



IHS Markit®

Shipping and shipbuilding 2019 outlook

March 2019

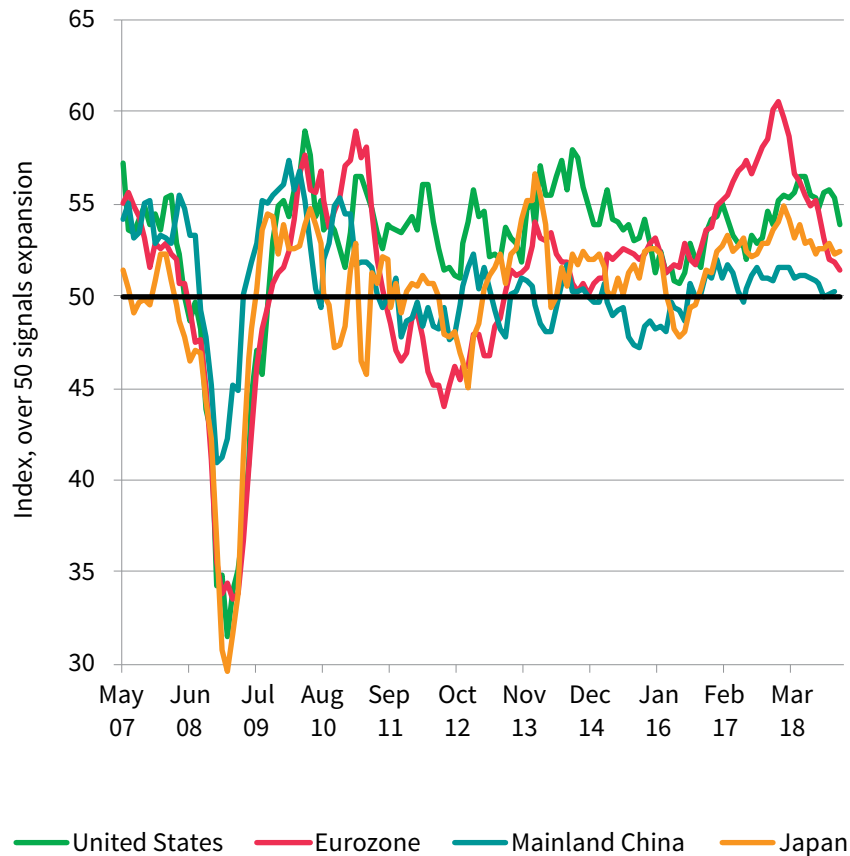


Brighter outlook for the majority of fleets, however trade war and IMO 2020 preparations will dominate 2019

Vessel type	Key message	+ -	Growth		
			2019 trend	2019 fleet	2019 trade
Dry bulk	Chinese economy slowdown brings worry but also some hope as Chinese government indicates fiscal stimulus. Fleet demolition capacity availability is limited among larger fleets but fleet supply tightening may happen due to scrubber retrofitting timings and stable deliveries.	<ul style="list-style-type: none"> + Fleet growth under control - Sensitivity to Chinese economy and demand 	→	2.7%	3.2%
Crude oil	Crude oil tanker market bottomed out in 2018, although scheduled deliveries in the first half of 2019 and OPEC crude oil cuts are expected to continue exercising downward pressure on rates.	<ul style="list-style-type: none"> + Some demolitions in the wake of IMO 2020 expected to shave off some excess capacity - OPEC cuts and expected US crude oil production 	→	4.7%	1.4%
Containers	IMO 2020 fuel spec change preparation, trade wars and available capacity adjustments are expected to dominate container fleet operators and shippers minds.	<ul style="list-style-type: none"> + Fleet expansion under control and low bunker prices for 2019 - Slow down in Chinese exports and sensitivity to trade war 	→	2.6%	4.8%
Shipbuilding	Consolidation seems to be the way forward for the shipbuilding industry at the moment and intensification of competition among major shipbuilding countries will promote cost competition.	<ul style="list-style-type: none"> + Signs of recovery in Dry bulk and intensification of orders for energy shipping - Oversupply in major shipping/offshore sectors and struggling crude oil price 	→		

The period of above-trend economic growth is ending

Purchasing manager's indexes

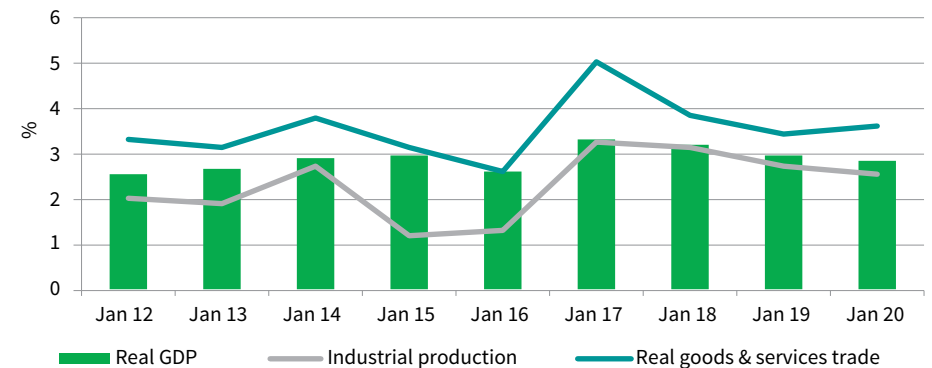


Source: IHS Markit

© 2019 IHS Markit

- Financial conditions are tightening and volatility is increasing. The combined effects of policy uncertainty and the surge in financial volatility are hurting business sentiment and investment.
- In the United States, fiscal stimulus will continue to fuel growth in 2019, but inflationary pressures and policy tightening will restrain growth in 2020–21.
- Europe's growth will be restrained by political uncertainties and weakening global trade dynamics.
- China's growth will be slowed by US tariffs, deleveraging, and excess capacity. Government stimulus will provide some offsetting support. Emerging markets that depend heavily on external finance, including Turkey, Argentina, and South Africa, are vulnerable.

Global real GDP, industrial production, and real exports

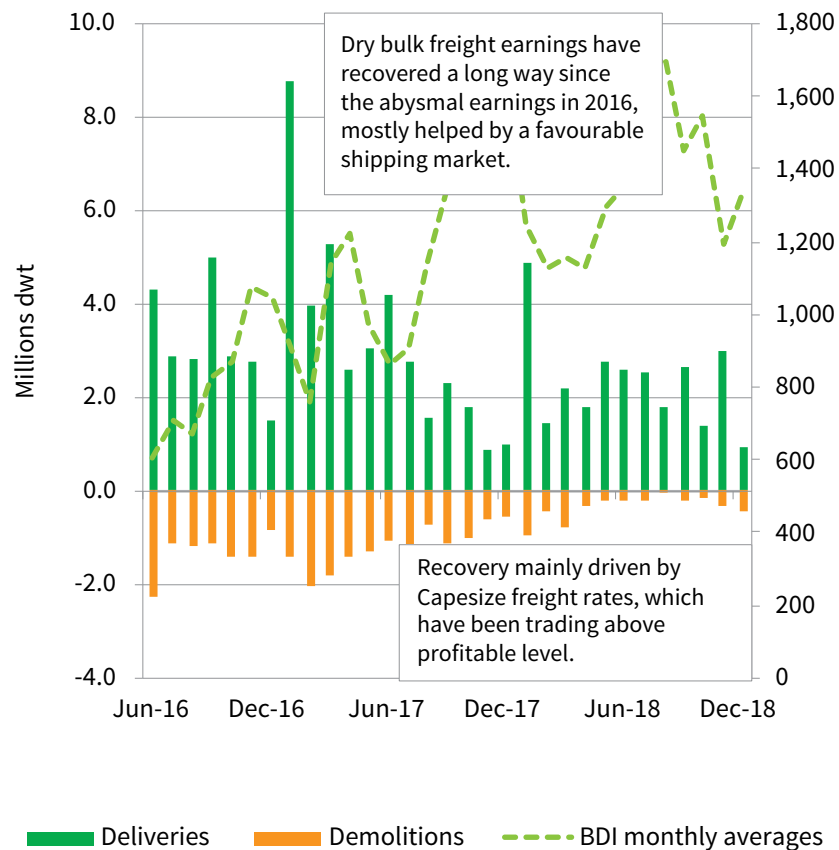


Source: IHS Markit

© 2019 IHS Markit

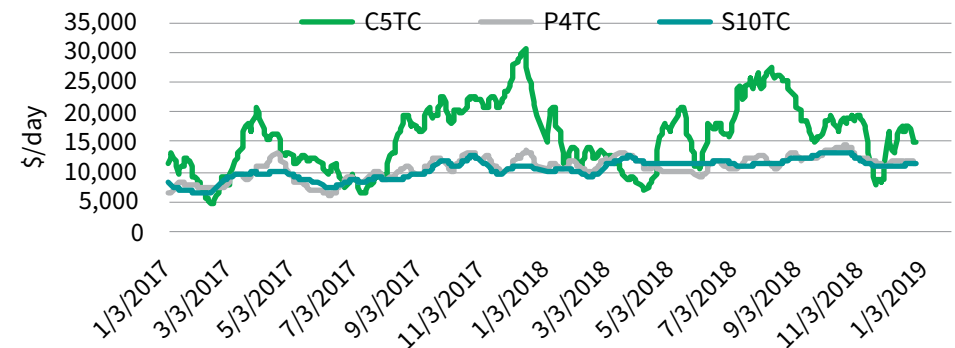
Freight rate recovery and modest order book growth mean limited demolition candidates

Dry bulk fleet monthly



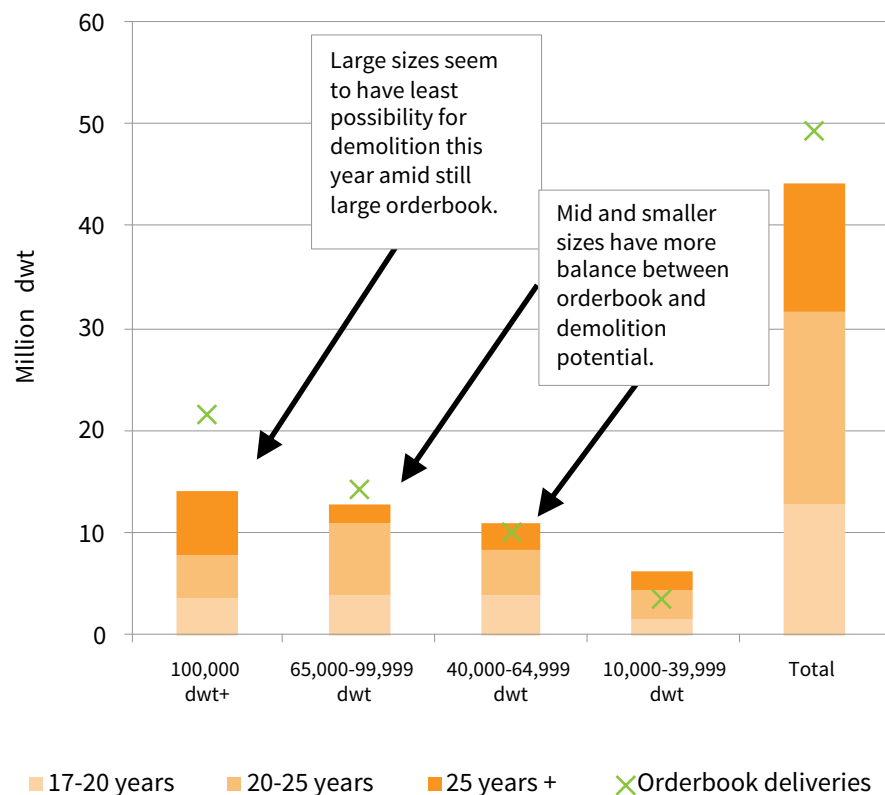
- There are limited demolition candidates given the low fleet age. Combined with a restrained order book, it is expected IMO 2020 disruptions will further tighten tonnage supply and favourably influence freight rates for dry bulk owners.
- Owners of older inefficient tonnage face some tough choices in the market, to scrap or to comply with or without investing in scrubbers. Ultimately freight earnings, future sentiment and asset prices are going to play the biggest role.
- Scrubber retrofitting as it currently stands is not expected to bring much relief to dry bulk feet, but bigger disruption may happen as more ships are sent for retrofitting in shorter time periods as the compliance date approaches.

