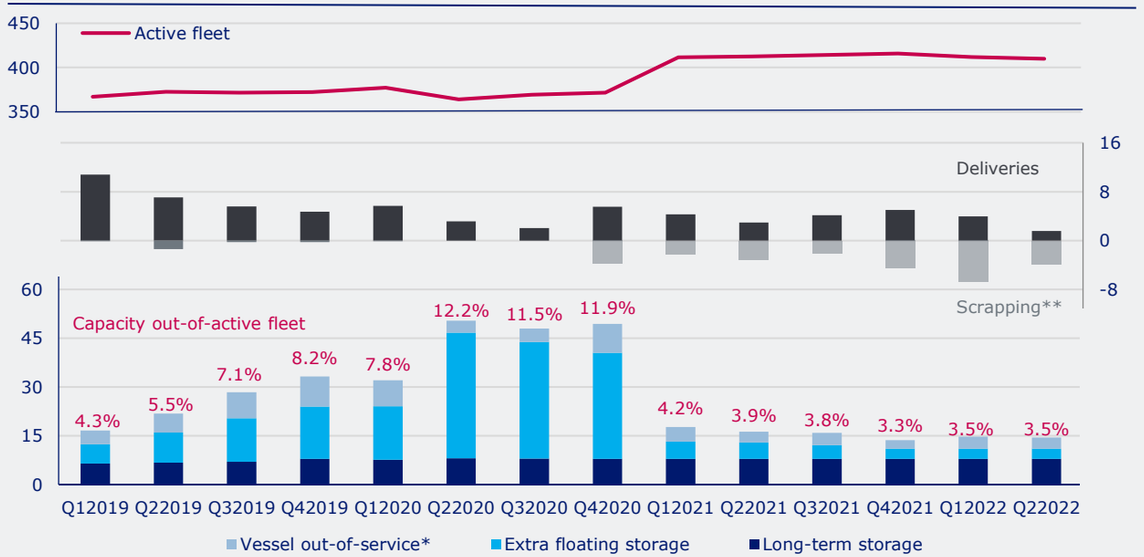
However, not all vessels may return from floating storage. Some 10% have their fourth special survey coming up before end-year 2021 and are not scrubber-fitted. An additional 10% have undergone their fourth special survey but are older than 20 years and may struggle to find employment in a low freight rate market due to age restrictions.

In the active fleet, 26 vessels in Q4 2020 and 38 in 2021, corresponding to 4.8 million and 7.3 million dwt, have their fourth special survey coming up and are not scrubber-fitted.

We expect floating storage to remain stable throughout 2020 due to the low oil demand. As demand returns closer to 2019 levels, the unwinding of vessels in floating storage that are unlikely to be scrapped will inflate the active fleet, in addition to scheduled deliveries. Meanwhile, the effect from retrofitting will wane. Scrapping some of the 64 vessels in the active fleet as they approach their fourth special survey will reduce growth, but we expect the active fleet to be at least 10% higher in 2021 than both today and the 2019 average.

We expect owners to look to the secondhand market when expanding their fleets. The low oil price is curbing efficiency gains in newbuildings, while risks associated with future oil demand and future propulsion methods are higher too. Historically, fleet renewal has been postponed when new technology or policies have been on the verge of materialising (for example, just before the early-2000s single hull phase-out). Hence, we expect contracting activity to stay low until there is more clarity on future propulsion methods. Meanwhile, the low freight rates will make it unfavourable to postpone scrapping. This will present opportunities for owners of the large 2008-12 fleet as global oil demand returns.

ACTIVE FLEET DEVELOPMENT (MILLION DWT)



*At yard for retrofit or special survey. **Q4 2020-Q2 2022 are measured as vessels due for fourth special survey

Source: Clarksons, Danish Ship Finance

PRODUCT TANKERS

THE PRODUCT TANKER MARKET

Perspectives and key takeaways

OUTLOOK SUMMARY

○ POSITIVE	The short-term outlook for the Product Tanker market is weak. Ships returning from floating storage are causing the balance between supply and demand to deteriorate. Supply is set to run ahead of demand until the end of 2021. After 2022, the market is positioned for a recovery if few new orders are placed and demand continues to grow.
○ NEUTRAL	
● **NEGATIVE**	

The Product Tanker market is in the early phase of a cyclical weakening. Weak demand coupled with a supply side that is positioned for growth has upset the balance between supply and demand. However, the outlook beyond 2022 is brighter, since the majority of the current orderbook will have been delivered and demand should have regained the lost territory.

It had been predicted that 2020 would be a year of high freight rates for Product Tankers, since the implementation of the IMO 2020 sulphur cap was expected to increase cargo movements while the active fleet was temporarily reduced by scrubber retrofitting. It has been a year of super-spiked earnings, but the new regulation has ended up playing a smaller role. Oil markets took centre stage when the combination of a supply surge and a temporary demand drought led to all onshore oil inventories being filled and created the perfect conditions for mass employment of Tanker vessels for floating storage. The boom was expected to be short-lived, but many vessels are still being employed as storage facilities.

The weak demand has lowered long-term earnings expectations for vessels. The impact is most pronounced for the younger vessels, but all vessels are affected, since inventory drawdowns are resulting in subdued demand while freeing up capacity.

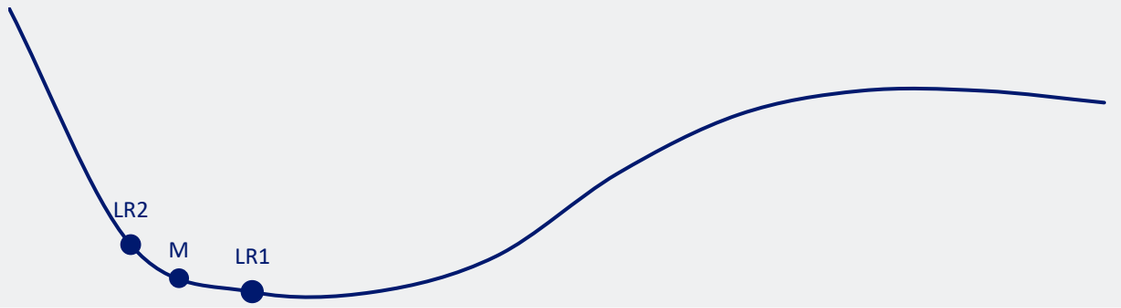
We expect timecharter rates and spot rates to decline in the short-term and stay low until demand recovers enough to restore market balance. Some seasonal relief may be visible during the winter, but this is likely to be only temporary. Using current prices and charter rates we find that the market expect charter rates to be in the lowest 10% observed since 2000, once floating storage has fully unwonted. This create the potential for some additional downside risk to secondhand prices.

The orderbook is emptying quickly. This will create some imbalances this year and next, but from 2022 onwards the outlook is brighter. Demand is expected to trail supply until late 2021 or early 2022. For freight rates to improve, surplus vessel capacity needs to be scrapped or employed. Balance may not be restored until after 2022.

The long-term outlook is not without risk. Some observers are discussing whether peak oil demand could already be behind us. We believe it is pre-mature call and think a peak oil somewhere in the 2020's is more likely, but it cannot be ruled out. However, it raises some important questions for the Product Tanker market; what will happen to global refinery capacity? Will it continue to grow or will some older, less efficient facilities close? Can we expect seaborne volumes to stagnate or even decline when travel distances shorten?

The uncertain demand outlook combined with the many unknowns regarding the next-generation zero-carbon vessels are likely to keep ordering of new vessels low in the short to medium-term. There are no guarantees – contracting activity has surprised in the past – but this remains our base case and seems to be a prerequisite for a medium-term recovery in freight rates.

WHERE WE ARE IN THE SHIP VALUE CYCLE



THE PRODUCT TANKER MARKET

Freight rates and ship prices

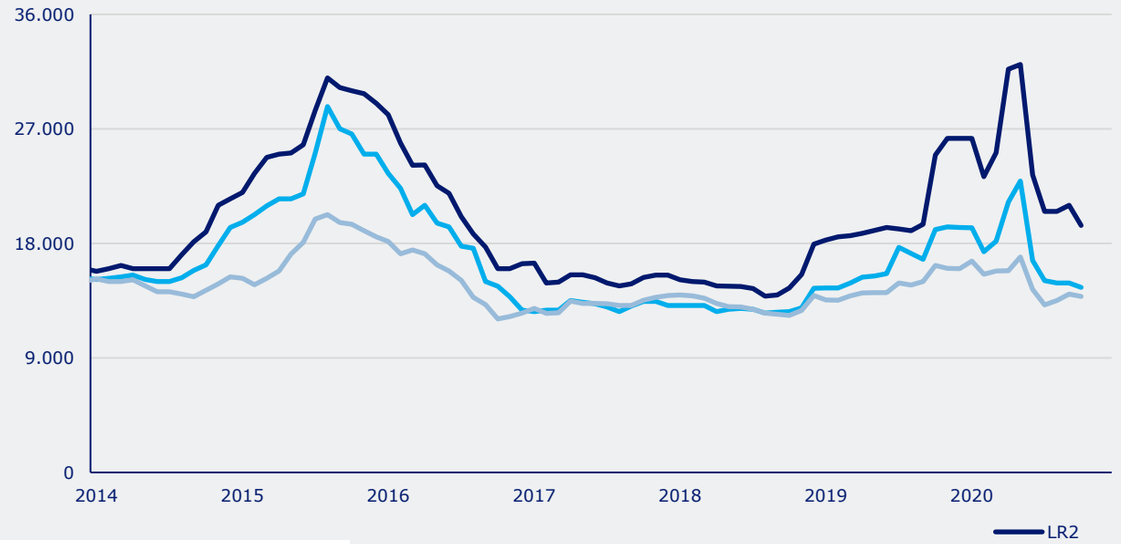
Freight rates have increased strongly in 2020, even though supply has expanded ahead of demand. The Product Tanker fleet grew by 2.3% during the first ten months of 2020, while the global lockdowns and economic repercussions of the Covid-19 pandemic reduced seaborne volumes significantly. In the first seven months of the year, export volumes dropped by about 11% and we expect a decline of 6-7% for the full year.

The balance between supply and demand was temporarily improved when capacity equivalent to 0.6% of the fleet was taken out of service to be retrofitted with scrubbers. However, the source of freight rate improvements was vessels being employed as floating storage, either directly or indirectly through infrastructural bottlenecks at ports. Storage ballooned in April and May, causing a spike in earnings. From mid-May ships started to return to the fleet from floating storage while fewer ships are tied up in port congestion or undergoing scrubber retrofitting. At the same time seaborn volumes remain weak. This lowered fleet utilisation and drove down charter and spot rates.

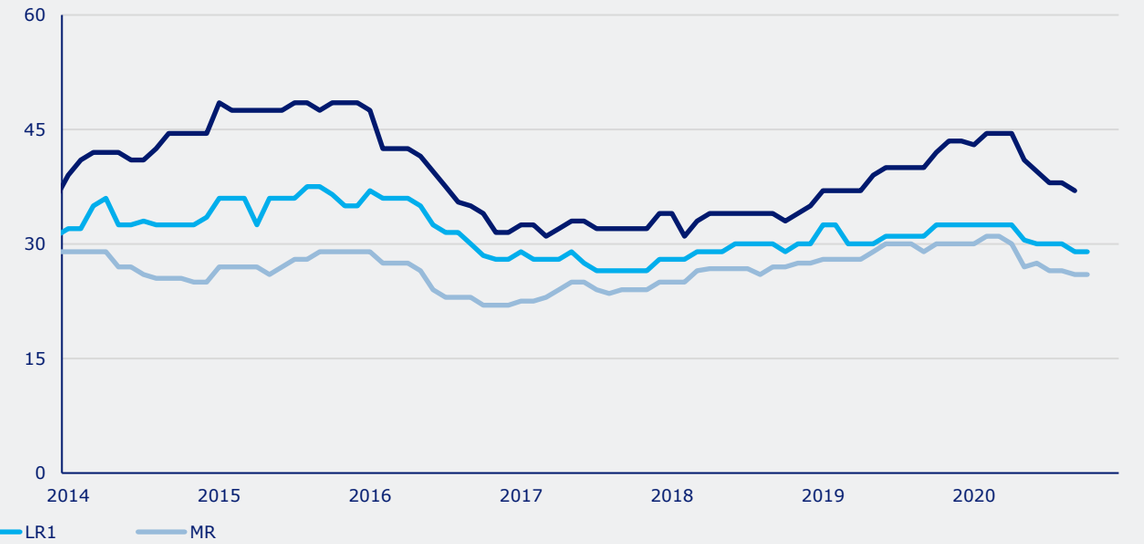
MR tankers have seen the most pronounced decline in the balance between supply and demand, since the fleet has expanded by 2.8% while demand has contracted by 7.2%. Still, the extensive use of MRs as floating storage is supporting the market.

Timecharter rates have declined by 30% on average since the peak in May and are now 20% lower than in January 2020. Secondhand prices have followed a similar, albeit less volatile, trajectory. For five-year-old MRs and LR2s, prices have come down by about 15% since their peak in March, while prices for LR1s have declined by about 10%. For MRs, the magnitude of the decline decreases with age, whereas the opposite is the case for LR1s. A 15-year-old MR has seen its price fall 8% since the peak, while the price of an LR1 of similar age has declined 13%.

ONE-YEAR TIMECHARTER RATES (USD PER DAY)



SECONDHAND PRICES FOR A FIVE-YEAR-OLD VESSEL (USD MILLION)



Source: Clarksons, Danish Ship Finance

THE PRODUCT TANKER MARKET

Supply-side development

In the first ten months of 2020, the Product Tanker fleet grew by 2.3%, as a result of deliveries and little scrapping due to low rates. Only 15 Product Tankers were scrapped, six of which were built in the 1970s and 1980s. At the same time, postponements increased to 18% from last year's low of 4%, on a par with the levels in the period 2016-18. This held back fleet growth by about 0.5%. The orderbook is now down to just 6% of the fleet, the lowest level on record. The lion's share of new vessels are due to be delivered in the next 12 months; just one vessel has a delivery date after 2022.

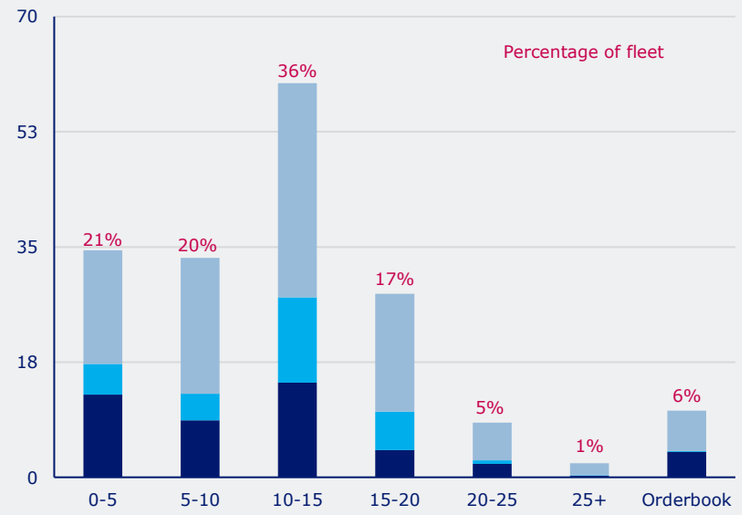
The Product Tanker market is in the process of absorbing vessels used as floating storage due to the large oversupply of oil in the first half of 2020. The high point of this was reached in May, when 239 Product Tankers were used as floating storage. This number was down to 86 vessels as of mid-October. Normally, fewer than ten ships are used for storage at any one time, meaning vessel supply could suddenly increase by as much as 2%.

If demand fails to employ the incoming vessels, the orderbook can be absorbed by removing the oldest ship in the fleet each time a new vessel is delivered, maintaining an average scrapping age of about 25 years. This stylised methodology will mean average scrapping ages of 22, 24 and 28 for LR2s, LR1s and MRs, respectively, up to 2023.

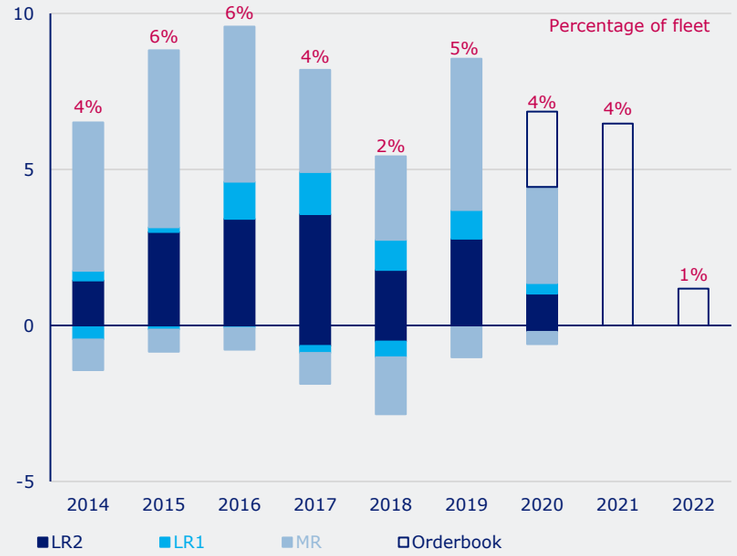
Even if an average scrapping age of about 25 years can be maintained, vessels younger than this will still have to be demolished. Using the above methodology, LR2s as young as 19 years of age may have to be scrapped (22 years for LR1s and 23 years for MRs).

Travel restrictions, strong earnings and a weak outlook have held back transaction volumes for both secondhand vessels and newbuildings. Only 63 vessels have changed hands this year, down from 164 in 2019. Moreover, 59 newbuilding contracts have been signed, down from about 100 annually in both 2018 and 2019. Of these newbuilding contracts, 12 were an en bloc deal for dual-fuelled LR2s with long charter contracts with Shell, which means that ordinary contracting has been even lower.