Historical time charter rate - Capesize, Panamax, and Supramax



Balanced fleet growth expected with a limited number of demolition candidates, particularly among larger vessels

Dry bulk fleet orderbook vs demolition potential 2019

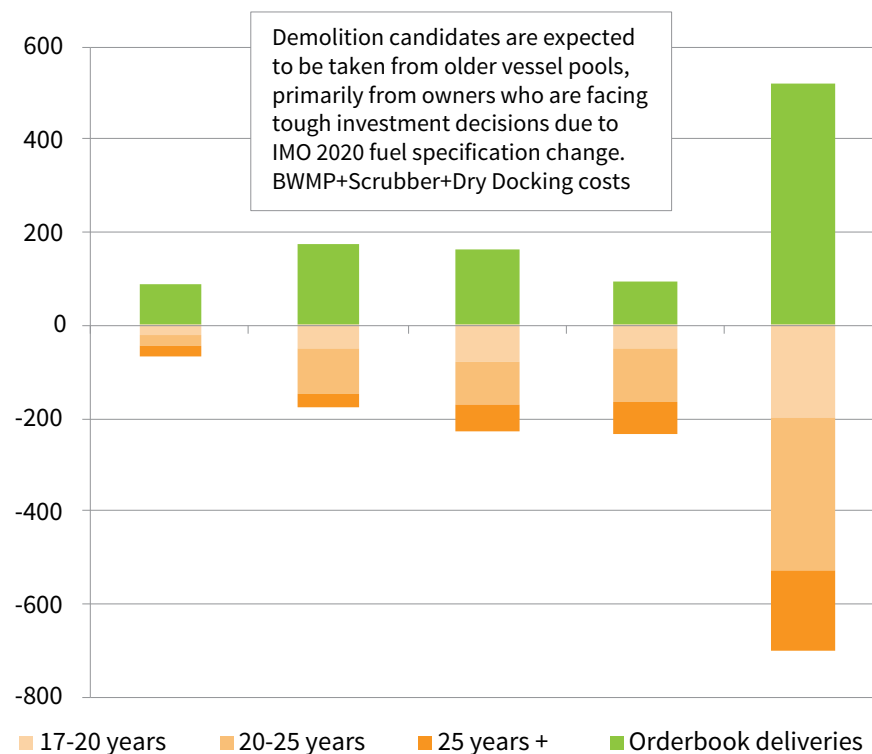


Notes: Total number of ships due for dry docking in 2019; when next dry docking information unavailable, we calculated dry docking age from historical information.

Source: IHS Markit

© 2019 IHS Markit

Dry bulk orderbook vs demolition potential in 2019 - number of ships



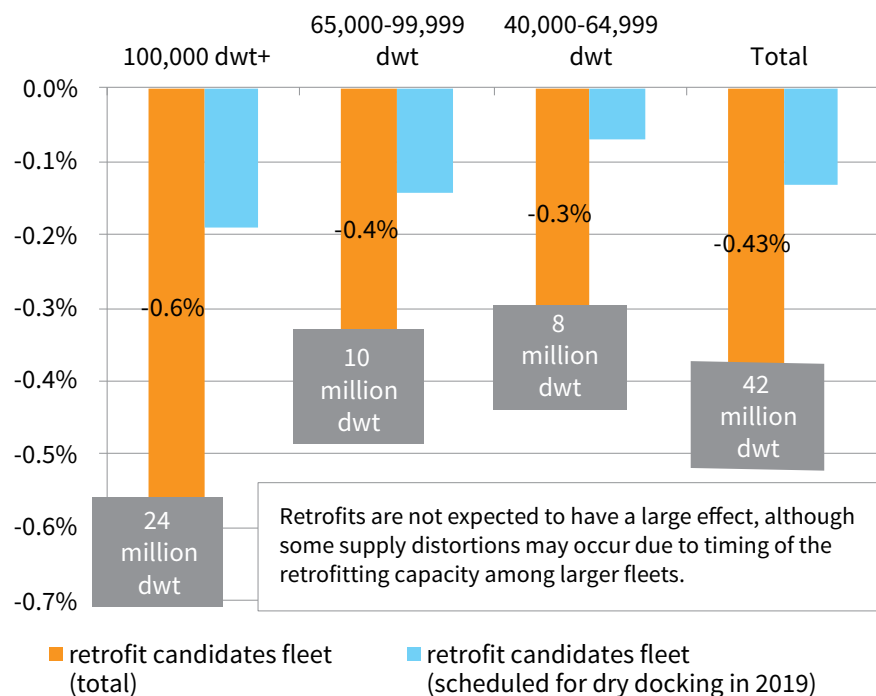
Notes: Total number of ships due for dry docking in 2019; when next dry docking information unavailable, we calculated dry docking age from historical information.

Source: IHS Markit

© 2019 IHS Markit

Scrubber retrofits are intensifying particularly among larger tonnage, but capacity indicated so far has minimal effect on fleet supply

Confirmed and unconfirmed scrubber fitting tonnage influence on fleet supply (2018 fleet size)

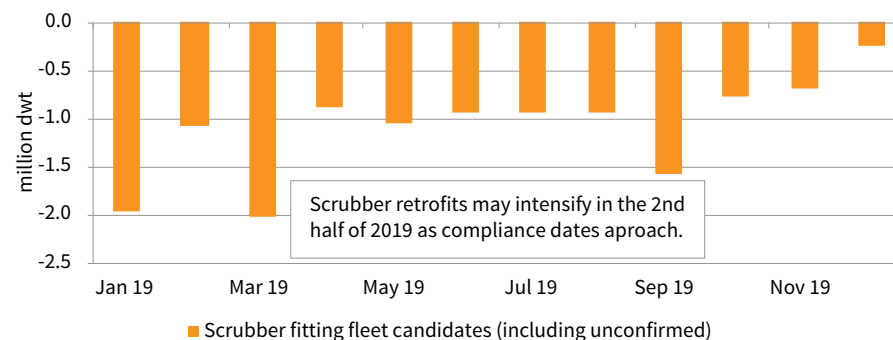


Notes: Scrubber fittings dates when non-available assumed to be around scheduled dry dockings time. The scrubber fitting information is collected from company announcements, press releases, news websites and through various sources. Non-confirmed scrubber fitting numbers are subject to change and fleet slippage.

Source: IHS Markit

© 2019 IHS Markit

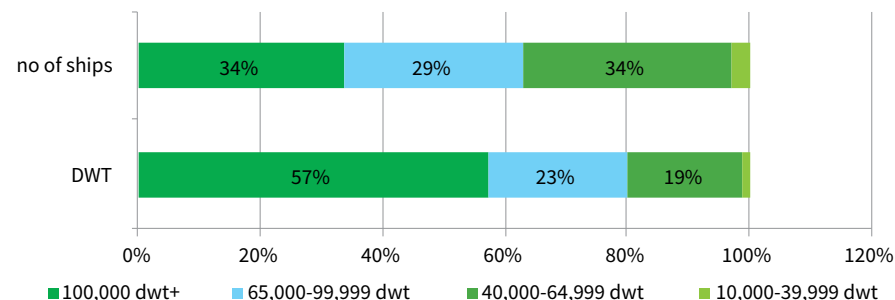
Dry bulk fleet monthly scheduled scrubber retrofits including unconfirmed



Notes: Scrubber fittings dates when non-available assumed to be around scheduled dry dockings time. The scrubber fitting information is collected from company announcements, press releases, news websites and through various sources.

© 2019 IHS Markit

Confirmed and unconfirmed retrofits - vessel size breakdown



Notes: Scrubber fittings dates when non-available assumed to be around scheduled dry dockings time. The scrubber fitting information is collected from company announcement, press releases news websites and through various companies.

Source: IHS Markit

© 2019 IHS Markit

Larger units may consider scrubber fittings for older vessels, particularly in the case of high HSFO/LSFO differential

ROI for scrubbers on estimated CAPEX

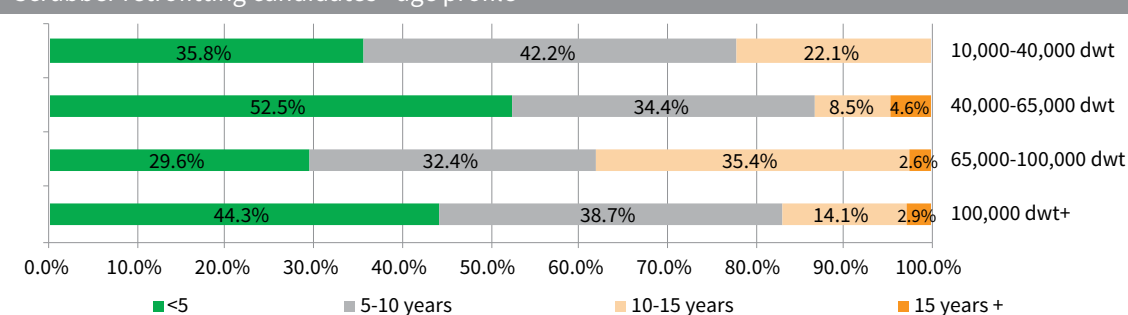
Ship type	Capesize	Panamax	Supramax
Yearly LSFO/HSFO differential in million USD at (100\$/T)	1.2	0.8	0.7
Yearly LSFO/HSFO differential in million USD at (300\$/T)	3.5	2.3	2.1
Scrubber cost installation million USD	2-3	2-3	2-3
Estimated ROI in years - differential 100\$/T	1.7-2.6	2.6-4.0	3.3-5.0
Estimated ROI in years - differential 300\$/T	0.6-0.9	0.9-1.3	1.1-1.7

Notes: Yearly steaming at 300 days per year; Consumption numbers estimated/adjusted for slow steaming. Yearly scrubbers operating costs; cost of immobilization/time of charter and capital costs not taken into account

Source: IHS Markit

© 2019 IHS Markit

Scrubber retrofitting candidates - age profile



Notes: Scrubber fittings dates when non-available assumed to be around scheduled dry dockings time. The scrubber fitting information is collected from company announcement, press releases news websites and through various companies.