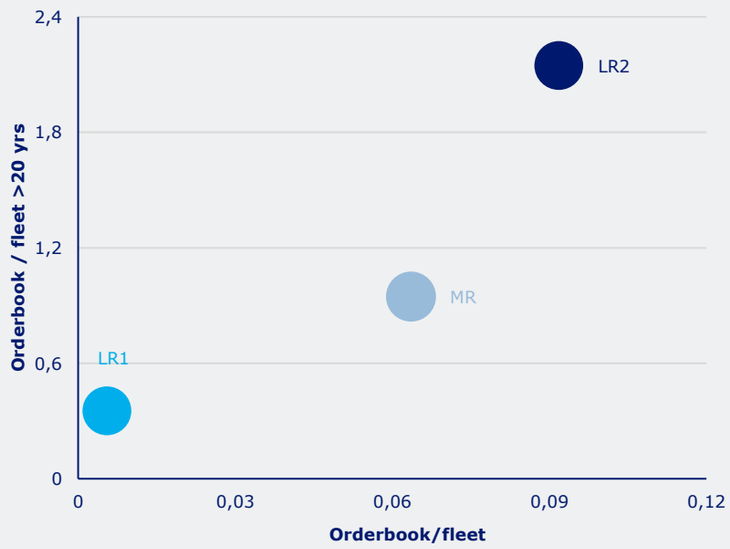
AGE DISTRIBUTION OF FLEET (MILLION DWT)



FLEET DEVELOPMENT (MILLION DWT)



FLEET RENEWAL POTENTIAL (DWT)



Source: Clarksons, Danish Ship Finance

THE PRODUCT TANKER MARKET

Market outlook

The Product Tanker market is in the early phase of a cyclical weakening, but the medium-term outlook is brighter due to the low orderbook.

The short-term demand outlook for Product Tankers is weak amid low oil demand and large inventories. At the same time, the number of ships in the fleet is increasing as a result of deliveries and ships returning from floating storage. We expect demand to fall 6-7% in 2020 followed by a rebound of about 6% in 2021. This implies that seaborne volumes will still be about 6% below the peak in 2018. Since January 2018, supply has expanded by 8%, and a further 6% of the fleet is scheduled to be delivered by 2022.

The decline in demand and expansion of the fleet has led to the weakest supply-demand balance on record and it is unlikely to improve in the short-term. The average ship in the Product Tanker fleet is expected to carry approximately 310,000 tonnes this year, down from about 340,000 tonnes in 2019. Even if demand recovers fully to 2018 levels, the supply-demand balance will still be the third weakest since 2000. Both years when the balance were weaker were supported by temporary supply contractions. This is unlikely to be repeated, meaning the lows of 2017 and 2018 could be tested during the coming year, even if demand recovers.

In the medium to long-term, the market outlook is much better. Demand is gradually returning, and fleet growth is slowing, possibly contracting from 2023. However, the medium to long-term outlook is not without downside risk. Newbuilding ordering could return, spurred by the expected medium-term improvement in the market, and global oil demand could decline. Our base case remains that oil demand return to about 100 mb/d in two to three years, and peak oil demand is sometime in the mid-2020's. However, the market visibility is very low. Postponements in car adaption in developing markets due to lower economic growth, engine efficiency improvements and electric car market penetration may cause a lower rebound in oil demand possibly somewhere in the 90's mb/d. Moreover, we see possible scenarios where oil product trade flows could become more regionalised, lowering seaborne volumes and travel distances.

FORCES AT WORK IMPACTING THE DEMAND OUTLOOK

Covid-19 and second wave	Covid-19 has lowered demand for oil products. A second wave of the pandemic will prolong the recovery.	✘
Ships returning to active fleet	The fleet has temporarily shrunk due to scrubber retrofitting and vessels being used as floating storage. Once these one-off effects disappear, the fleet will be larger while demand remains the same.	✘
Low orderbook	The number of deliveries and scrapping candidates are set to be balanced until 2022, and thereafter the fleet size may decline. This creates potential for a Product Tanker boom.	✓
Changing trade patterns	New refinery capacity closer to end users and petrochemical plants may mean lower seaborne volumes.	✘
Increasing naphtha imports in Asia	Asia continues to add petrochemical capacity. This indicates increasing volumes and longer travel distances for naphtha.	✓

✘ Negative impact ✓ Positive impact

PRODUCT TANKER MARKET DEEP DIVE: REFINERY CAPACITY

Falling oil demand in OECD countries may lower seaborne volumes

Trade patterns are up for review. Oil demand is weakening, and refinery capacity continues to expand, while older and less efficient refineries are set to close. Refining imbalances are expected to change in the years to come which will alter product flows and trading patterns. We find it more useful to model such potentially large changes through scenarios rather than by making projections. Below, we present a scenario where oil products trade flows become more regionalised, lowering seaborne volumes and travel distances. In our opinion, this poses a real risk to the Product Tanker market, although it is by no means the only possible outcome.

The oversupply of refineries has been exacerbated by the collapse in global oil demand experienced back in the spring and the prospective slow pace of recovery. We therefore expect older, inefficient refineries to be retired, particularly in the developed world. If no refineries are retired before 2025, overcapacity will increase from 12% to 19% of global refinery capacity. We therefore envisage a world where an increasing share of oil products are supplied by refineries close to the end user.

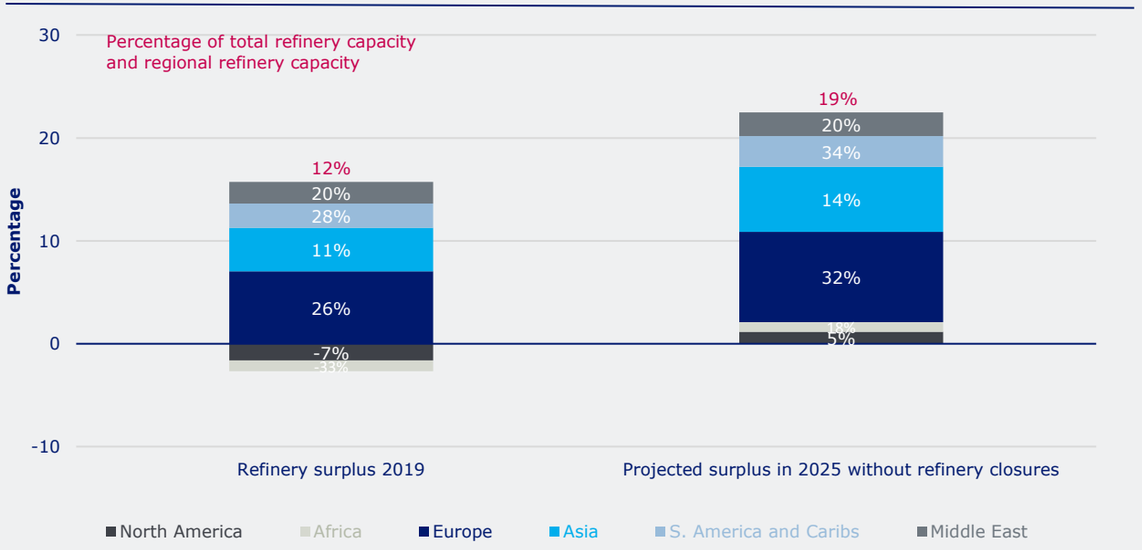
Let us look at Europe as an example. In 2019, Europe had the largest overcapacity, at 26%. European refineries are old and nearby export markets are expanding their refinery capacity. More than 40% of European exports go to Africa, equivalent to 5% of Product Tanker volumes in 2019. However, this trade lane is facing headwinds. Africa is expanding its refinery capacity, most notably with the large Dangote refinery in Lagos, which means surplus European volumes will have to be directed somewhere else. The most obvious alternative is South America. However, North America may see its refining deficit turn into a surplus, meaning that European refineries will be competing with their North American counterparts for exports to South America, and will be at a disadvantage due to the longer travel distances involved. Hence, it is likely that European refiners will have to look for markets even further away, in regions with increasing surplus capacity.

We therefore expect much of the overcapacity in Europe to be retired when Africa becomes more self-reliant. We do not expect Europe to be a net importer, but rather to balance supply and demand of refined products. This means lower seaborne volumes and more local production. This scenario will see similar developments in other regions.

The challenges to Product Tanker demand may be intensified further by the growing presence of Middle East Gulf states in the refining business. They are investing heavily in downstream oil markets to secure offtake for their Crude volumes as the world prepare to gradually weans itself off oil. They are therefore investing in new refinery capacity both at home and in Asia. This means that these refineries will most likely remain active throughout a downturn in the refining business, putting pressure on other refineries to retire. As European and American refineries are old and further away from growth markets, these are the most obvious retirement candidates.

This scenario is in no way set in stone. Oil demand could surprise on the upside, retirement of refineries could be more scattered, and arbitrage trade could increase, for example. The configuration of the refinery fleet may also have an impact. New refineries are optimised for high-value products, e.g. gasoline, but the outlook for these products is difficult. This may alleviate some of the headwind to old refineries, which can offer a product slate more suited to the emergent global demand environment and at lower cost than their more sophisticated sisters. All these factors may support seaborne volumes.

REGIONAL REFINERY SURPLUS



Source: Refinitiv, BP, Danish Ship Finance

LPG CARRIERS

THE LPG CARRIER MARKET

Perspectives and key takeaways

OUTLOOK SUMMARY

○	POSITIVE
○	NEUTRAL
●	**NEGATIVE**

The LPG market is on a downward trajectory. In 2020, demand is set to grow by 0-1%, while supply is due to increase by 7%. Furthermore, we project supply to outpace demand in 2021, while we expect supply and demand to balance in 2022, both growing by around 3%. For now, the market is set for a recovery in 2023, as the current orderbook will be delivered by end-2022. However, if demolition activity and petrochemical LPG consumption increase beyond our expectations, the market could start to recover in 2022.

Short-term LPG fundamentals are being challenged by uncertainty over demand growth and high fleet growth. Demand is under pressure from both lower LPG production and stagnating end-user consumption. Weakening oil demand following Covid-19 is resulting in lower LPG production from both the US and the Middle East. The two regions account for around 68% of global seaborne LPG exports. At the same time, petrochemical LPG consumption is under pressure. Demand for petrochemical end products has been adversely affected by Covid-19 and feedstock economics have meant that naphtha has been favoured over LPG. Meanwhile, the orderbook has been pushed up to 14% of the fleet, driven by increasing freight rates throughout 2019. Furthermore, the orderbook is frontloaded, resulting in relatively high fleet growth, while demand is subdued. Hence, pressure is likely to increase on freight rates over the next one to two years in all LPG vessel segments except for the SGC segment (5-20,000 cbm). The SGC fleet is set for only marginal expansion within the period.

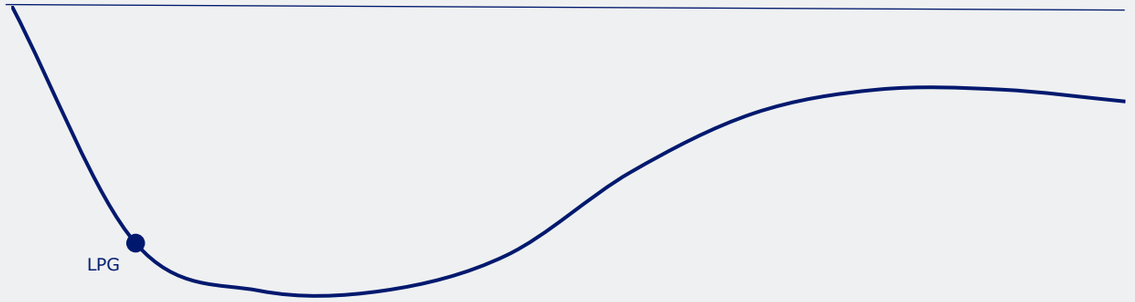
In the **medium term**, we project that the market could see a strong recovery, as the current orderbook will have run out by the end of 2022 and few new orders are likely to be placed until a pathway to zero-carbon shipping emerges. However, the recovery could be short-lived if contracting activity resumed already in 2021. Some shipowners could try to position themselves to take advantage of the expected market recovery.

From a **long-term** perspective, we believe seaborne LPG demand will show robust growth, averaging around 3-4% per year, powered by a continued increase in long-haul exports from the US and Middle East to Asia.

Asset prices showed resilience in the first eight months of 2020. In the period, freight rates declined by an average of around 30%, but secondhand prices remained relatively stable, except in the MGC segment (20-45,000 cbm), where prices declined by 6%. However, we identify additional downside risk to secondhand prices, as a market recovery could be two years away.

In the coming months, the LPG market should gain some support from the winter heating season. Usually, we see a recurrent upswing in the market during the fourth quarter as LPG inventories are filled to meet heating demand. Nonetheless, we have seen how full LPG inventories in the petrochemical sector have delayed expected growth upswings. We believe this will also apply to the seasonal increase in household sector demand, which we expect will be somewhat dampened by high inventory levels.

WHERE WE ARE IN THE SHIP VALUE CYCLE



THE LPG CARRIER MARKET

Freight rates and ship prices

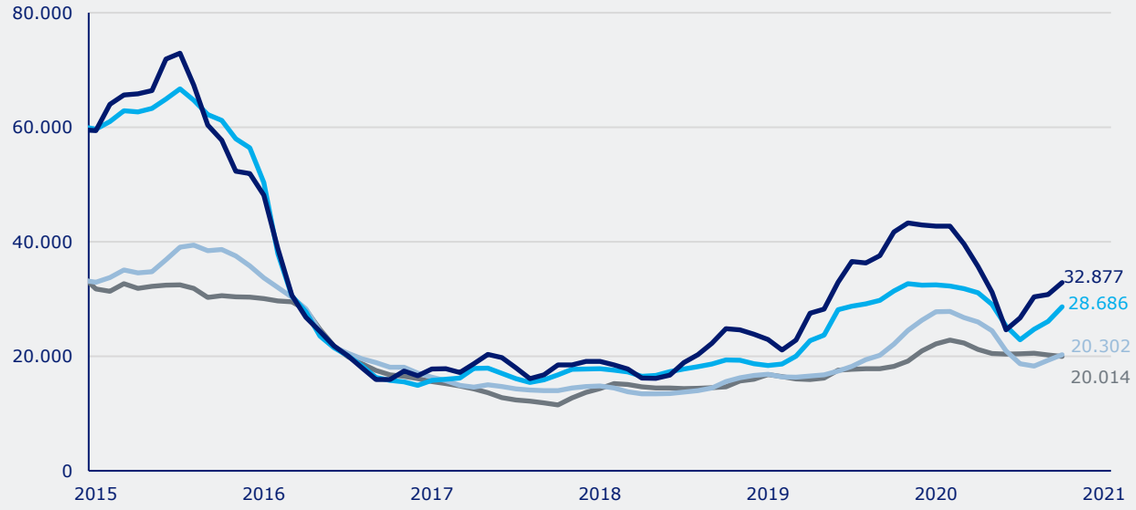
LPG **freight rates** have fallen by around 30% from their cyclical peak in January 2020. Seaborne LPG volumes declined by approximately 2% during the first eight months of the years, while the fleet grew by 4.6%. The effects from the Covid-19 pandemic eroded arbitrage opportunities, while falling global oil supply led to reduced cargo availability.

In the **VLGC** segment, freight rates (both spot and timecharter) increased in July, as Asian LPG imports started to show signs of recovery, driven by growth in China and India. However, demand from other Asian countries, such as Japan and South Korea, and from the European region remained low, which continued to pressure freight rates in the smaller vessel segments.

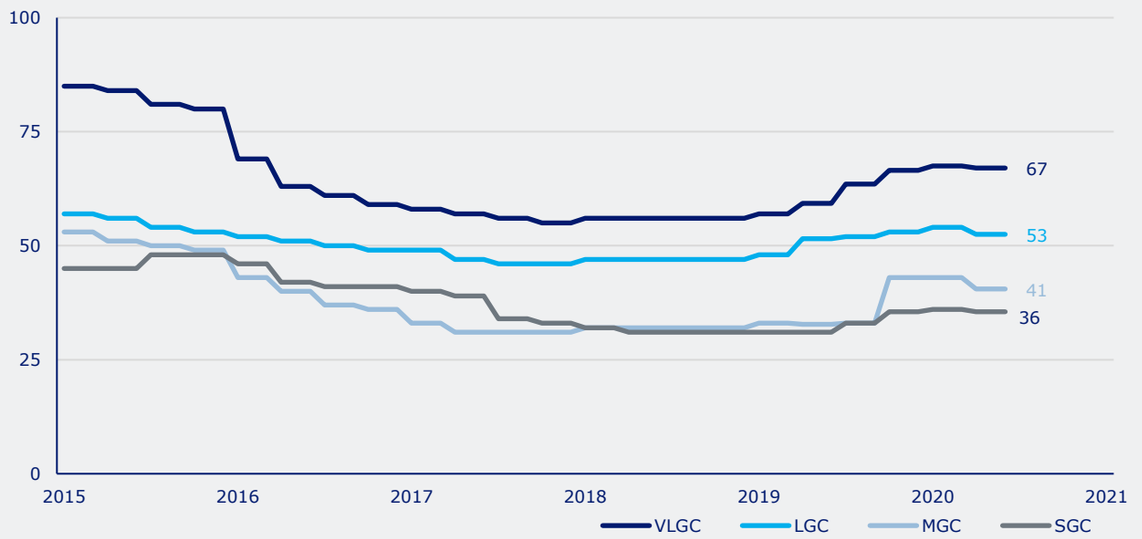
The one-year timecharter rate for the **MGC** vessels is currently below that for the smaller-sized SGC vessels. This is partly because the MGC segment is exposed to direct competition from the larger VLGC and LGC segments when market conditions in these segments deteriorate. The **SGC** segment has been more resilient to the downturn in the market. We see two factors that could be supporting the SGC segment: a shift towards smaller parcel sizes given the slump in productivity on the back of Covid-19 and steady demand from the household sector, which is mainly serviced by the smaller SGC and VSGC vessels.