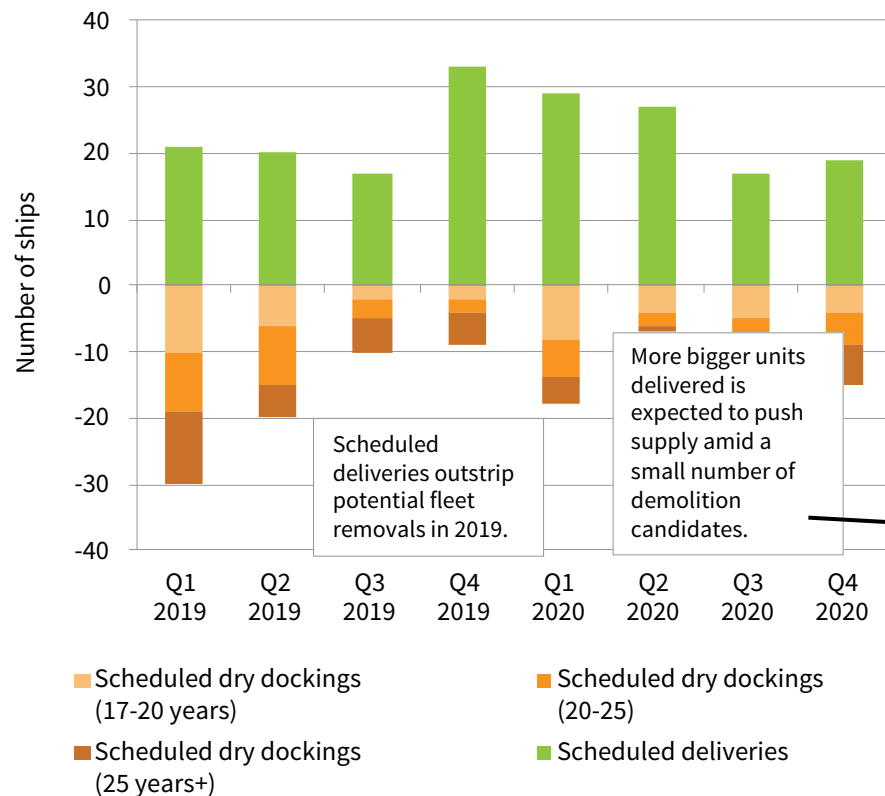
Source: IHS Markit

© 2019 IHS Markit

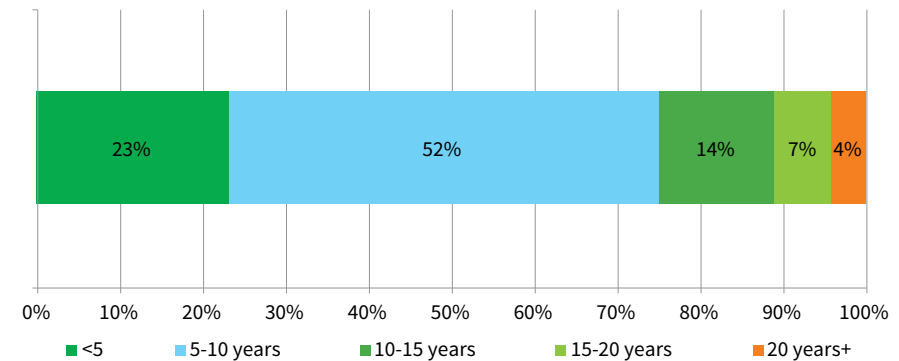
Confirmed scrubbers fittings	In service No of ships	In service DWT	On order No of ships	On order DWT
VLOC	3	967,180	36	11,705,104
Capesize	4	827,363	29	5,842,000
Post Panamax	2	181,531	2	164,000
Panamax/Kamsarmax	3	202,066	-	-
Supramax/Ultramax	3	179,491	32	2,021,870
Handymax	1	48,184	-	-
Large Handy	13	449,438	4	152,000
Total	29	2,855,253	103	19,884,974

Capesize fleet is young with a small number of demolition candidates; some supply tightening may occur with scrubber retrofitting

Capesize (100,000 dwt+) - quarterly scheduled deliveries and demolition candidates



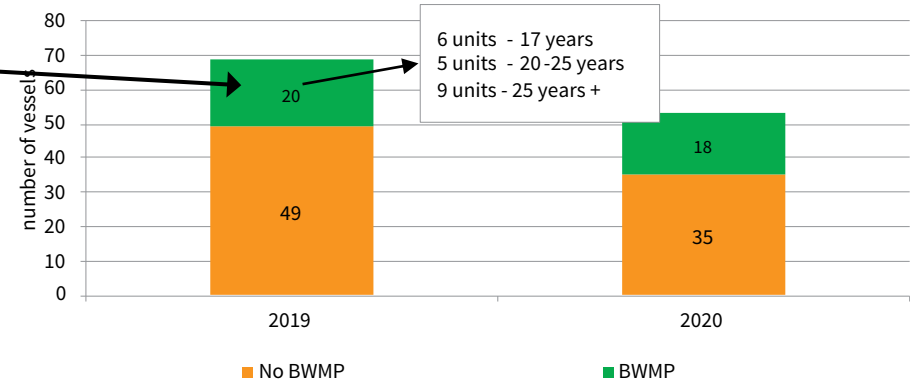
100,000 dwt+ Age profile



Source: IHS Markit

© 2019 IHS Markit

Demolition candidates BWMP installation indication



Source: IHS Markit

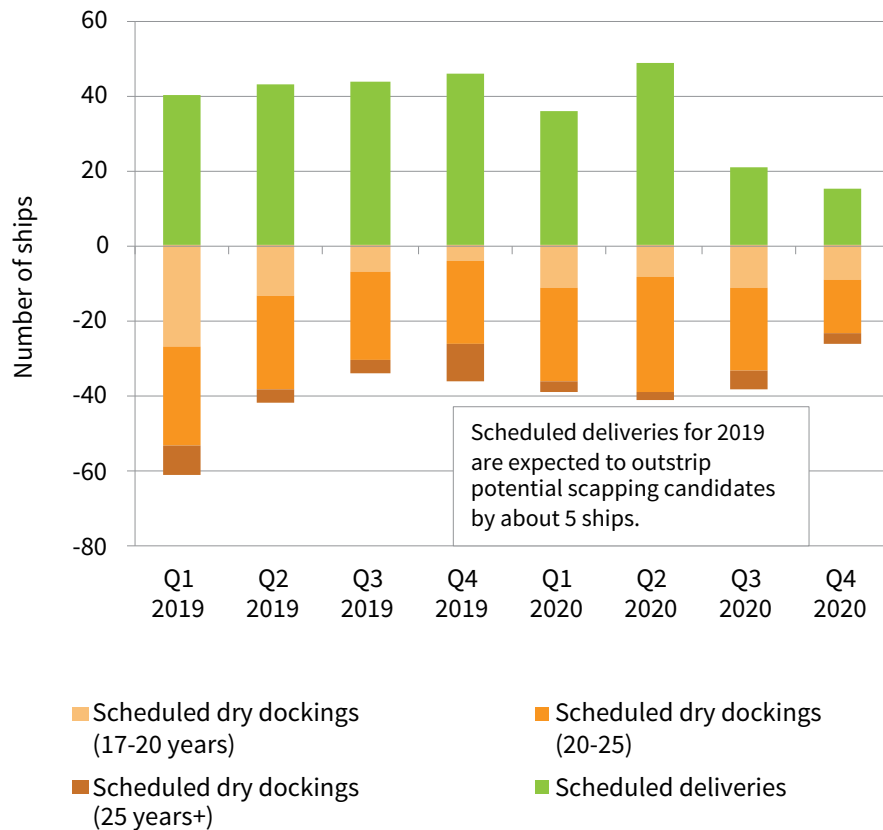
© 2019 IHS Markit

Source: IHS Markit

© 2019 IHS Markit

Panamax fleet has more demolition candidates, with a steady flow of deliveries and a challenging market into 2020

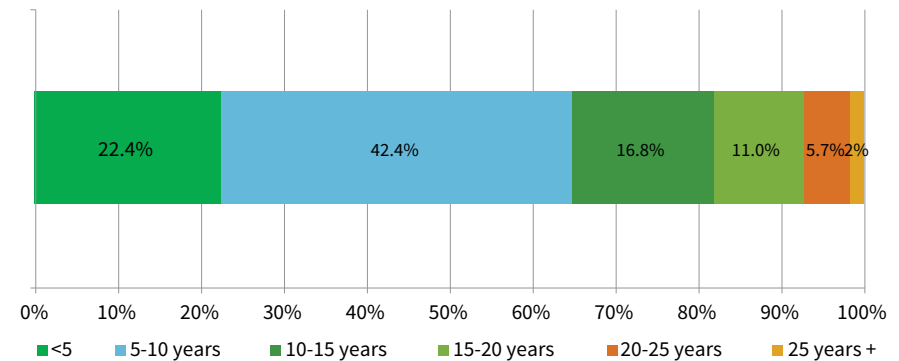
Panamax (65,000-99,999 dwt) - quarterly scheduled deliveries and demolition candidates