Secondhand prices have remained relatively stable, except in the MGC segment, where prices declined by around 6% in the first eight months of 2020. This underlines the deteriorating market conditions in the segment. However, the MGC segment has been the most frequently traded segment in the S&P market with a total of eight transactions, compared to five in the VLGC segment and one in the SGC segment. This could indicate that secondhand prices in the VLGC and SGC segments are likely to decline if the number of transactions increases. The large discrepancy between the development in freight rates and secondhand prices could indicate additional downside risk to secondhand prices.

ONE-YEAR TIMECHARTER RATE (USD PER DAY)



SECONDHAND PRICES FOR A FIVE-YEAR-OLD VESSEL (USD MILLION)



Source: Clarksons

THE LPG CARRIER MARKET

Supply-side development

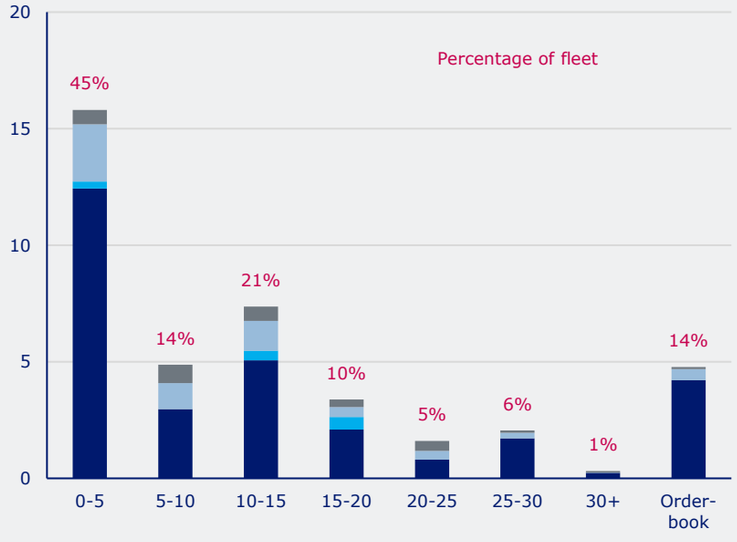
The LPG **orderbook** stands at 14% of the fleet (76 vessels) and is scheduled to be delivered by the end of 2022. The scrapping potential, including vessels as young as 25 years, corresponds to 7% of the fleet. Supply is set to outpace demand until year-end 2021, which could lower the economic lifetimes of older vessels and/or keep freight rates at low levels until the market becomes more balanced.

Deliveries in 2020 have not been affected by Covid-19 and the subsequent decline in freight rates. Across segments, newbuild vessels have entered the market according to schedule. However, three VLGC orders scheduled for delivery in the fourth quarter have been postponed into 2021, but this reduces fleet growth in 2020 by less than 1 percentage point.

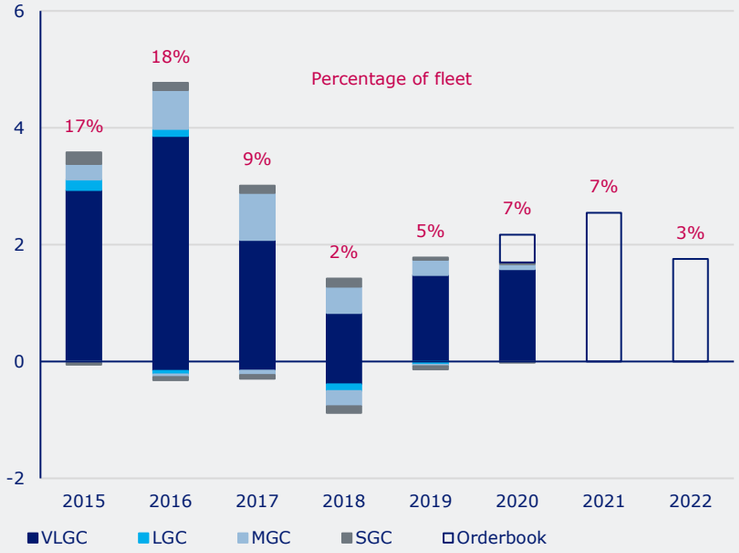
Contracting activity has declined, with only 24 vessels ordered in the first nine months of 2020, compared to 30 vessels in the same period last year. Low contracting activity and heathy demolition activity are likely to be key drivers in balancing vessel availability with demand over the next few years. However, we believe contracting activity will need to decline even further to secure a healthy market balance with increasing freight rates in 2022.

Demolition activity has been low in 2020, with only four vessels scrapped. Only eight vessels older than 30 years remain in the fleet. The low number of scrapping candidates is the result of extraordinarily high demolition activity in 2018, when 3% of the fleet was demolished following a 12-month period with freight rates around all-time lows. We believe the market will need a similar period of sustained low earnings before demolition activity increases noticeably. The current imbalance between supply and demand could stimulate increased demolition activity from the second half of 2021 or first half of 2022.

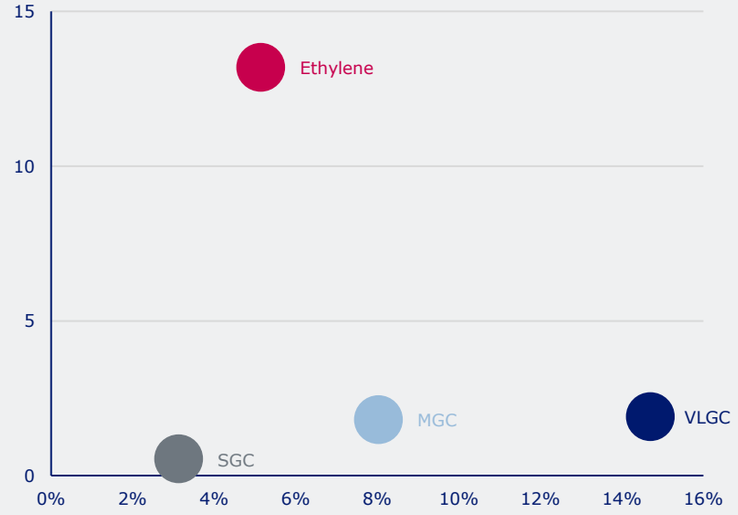
AGE DISTRIBUTION OF FLEET (MILLION CBM)



FLEET DEVELOPMENT (MILLION CBM)



FLEET RENEWAL POTENTIAL (CBM)



Source: Clarksons

THE LPG CARRIER MARKET

Market outlook

The three-year **outlook** for the LPG market is negative. LPG **demand** is set to decline to around 0-1% in 2020 and then increase to around 3% per year in 2021 and 2022. In comparison, the LPG **fleet** is due to add 7% capacity per year in 2020 and 2021, while fleet expansion should decline to around to 3% in 2022. Fleet growth will be powered by the VLGC segment and to some extent by the MGC segment. Only the SGC segment seems likely to remain balanced during the period due to low fleet growth.

The market is set for a **strong recovery** in 2023, as all ships in the current orderbook are scheduled for delivery by the end of 2022. However, this could result in accelerated contracting activity as LPG shipowners position themselves for the expected market upswing. Moreover, new players could view this as an opportune time to enter the LPG market. LPG newbuild prices are at a ten-year-low, which could further stimulate contracting activity. The average delivery time for LPG vessels is currently less than two years. Newbuild orders placed up to the start of 2022 could potentially enter the market during 2023.

From a **longer-term perspective**, the Asian region should continue to drive the seaborne LPG market. By 2025, the region is projected to account for around 65% of global seaborne LPG imports, compared to around 60% in 2020. The primary growth drivers are expected to be new Chinese propane dehydrogenation plants and feedstock-flexible steam crackers capable of switching to LPG when prices are favourable. These plants are currently projected to be uneconomical without increasing imports of cheap US LPG. Furthermore, household consumption in India is projected to continue to grow, driven by low domestic LPG prices underpinned by governmental subsidies.

Likewise, the Middle East and the US are set to drive LPG exports. In 2020, 68% of seaborne LPG has originated from these regions. We expect this number to increase to over 70% in 2025. Thereby, future growth in the seaborne LPG market is likely to be centred around long-haul Asian imports from the Middle East and the US, as well as intraregional and local trade in Asia.

FORCES AT WORK IMPACTING THE DEMAND OUTLOOK

Inventories	Near-term LPG demand is likely to be negatively impacted by high levels of inventories throughout the supply chain.	✘
US-China trade deal	Currently, tensions are rising, as China is unable to fulfil its obligations in the phase 1 agreement. However, LPG trade between the US and China is set to increase markedly once Chinese LPG imports recover from Covid-19.	✓
Travel distances	Long-haul Asian imports are set to continue to drive tonne-mile growth. This puts the VLGC segment in pole position to capture future market growth.	✓
The household sector	Household LPG consumption has shown resilience during the Covid-19 pandemic. Around half of future growth is projected to be powered by the household sector.	✓
Circular economy	The continuous focus on plastic recycling is likely to lower the future growth rate for petrochemical LPG consumption. This could reduce the overall growth rate for seaborne LPG trade from a medium- to long-term perspective.	✘

✘ Negative impact ✓ Positive impact

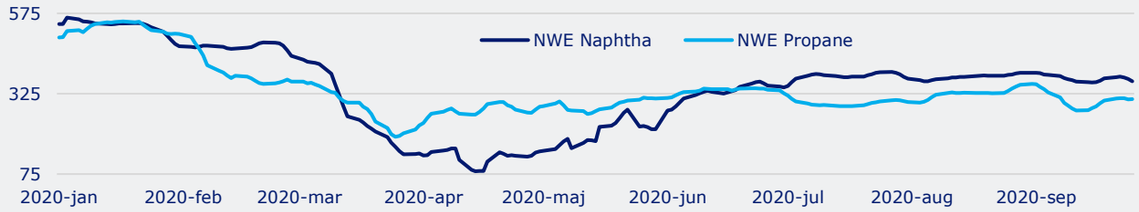
MARKET DEEP DIVE: LPG DEMAND IN THE PETROCHEMICAL SECTOR

Petrochemical LPG demand is set for strong medium-term growth, but in 2020 demand is projected to remain flat.

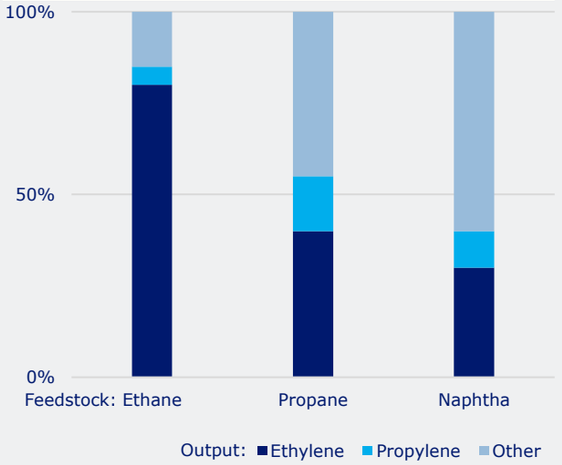
The repercussions of the Covid-19 pandemic have triggered a significant decline in demand for petrochemical end products. Furthermore, the use of LPG has been limited as a petrochemical feedstock by low naphtha prices. This caused LPG consumption in the petrochemical sector to decline and the seaborne LPG market to continue on a downward trajectory in the second quarter of 2020. In the third quarter, demand for petrochemical end products started to recover, boosted by new demand drivers such as hygienic wipes, face masks and other plastic equipment used to prevent the spread of Covid-19, along with the return of traditional demand drivers, like car manufacturing and packaging. Furthermore, the LPG-naphtha price ratio turned in favour of LPG, boosting its use as feedstock in flexible steam crackers, especially in North West Europe. The LPG feedstock incentive is likely to remain positive throughout the year due to low propylene supply. Propylene is produced in relatively high quantities from LPG through steam cracking and is used to create heat-resistant plastics. Around 30% of global propylene supply is a by-product of the transformation of heavy gas oil into gasoline in fluid catalytic cracking units (FCCUs). Many FCCUs have been taken offline due to low gasoline demand in the wake of Covid-19. Despite these positive developments, petrochemical LPG demand is projected to remain flat in 2020 and only grow marginally in 2021.

In the medium term, petrochemical LPG demand is set for robust growth, powered by expanding production capacity. The expansion will be driven by new flexible steam crackers for ethylene production and propane dehydrogenation plants for propylene production. The new capacity additions will be concentrated in Asia, especially in China, which should boost long-haul trade to Asia from both the Middle East and the US. New Chinese propane dehydrogenation plants are currently expected to be uneconomical and unable to source enough LPG feedstock without a sizeable increase in imports from the US. LPG demand from flexible steam crackers is more uncertain, as the primary feedstock for these units is naphtha. Ethane crackers are growing in number and several units are under construction in China. In general, ethane crackers source cheap and abundant US ethane gas in order to produce high-purity ethylene. However, due to the current low oil price, which favours ethylene production via steam crackers fed by naphtha or LPG, and the growing tensions between China and the US, many of these plants have been stalled or cancelled. Ethane is transported on specialised LPG ships similar to the highly specialised ethylene carriers. In total, around 32 million tonnes of new ethylene capacity (steam crackers) is expected to come online within the next five years in Asia. If 10% of the new ethylene capacity is supplied by increasing LPG imports, the seaborne LPG market will increase by around 3% during the period. To this can be added the expected increase in LPG imports driven by new propane dehydrogenation plants, which we believe could also add around 3% growth to the seaborne LPG market. Hence, growth in LPG consumption from the petrochemical sector is likely to result in a medium-term CAGR of around 1.5% in the seaborne LPG market.

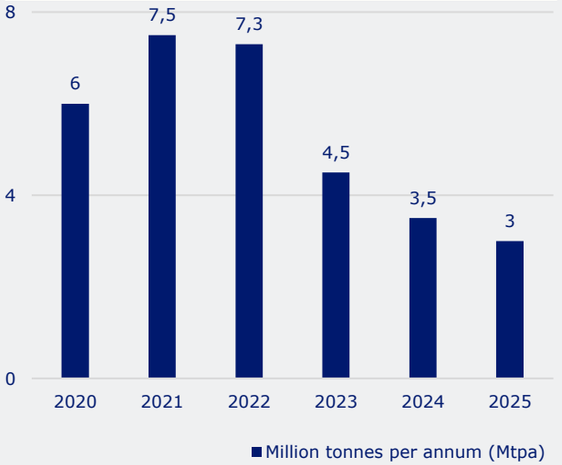
PROPANE AND NAPHTHA PRICES (USD PER TONNE)



STEAM CRACKER OUTPUT BY FEEDSTOCK

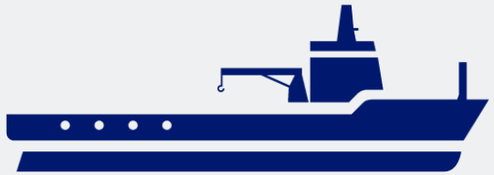


ASIAN STEAM CRACKER ADDITIONS (MTPA)



Source: Drewry

OFFSHORE SUPPLY VESSELS



THE OFFSHORE SUPPLY MARKET

Perspectives and key takeaways

OUTLOOK SUMMARY

○	POSITIVE
●	**NEUTRAL**
○	NEGATIVE

We expect the Offshore Supply Vessel market to remain weak. The market has been depressed since the oil price crash in 2014. This will most likely continue. A recovery is contingent on significant scrapping, which we believe is unlikely. However, this does not prohibit decent returns on individual investments. Owners that can employ new vessels may find attractive deals in the current market. Still, these are more likely to be the exception than the rule.

The Offshore Supply Vessel (OSV) market is oversupplied, and the demand outlook is weak. To balance the market, scrapping of laid-up and older tonnage is necessary. This entails owners (and their banks) writing off value of their fleets. Until now, many market participants have been unwilling to do so. All players hope that others will take the loss or that an unforeseen event will boost demand. If a large part of the fleet remains intact, we expect the oversupply to persist, causing low rates and utilisation.

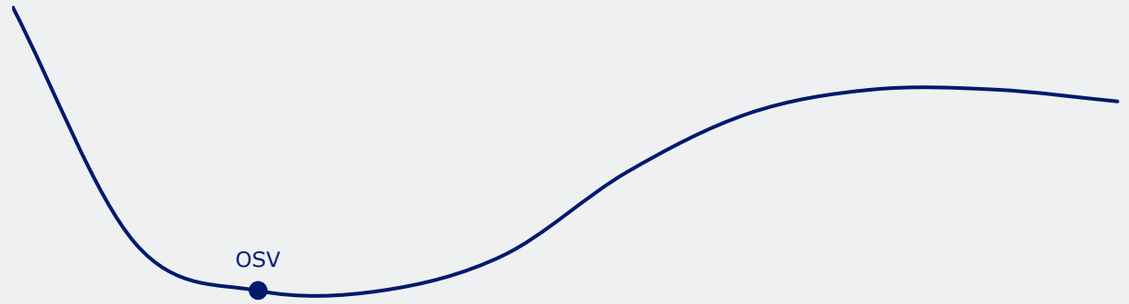
Global oil markets are focusing on cash preservation, low break-even oil prices and projects with short repayment periods. This is bad news for the OSV market. The declining investments in oil production are pivoting away from offshore, particularly OSV-intensive oil fields. This will most likely exacerbate the ongoing crisis in the offshore industry.

Players without indebted legacy assets may find attractive deals if they can employ the vessels. Vessel prices are close to balancing based on average earnings and utilisation; however, utilisation levels vary considerably. It all comes down to individual players' ability to employ the vessels.