Source: IHS Markit

© 2019 IHS Markit

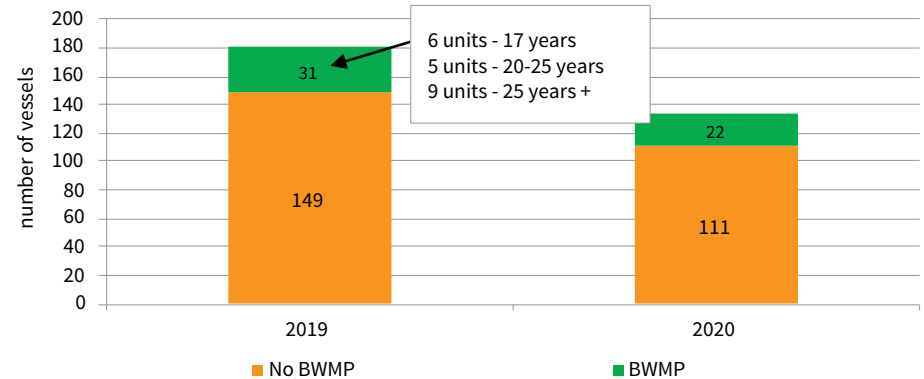
65,000 - 99,999 dwt+ Age profile



Source: IHS Markit

© 2019 IHS Markit

Demolition candidates BWMP installation indication

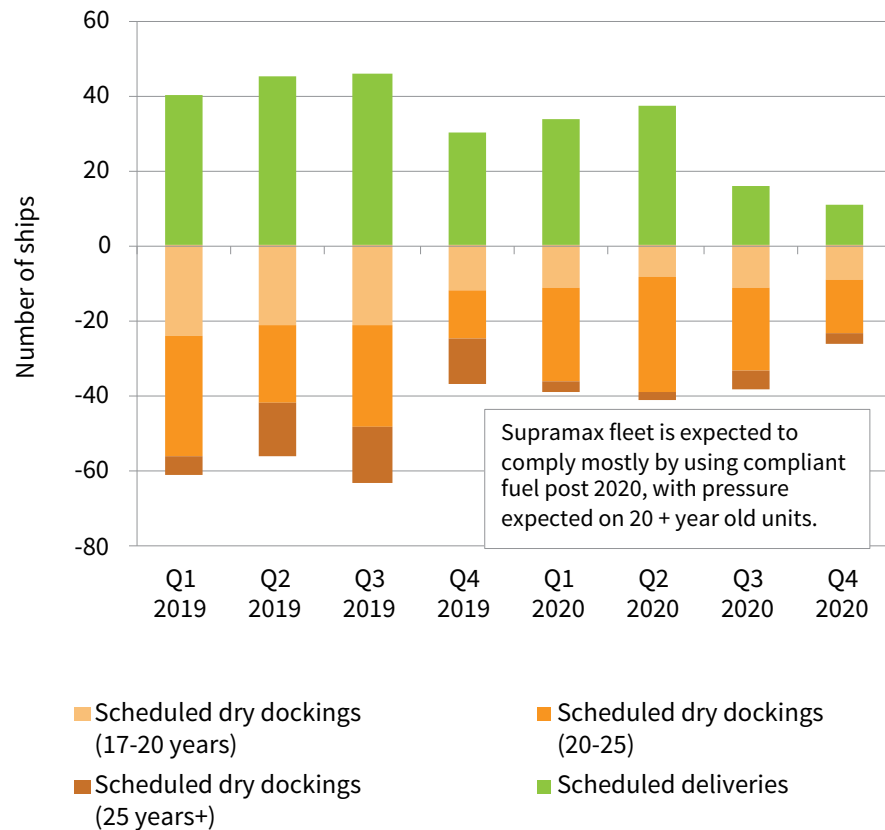


Source: IHS Markit

© 2019 IHS Markit

Supramax fleet deliveries seem to be under control with demolition candidates expected to be coming from older and inefficient fleets

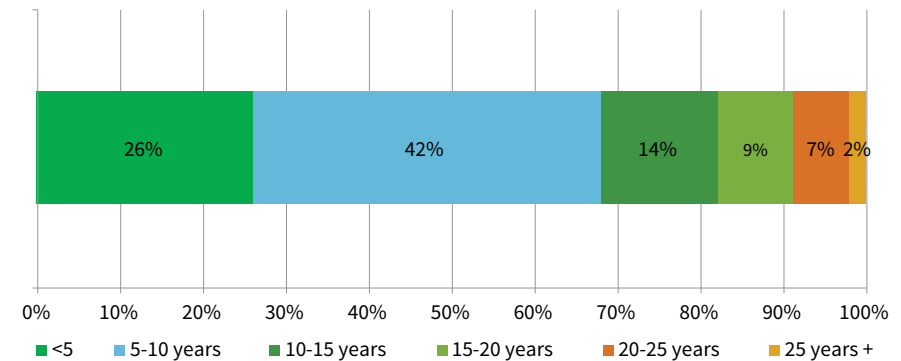
Supramax (40,000-64,999 dwt) - quarterly scheduled deliveries and demolition candidates



Source: IHS Markit

© 2019 IHS Markit

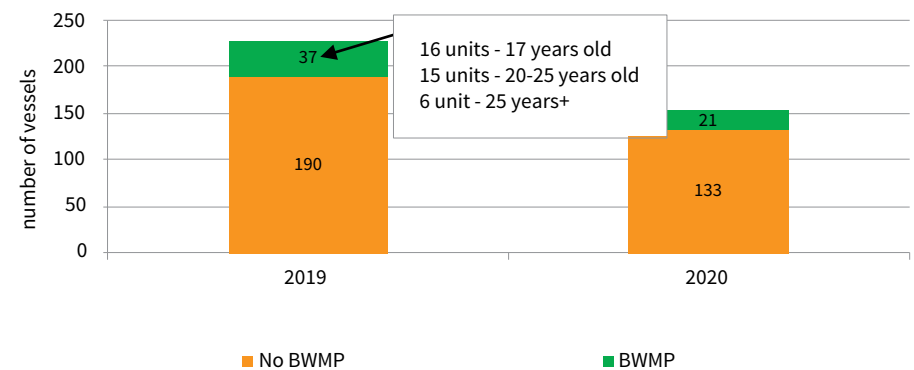
40,000 -64,999 dwt+ Age profile



Source: IHS Markit

© 2019 IHS Markit

Demolition candidates BWMP installation indication

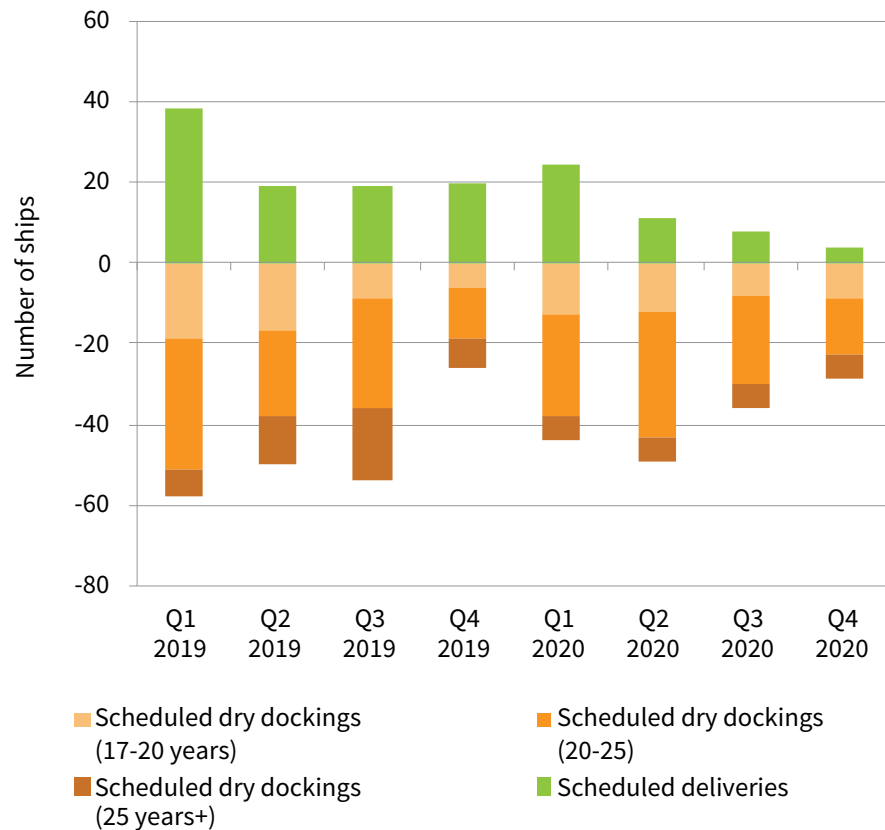


Source: IHS Markit

© 2019 IHS Markit

Handy size fleet - Fleet deliveries are under control with older units likely to be replaced

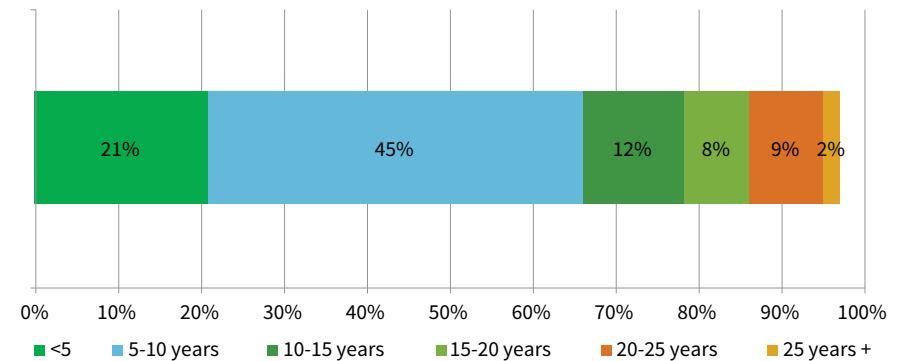
Handysize (10,000-39,999 dwt) - quarterly scheduled deliveries and demolition candidates



Source: IHS Markit

© 2019 IHS Markit

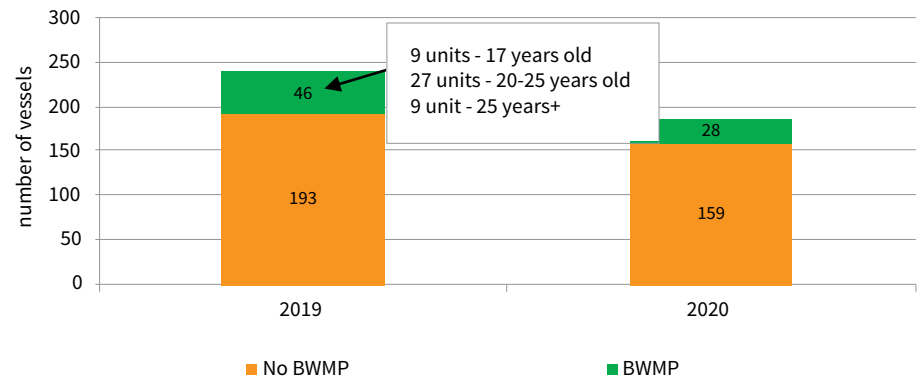
10,000 - 39,999 dwt+ Age profile



Source: IHS Markit

© 2019 IHS Markit

Demolition candidates BWMP installation indication

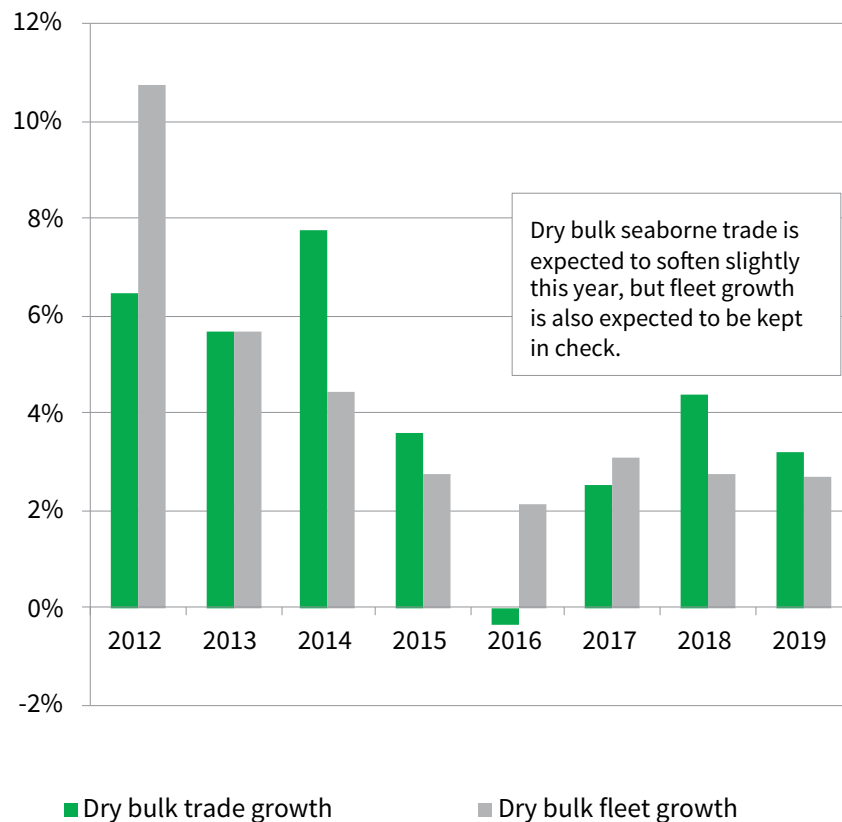


Source: IHS Markit

© 2019 IHS Markit

Dry bulk seaborne trade is expected to expand another year; however over-reliance on Chinese imports still a major risk