The low cycle in the Offshore market has been exacerbated by the collapse in global oil demand caused by the lockdown of the global economy in the wake of the Covid-19 pandemic. However, some regions have been affected more than others. Regions dominated by national oil companies (NOCs) have experienced less of a decline in OSV demand than those dominated by international oil companies (IOCs). However, as petrostate budgets become strained due to lower oil revenue, the NOCs may find themselves in a position where they need to cut E&P spending too. Therefore, we expect these regions to follow suit. However, there are exceptions: both Brazil and Guyana are growing their offshore oil production, meaning incremental OSV demand.

The only bright spot outside the fleet reduction space appears to be existing oil fields' depletion rates. The low E&P spending in recent years increases the need for future investments in new projects to preserve the global oil supply. There is no guarantee, though, that offshore oil production would benefit, but it remain our base case assumption. However, the uncertainty surrounding global oil demand does not support the outlook, and some observers are speculating whether peak oil demand could already be behind us. We believe this may limit the return of investment into offshore oil, but not remove it entirely.

WHERE WE ARE IN THE SHIP VALUE CYCLE



THE OFFSHORE SUPPLY MARKET

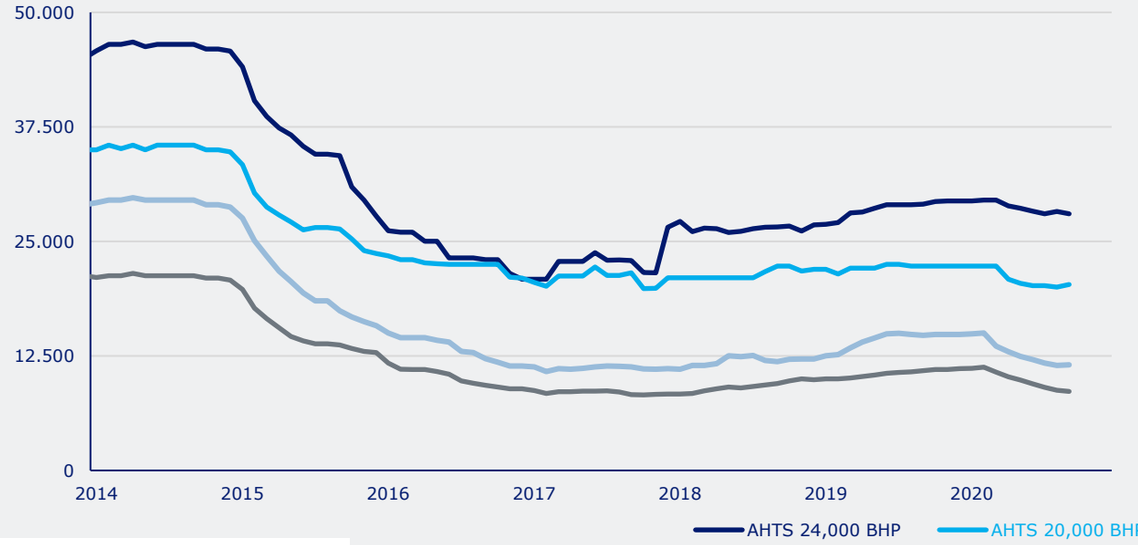
Freight rates and ship prices

Covid-19 has put an end to the slow but sustained increase in **charter rates**. Between late 2017 and early 2020, charter rates increased by 36%, driven by improvements in demand. However, the collapse in global oil demand sparked by the Covid-19 pandemic has changed the outlook. Platform Supply Vessels (PSVs) have suffered the most, while the large Anchor Handling Tug Supply (AHTS) segment above 24,000 BHP has fared best. We expect charter rates to hover around the current level for the foreseeable future, while a decline in **utilisation** may drive down revenues.

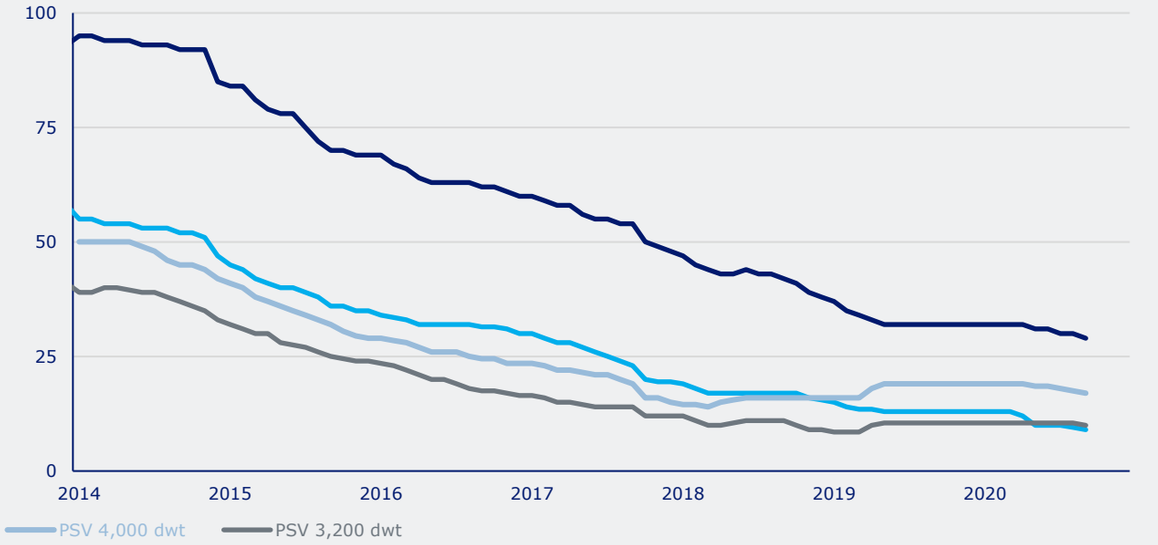
Secondhand prices of young OSVs have been on a downward trend since 2014. However, improving charter rates brought the decline in the price of five-year-old AHTS vessels to a temporary halt, and five-year-old PSV secondhand prices increased in the period from 2019 to April 2020. Since April, most subsegments have experienced a slight drop in secondhand prices, while AHTS 20,000 BHP vessel prices have plummeted by as much as 31%. Still, the low utilisation and declining charter rates imply additional downside risk in secondhand values.

Current prices for young ships require long-term fundamentals to improve, while for prices of older vessels, a rebound in utilisation is necessary. A five-year-old 22,000 BHP AHTS vessel is valued at USD 29 million. Assuming an economic life of 25 years, OPEX of USD 10,000 per day and a charter rate of USD 28,000 per day, a utilisation rate of about the current level of 65% is required. However, in previous years we have seen utilisation decline with age, leading to downside risk in secondhand prices. A similar 15-year-old vessel requires a utilisation rate of about 45%. In 2019, less than half of the fleet older than ten years saw utilisation above 50%, leaving little room for a Covid-19-driven downturn in the OSV segment, unforeseen expenditure or persistently lower utilisation of older vessels.

TIMECHARTER RATES: OSV VESSELS – GLOBAL INDICATOR (USD PER DAY)



SECONDHAND PRICES FOR A FIVE-YEAR-OLD VESSEL (USD MILLION)



Source: Clarksons, Danish Ship Finance

THE OFFSHORE SUPPLY MARKET

Supply-side development

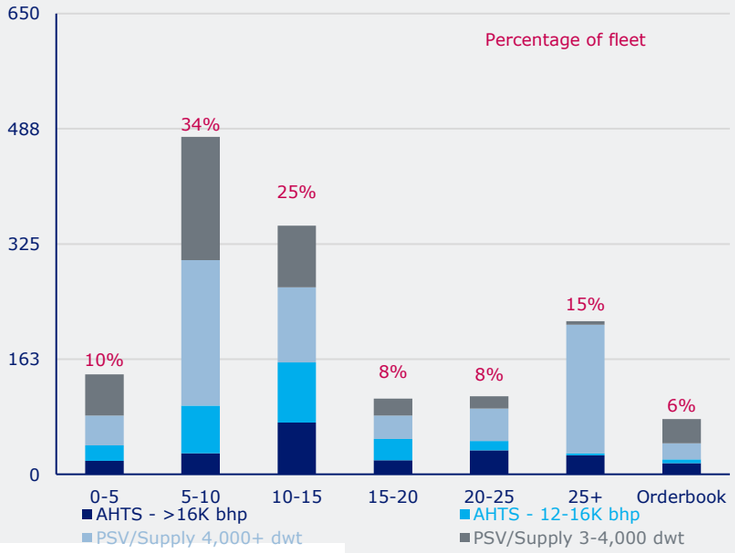
The OSV market remains structurally oversupplied. Globally, almost a quarter of the fleet is laid up and idle capacity is high (PSV >3,000 dwt and AHTS vessels >8,000 BPH). There are fewest layups and least idling among large, young vessels. Before Covid-19, the oversupply was narrowing, although 368 vessels were still laid up. Now, with offshore activity declining due to lower global oil demand, the oversupply is set to increase.

We expect that most of the laid-up vessels will eventually be **scrapped**. However, further scrapping will be necessary to balance the market. In September, idle capacity was 15% of the active fleet, compared to the average of 9% before the offshore crisis. Removing 6% of the active fleet would equate to scrapping all active ships older than 20 years. Alternatively, some vessels may find employment outside the offshore oil and gas industry.

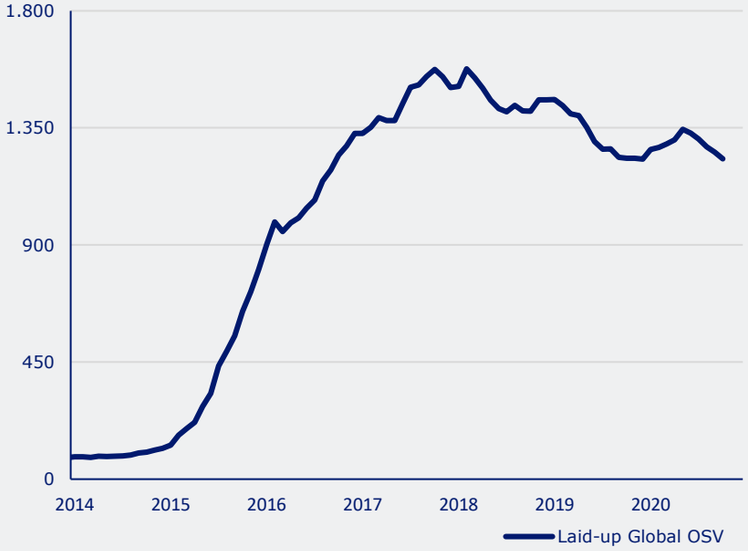
So far in 2020, scrapping has declined significantly. In the first nine months of 2020, only 17 vessels were demolished, down from 34 ships in 2019. The low level of scrapping is likely related to the temporary closure of yards due to Covid-19. We therefore expect scrapping to increase in the going forward, pending further lockdowns. However, it is also possible that banks and owners may be unwilling to crystallise losses, leading them to postpone decisions to scrap unemployed vessels. This may delay the recovery even further.

The **orderbook** for large OSVs contains 108 vessels. Only one owner has placed an order since 2015, a Chinese state-owned oil company. For the smaller segments, contracting has been also low, with just four AHTSs and two PSVs contracted in the period. We expect ordering to remain low, albeit not non-existent, since potential buyers will find cheaper vessels either laid up or in service. It is uncertain how many of the vessels in the orderbook will be delivered. Almost all the large AHTS vessels in the orderbook are due to be delivered in 2020 and have been in the orderbook for as long as seven years.

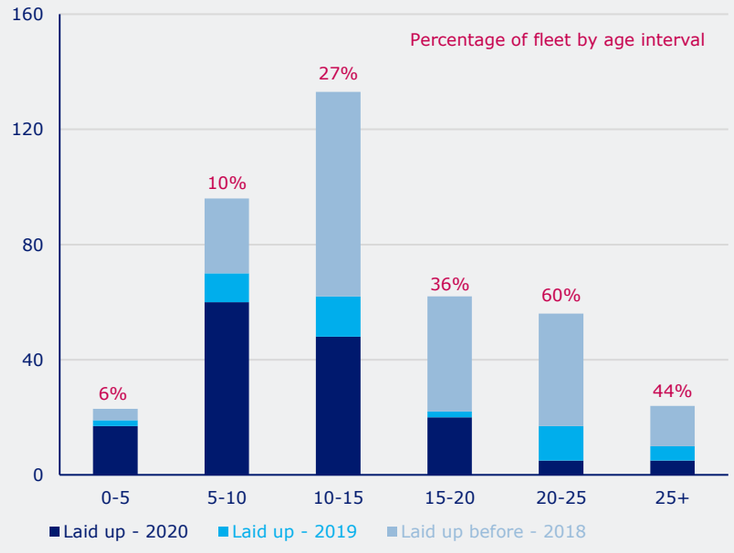
AGE DISTRIBUTION OF FLEET (NO.)



OSV: LAID-UP (NO.)



OSV: LAID-UP BY AGE AND PERIOD (NO.)



Source: Clarksons, Danish Ship Finance

THE OFFSHORE SUPPLY MARKET

Market outlook

The Offshore Supply Vessel market is challenged and is likely to remain so. The market balance was improving until Covid-19 caused a collapse in global oil demand. Owners are caught in a dilemma – if other owners scrap their vessels, the remaining ships may increase in value, but if no one scraps vessels, it will be value destructive for everybody. Since the beginning of the offshore crisis in 2014, owners have laid up ships in the hope that demand would return, or that other ship owners would do the scrapping. This behaviour continues to hold back the recovery in the offshore market.

In recent years, oil producers have focused on projects with low break-even points and shorter repayment periods. The oil price collapse in the spring has only reinforced this development. This means tie-backs and near-field development will take up an increasing share of E&P spending. These types of projects are not very OSV intensive, indicating that OSV demand per dollar spend on E&P is set to decline. Moreover, total E&P spending is set to decline this year, since oil majors have announced significantly slimmed-down investment programmes. This will dampen exploration activity in particular.

That said, the market for OSVs is not about to become obsolete. Offshore oil production delivers approximately 25% of global oil production, which will be hard to replace. The future offshore market is likely to see fewer greenfield projects and lower OSV demand, which means that the OSV fleet will need to shrink. Still, some bright spots remain, e.g. Brazil and Guyana, although these will not be sufficient to change the market outlook.

For the general OSV market to recover, owners will need to reduce their fleets. However, individual owners may find pockets of opportunities in the low secondhand price environment if they can employ the vessels.

FORCES AT WORK IMPACTING THE OSV OUTLOOK

Scrapping	The OSV market is heavily oversupplied. As long as there is a possibility of ships returning from cold lay-up, earnings will be capped at around current levels.	✘
Oil price	The low oil price environment means oil companies are slashing investment budgets to preserve cash. This is lowering E&P spending and in turn OSV demand. Oil prices might increase in the medium term, prompting a pick-up in E&P spending.	✘
Greenfield vs brownfield	Oil companies' offshore investments are focused on tie-backs and near-field development. This is lowering OSV demand per dollar invested in offshore oil.	✘
Peak oil	The time horizon to peak oil demand is affecting investment decisions. Peak oil demand in 2019 or the early 2020s would favour short repayment times, e.g. shale oil, while a later peak would favour low break-even oil prices, e.g. offshore oil.	✓ ✘
Onshore oil discoveries	Onshore oil discoveries in low-cost production areas may lower offshore oil's market share. For example, Saudi Arabia announced in August 2020 it had found two new onshore oil fields.	✓ ✘

✘ Negative impact ✓ Positive impact

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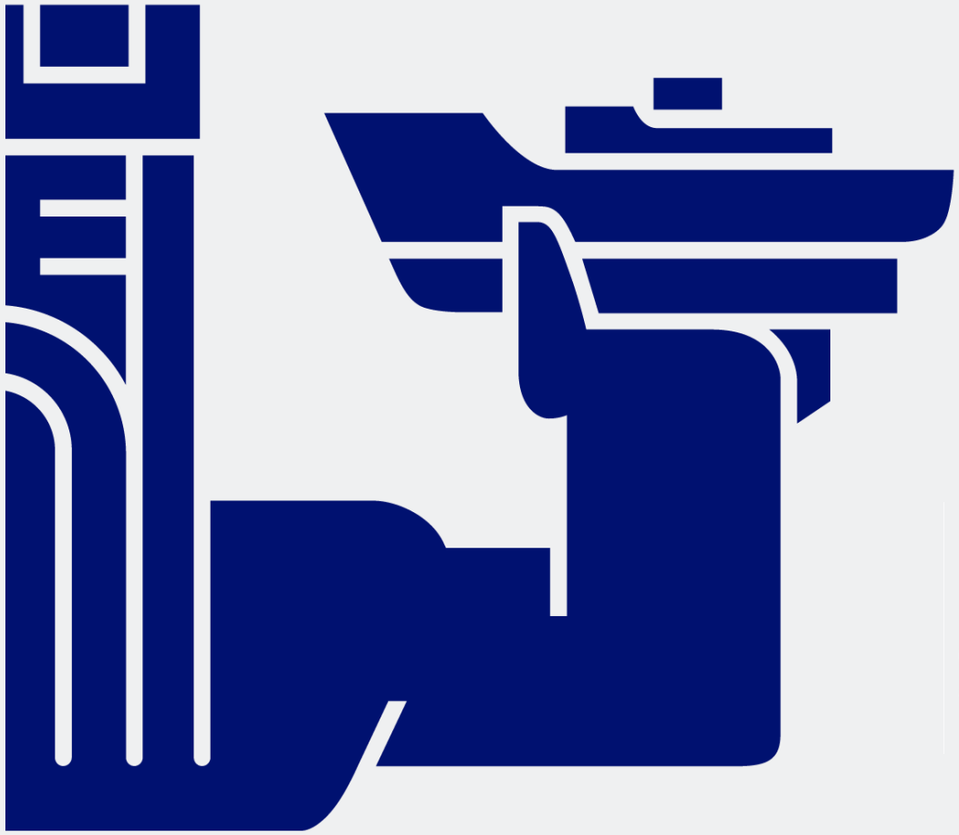

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