Dry bulk trade vs fleet growth



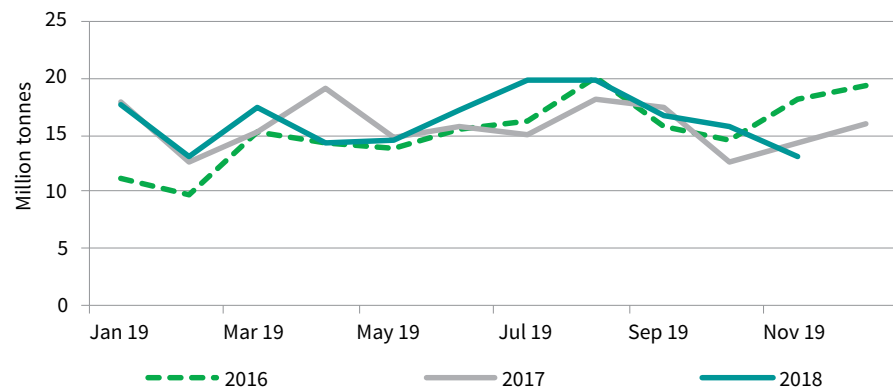
- Majority of the dry bulk commodities seaborne trade is expected to expand this year. Coal seaborne trade is expected to grow just shy of 3% while iron ore seaborne trade is expected to expand more modestly by about 1.5%.
- Over-reliance on Chinese demand remains a major risk factor for dry bulk shipping, although recently announced stimulus may bring another positive year for the dry bulk shipping sector.
- In the period up to the Vale dam disaster steel prices were in free fall, reflecting iron ore and coal prices. Prices slid due to a steel demand drop and excess production which in turn prompted steel makers to switch to lower grade iron ore, which had a negative effect on tonne mile demand. Steel prices grew sharply since the Vale incident, but this is not expected to have positive effect on shipping demand.
- Coal demand growth is expected to be supported by the growth of alternative markets such as Vietnam, as Chinese volumes fell during Q4 of 2018.
- Chinese buyers ordered some soybean shipments in the current trade war truce, but considering an expected record soybean harvest in Brazil, US exports are expected to continue to be displaced by Brazilian exports. US exports moved heavily to alternative markets such as Europe.
- Guinea bauxite exports are expected to continue growing.

Notes: 2018 trade growth estimate.
Source: IHS Markit; Fleet Capacity Forecast; World Trade Services

© 2018 IHS Markit

Some positive influence on tonne mile demand from Vietnam coal imports and China bauxite imports amid imports/pollution caps in China

China coal imports monthly



Source: IHS Markit

© 2019 IHS Markit

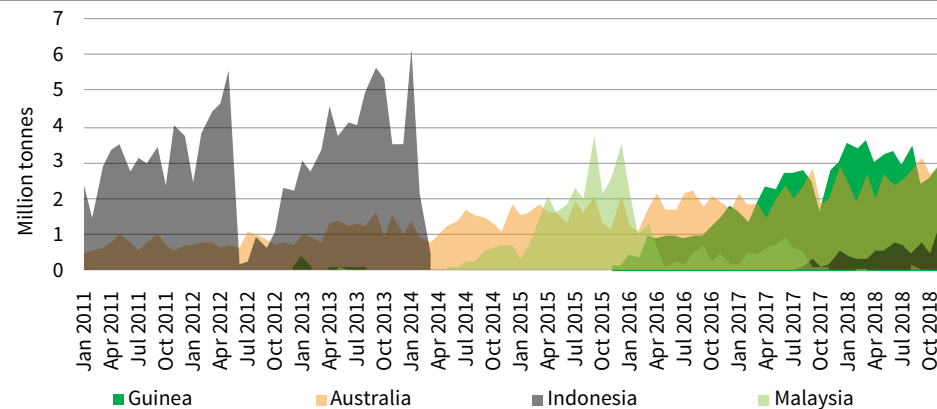
Vietnam coal import volumes (t)

Country	Dec-18	Nov-18	M-o-M(%)	Nov-17	Y-o-Y(%)
Australia	1,105,474	374,176	195%	257,240	330%
Indonesia	973,558	1,195,175	-19%	905,390	8%
Russia	452,461	361,663	25%	232,822	94%

Source: Vietnam customs, IHS McCloskey – Coal market alert

© 2019 IHS Markit

Bauxite trade to China



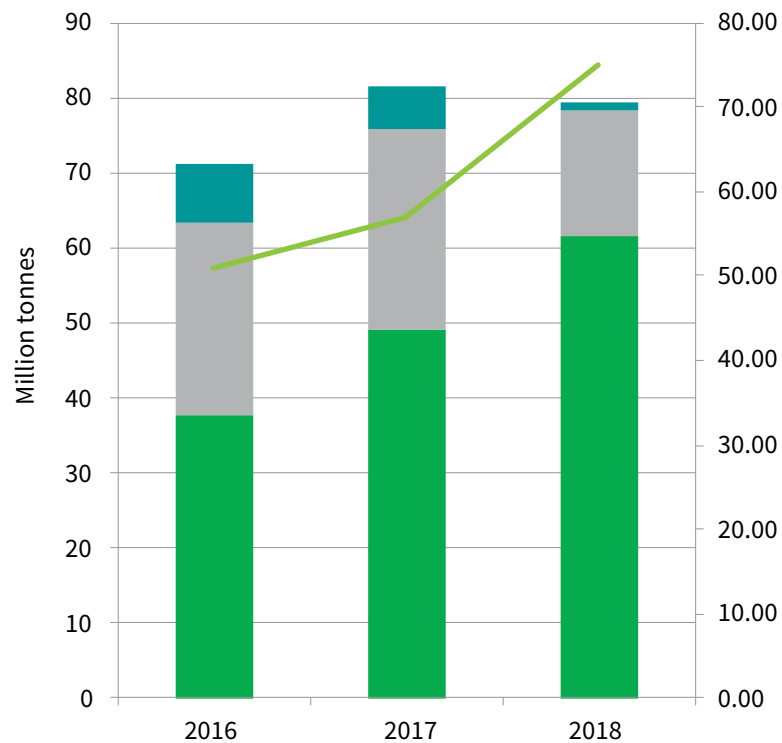
Source: IHS Markit, China customs

© 2019 IHS Markit

- The rapid ascendancy in Vietnam's coal importing is expected to continue. State-owned power generator, Electricity Vietnam (EVN), is anticipating its imports will be around 9.50 mt in 2019 and 10.92 mt of coal by 2020, up from around 7.00 mt in 2017. State-owned miner Vinacomin last month issued a tender for up to 1.2 mt of imported thermal coal, as domestic coal supply has been insufficient to keep pace with demand.
- Uncertainty regarding Chinese policy on when coal cargoes is due to change is weighing heavily on sentiment and resulting in Chinese-exposed traders largely withdrawing from coking coal transactions. However, as import control eased, trading conditions should improve.

Trade war risks remain but US soybean exports to China are expected to be replaced by a record soybean crop harvest coming from Brazil this year

China soybean imports by source



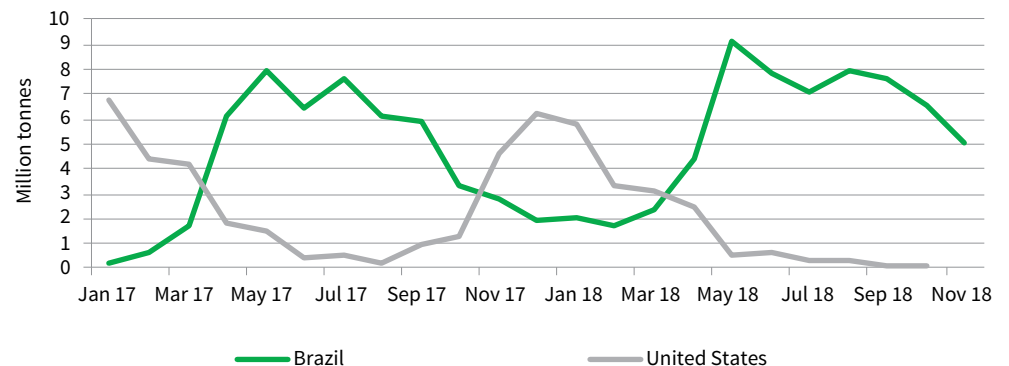
■ Brazil ■ United States ■ Argentina — Brazil % share

Source: IHS Markit ; Global Trade Services

© 2019 IHS Markit

- China ordered the first quantity of soybean from the United States following a truce in the “trade war” which is set to last until March 2019, tempting the market that potential future negotiations may be possible.
- However, the incentive for China to negotiate soybean tariffs may be delayed until the fall of 2019 as Brazil’s new record soybean crop will be available for export in Q2 and there are increasing concerns about China’s swine fever outbreak.
- US soybeans found an alternative market in Europe, MENA (Egypt and Iran), South East Asia, and Argentina (3rd biggest soya exporter).

China soybean imports by source



Source: IHS Markit ; Global Trade Services

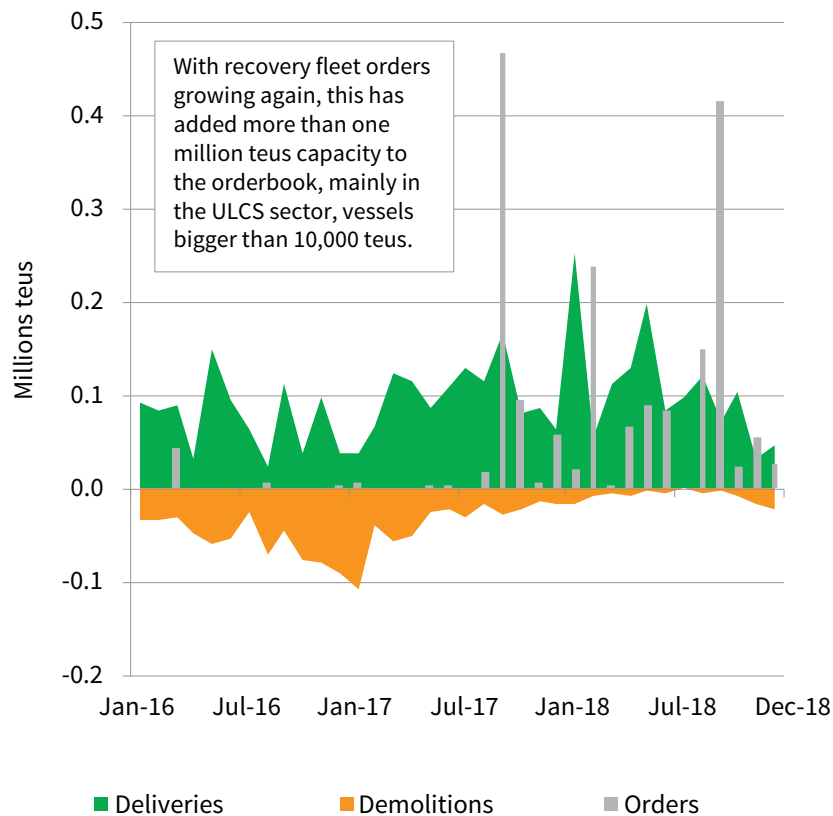
© 2019 IHS Markit

Source: IHS Markit

© 2019 IHS Markit

Fleet growth is expected to be modest this year. Coupled with expected low crude oil prices, this should dampen the impact of trade wars

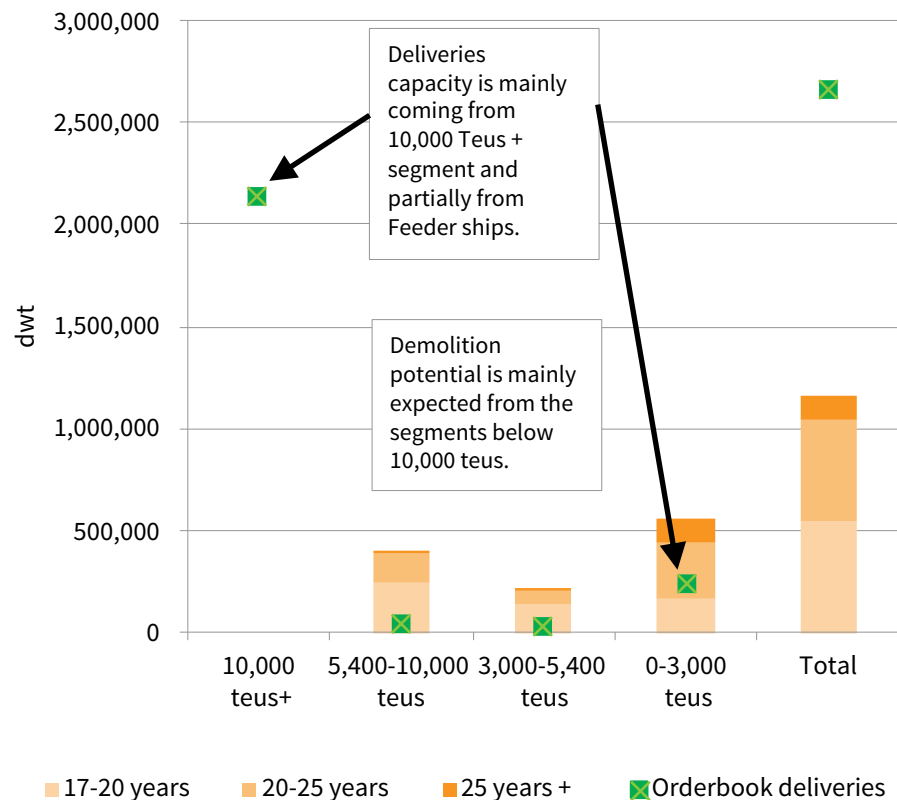
Container fleet



- Orderbook incentives and demolitions slowed down in 2018 with freight rates recovering. The majority of orders have been noted as expected in large fleets (vessels bigger than 10,000 teus) and Feeder fleets (vessels <3,000 teus).
- The two major global factors which are expected to be on operators' minds are trade war implications and IMO 2020 fleet preparations. In the preparation for IMO 2020, the container fleet response is expected to be different, although carriers are expected in general to pass the additional cost of transport to shippers and ultimately to the end user, be it through fuel surcharges or cost of scrubber retrofits. Although, last year's attempt was unsuccessful and resulted in losses for operators, this can be regarded as a warning in the face of upcoming legislation.
- Considering some recent announcements in the sector on scrubber installations and retrofits, it remains to be seen if this will be used to gain a competitive advantage in \$/teu among large operators.
- So far announced scrubber retrofits are expected to have a limited impact on container fleet supply, and it seems likely that scrubber retrofits may intensify during times of lower trade activity, where surplus tonnage will be taken out of the loop. Total fleet growth this year is expected to be about 3%, with just shy of the 0.9 million teus capacity expected to be delivered, which is encouraging amid trade war concerns.
- With limited capacity expected for demolition, some younger inefficient units from the mid-size sector and very old units in the Feeder sector are expected to be under pressure.

With limited capacity expected to be targeted for demolition activity, some younger units from the mid-size sector expected to be under pressure

Container ships orderbook vs demolition potential 2019

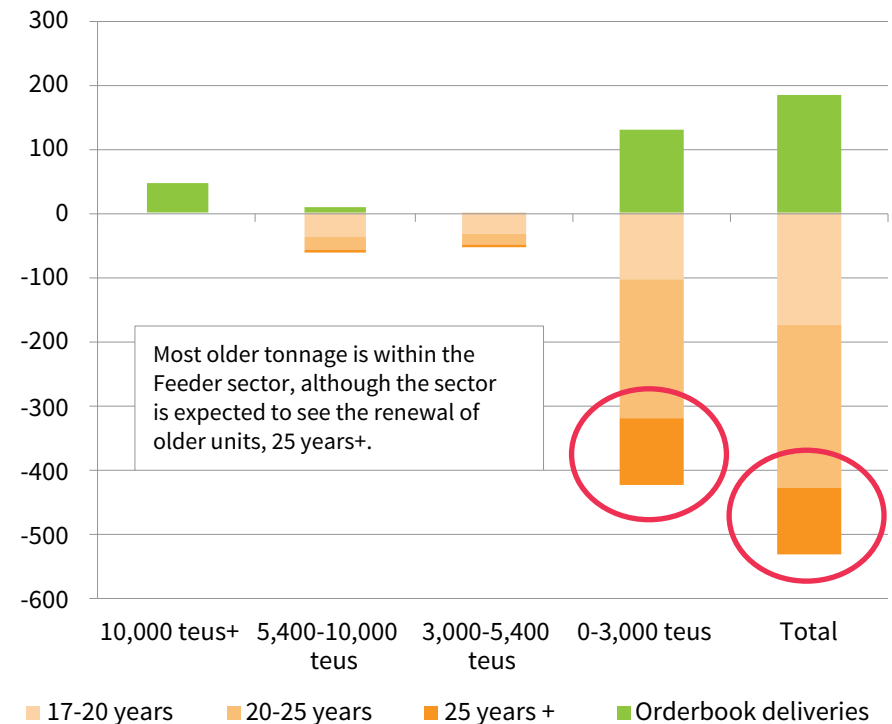


Notes: Total number of ships due for dry docking in 2019; when next dry docking information unavailable, we calculated dry docking age from historical information.

Source: IHS Markit

© 2019 IHS Markit

Container ships orderbook vs demolition potential in 2019 - number of ships



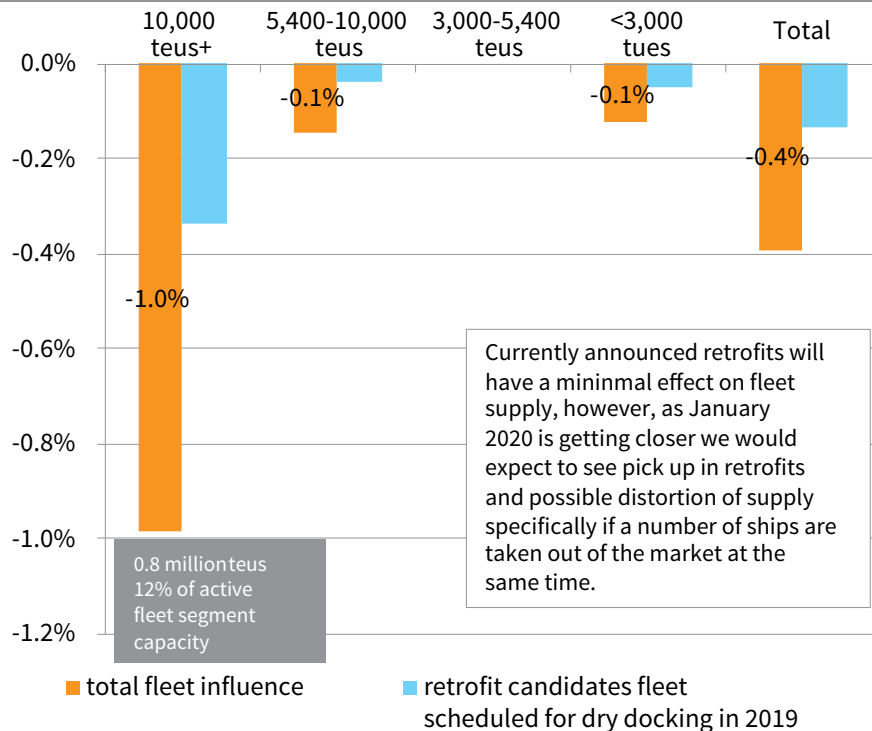
Notes: Total number of ships due for dry docking in 2019; when next dry docking information unavailable, we calculated dry docking age from historical information.

Source: IHS Markit

© 2019 IHS Markit

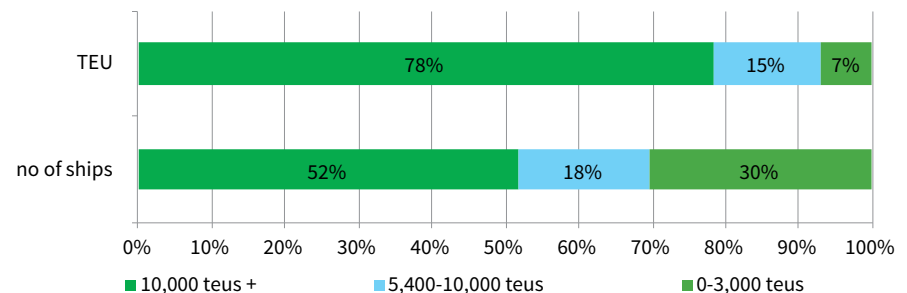
A mixed response from container fleet operators to IMO 2020 fuel compliance, although more scrubber fittings are expected in larger units

Confirmed and unconfirmed scrubber fitting tonnage influence on fleet supply (2018 fleet size)



Confirmed scrubbers fittings	In service No of ships	In service TEUs	On order No of ships	On order TEUs
ULCS	2	269,738	56	9,208,180
Post Panamax	3	294,943	-	-
Feedermax	11	402,941	11	317,249
Large Feeder	11	185,694	31	607,506
Small Feeder	5	63,643	-	-

Confirmed and unconfirmed retrofits - vessel size breakdown



Notes: The scrubber fitting information is collected from company announcements, press releases, news websites and through various sources. Non-confirmed scrubber fitting numbers are subject to change and fleet slippage.

Source: IHS Markit

© 2019 IHS Markit

Notes: Scrubber fittings dates when non-available assumed to be around scheduled dry dockings time. The scrubber fitting information is collected from company announcement, press releases news websites and through various companies.

Source: IHS Markit

© 2019 IHS Markit

Majority of retrofits are expected in larger ships, although the decision will make economical sense for smaller vessels used on longer routes

ROI for scrubbers on estimated CAPEX

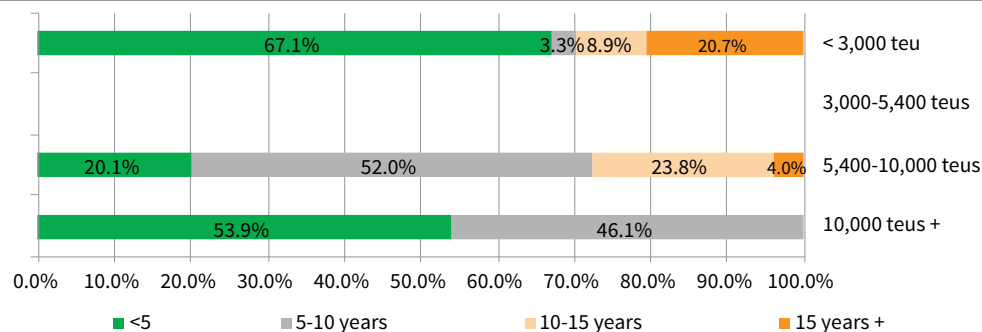
Ship type	18,000 teus	11,000 teus	5,000 teus
Yearly LSFO/HSFO differential in million USD at (100\$/T)	2.8	2.5	0.9
Yearly LSFO/HSFO differential in million USD at (300\$/T)	8.5	7.4	2.7
Scrubber cost installation million USD	3-5	3-5	2-3
Estimated ROI in years - differential 100\$/T	1.1-1.8	1.2-2.0	2.0-3.3
Estimated ROI in years - differential 300\$/T	0.4-0.6	0.4-0.7	1.0-1.1

Notes: Yearly steaming at 300 days per year; Consumption numbers estimated/adjusted for slow steaming. Yearly scrubbers operating costs; cost of immobilization/time of charter and capital costs not taken into account.

Source: IHS Markit

© 2019 IHS Markit

Scrubber retrofitting announcements - age profile



Notes: The scrubber fitting information is collected from company announcements, press releases, news websites and through various sources. Non-confirmed scrubber fitting numbers are subject to change and fleet slippage.

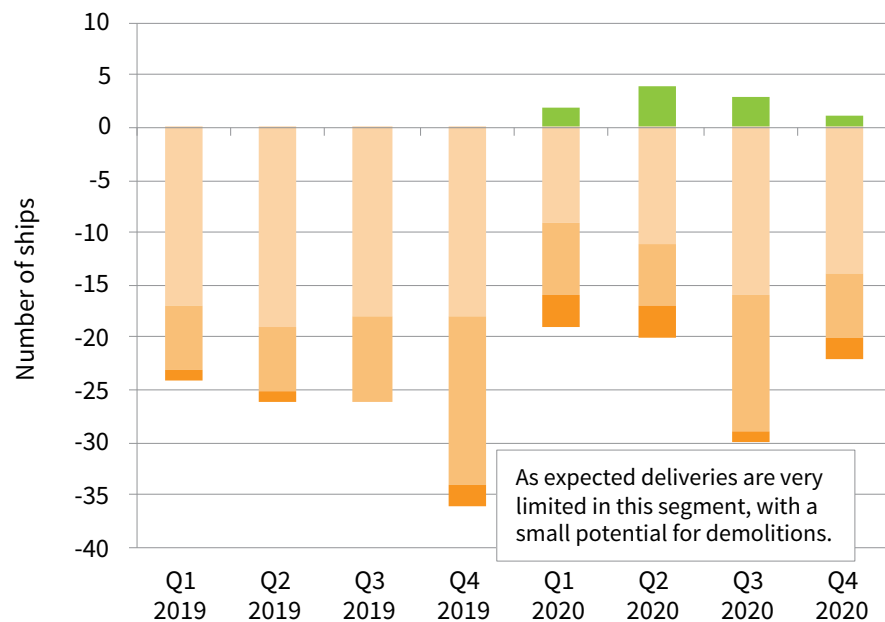
Source: IHS Markit

© 2019 IHS Markit

- Maersk Line, MSC, CMA CGM, and Hapag-Lloyd have all confirmed the rule will increase their individual, annual bunker fuel costs between \$1 billion to \$2 billion. The general range increase predicted for shippers on trans Pacific trade is more than \$100 per TEU to more than \$300 per TEU.
- If demand is weak because the tariffs take effect, carriers will have extra incentive to blank sailings and take ships out of service for scrubber retrofits.
- Ocean carriers have signaled to the market, publicly and in private negotiations, that they will not back down in trying to recoup the higher costs of burning LSFO or the installation and maintenance costs of scrubbers.

Panamax and Post Panamax fleet expect a limited number of deliveries and there is some potential for demolitions, although the fleet is relatively young

Panamax and Post Panamax (3,000-10,000 teus) - quarterly scheduled deliveries and demolitions



■ Scheduled deliveries (3,000-5,400)

■ Scheduled dry dockings (20-25)

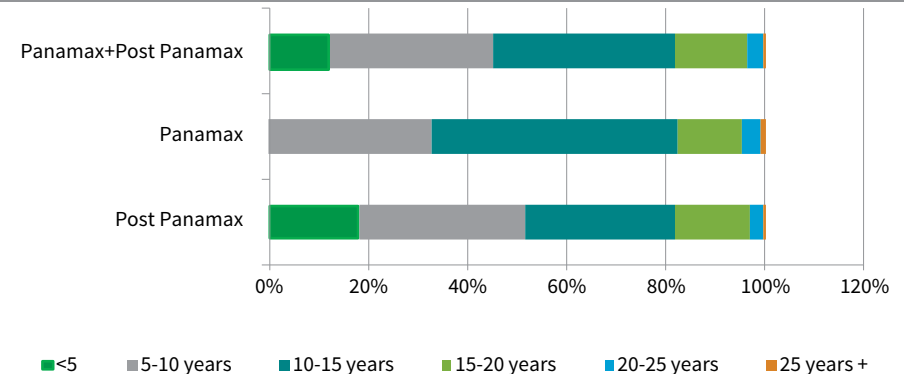
■ Scheduled dry dockings (25 years+)

■ Scheduled dry dockings (17-20 years)

Source: IHS Markit

© 2019 IHS Markit

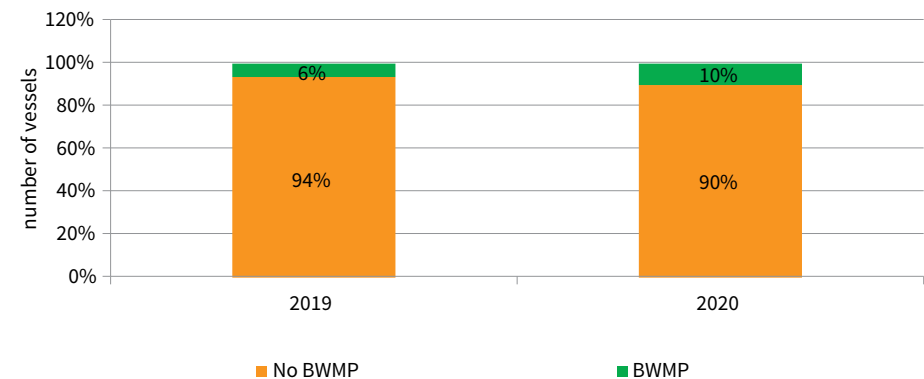
Panamax and Post Panamax age structure



Source: IHS Markit

© 2019 IHS Markit

Demolition candidates BWMP installation indication

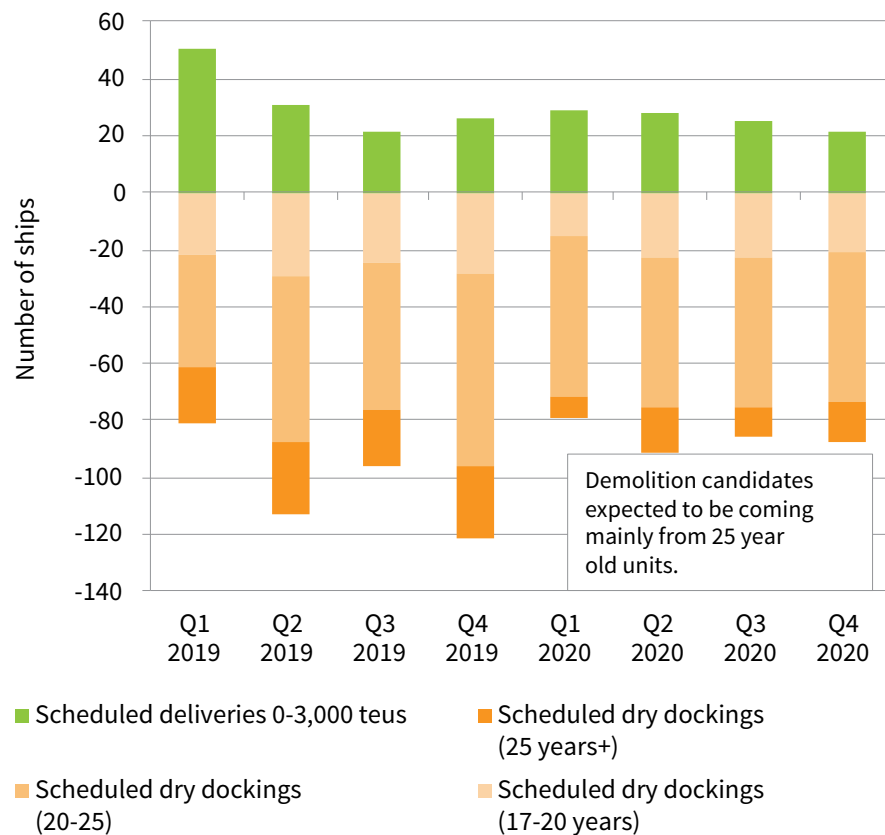


Source: IHS Markit

© 2019 IHS Markit

Feeder fleet scrubber retrofitting is not expected to have a major effect on the fleet supply this year

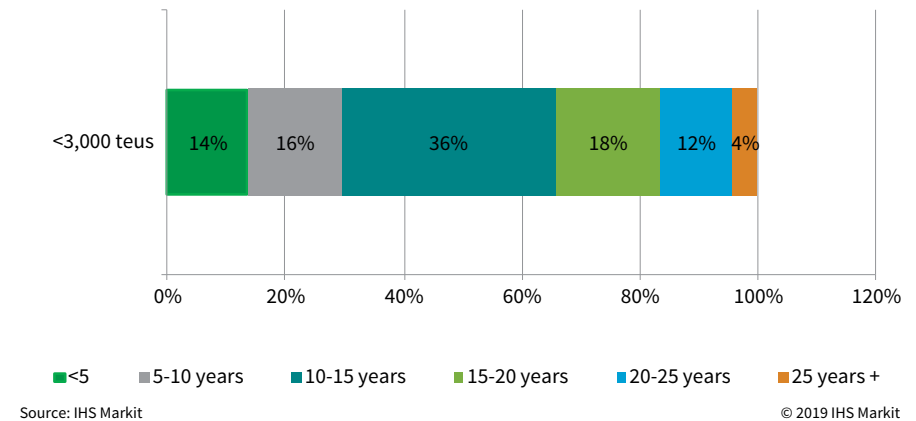
Feeder fleet (0-3,000 teus) - quarterly scheduled deliveries and demolitions



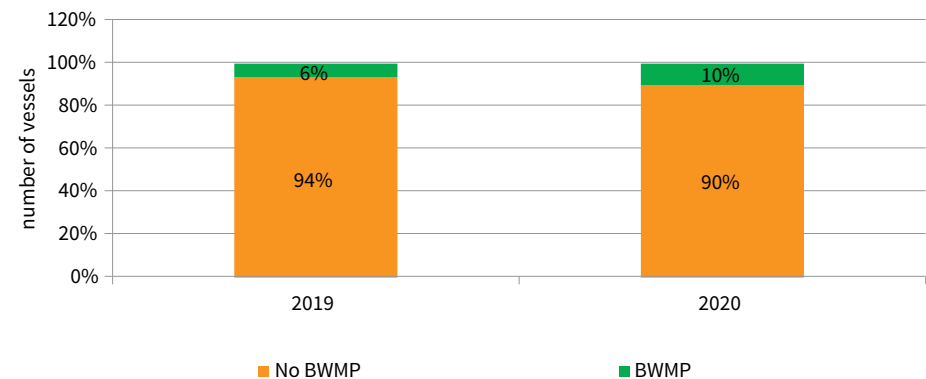
Source: IHS Markit

© 2019 IHS Markit

Feeder fleet (<3,000 teus) age profile



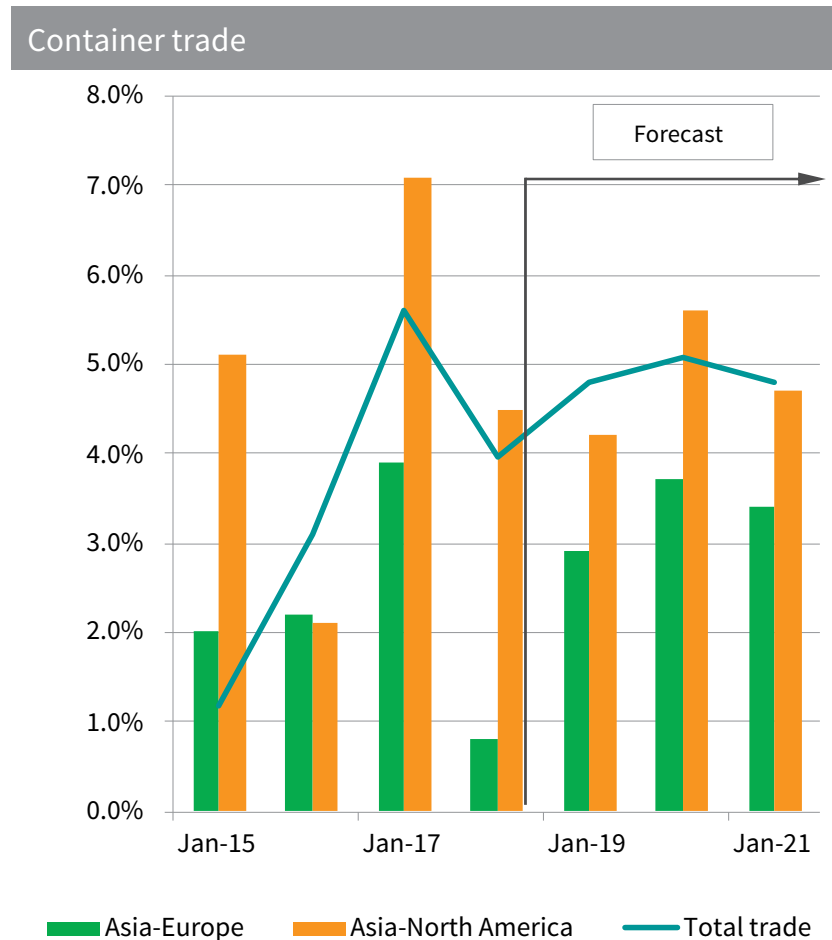
Scrapping candidates BWTS(M) installation indication



Source: IHS Markit

© 2019 IHS Markit

Our baseline forecast expects trade growth on major trade routes



Source: IHS Markit ; World Trade Services

© 2019 IHS Markit

Trade	Metric	2015	2016	2017	2018	2019
Europe – Far East	%	0.3	1.9	4.8	-3.2	3.9
North America – Far East	%	-5.8	18.7	7.9	4.1	6.3
Europe – North America	%	5.9	1.6	9.2	4.8	4.4
North America – Europe	%	-6.6	0.2	15.7	9.6	4
	%	1.3	4.8	4	4.2	5.4

Source: IHS Markit; World Trade Services

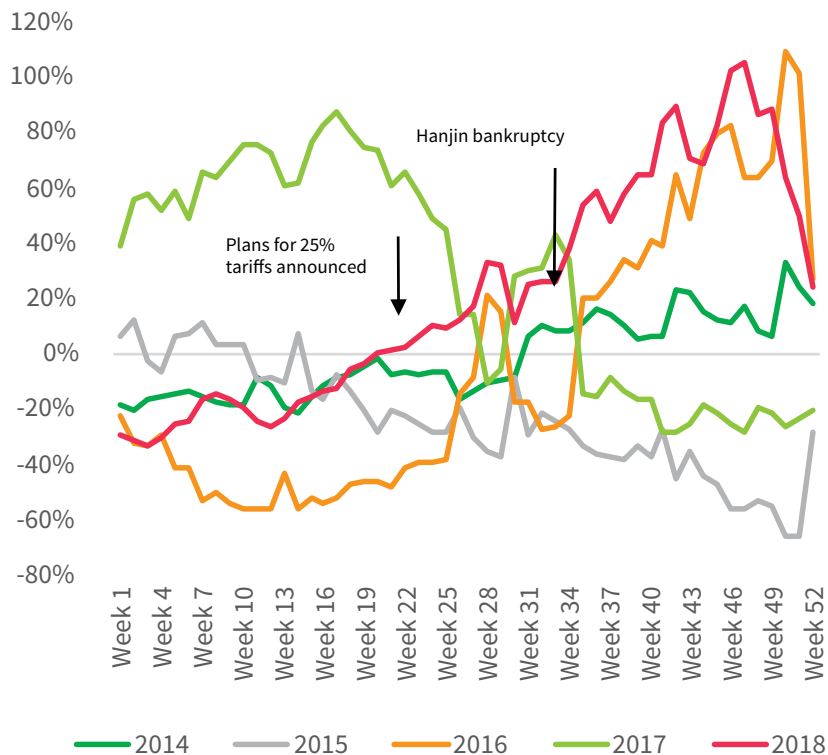
© 2019 IHS Markit

- We estimated that world containerized trade would increase 5.6% to 140.7 million TEUs in 2017, and a further increase 4.0% to 146.3 million TEUs in 2018. We project the global growth rate will be 4.0–5.1% in the medium term. From a historical point of view, this is a major change compared with the double-digit growth rates the industry became accustomed to, but we must accept that globalization appears to have worked its way through the global sourcing system and that we are now back to depending on straightforward demand. Even with the lower growth rates, global container trade will be 20 million TEUs higher in 2019 than in 2016, at 153.3 million TEUs, helping explain the need for increased shipping tonnage over the longer term.

Trade war implications and bunker fuel specification change are expected to remain in focus

Tariffs spur growth in trans-Pac spot rates higher than after Hanjin collapse

Year-over-year change in SCFI spot rates per FEU to US West



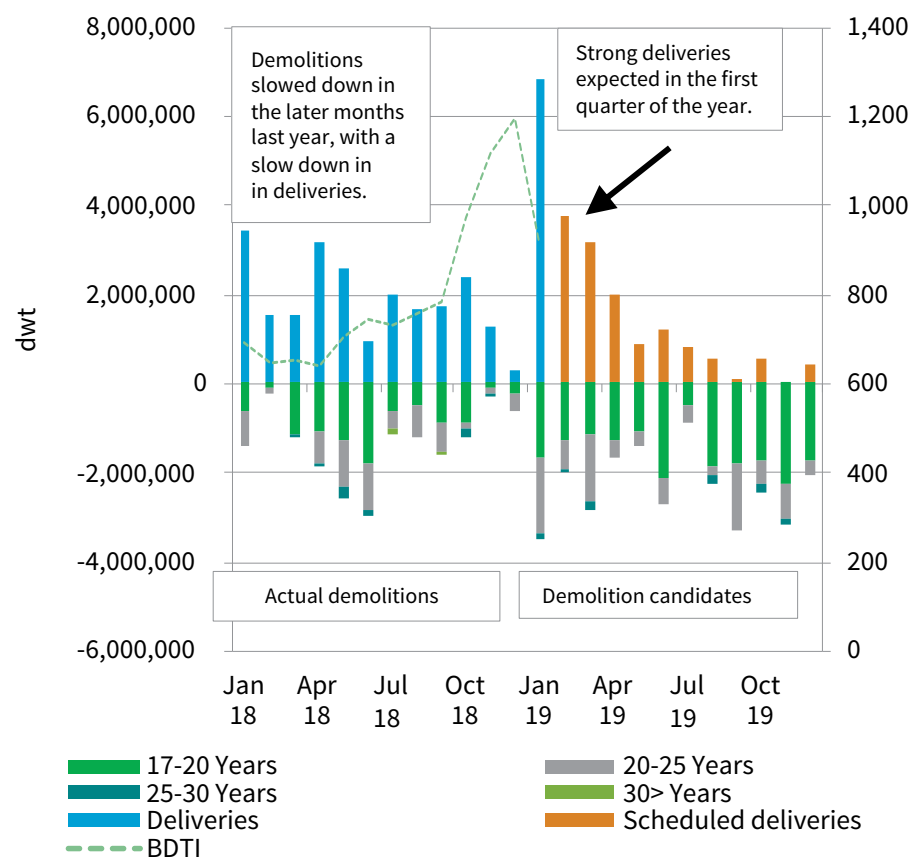
Source: JOC and Shanghai Shipping Exchange

© 2019 IHS Markit

- Operators are expected to keep an eye on capacity control on major lines including Far East to Europe trade lines, where larger vessels are utilized. The fleet growth is expected to remain under control, which is another positive for operators. Some leading operators seem to be moving into added value territory with recent announcements from Maersk, rather than competing on market share.
- Following Buenos Aires talks, the US tariffs 25% rise, aimed at Chinese exports has been postponed for three months. According to JOC, the shippers incentivized imports in the last quarter of last year in order to avoid the rise in tariffs. Rates climbed down since its November/December peak and slightly peaked again in preparation for the lunar new year. How tariff talks between China and the United States play out will determine whether trans-Pacific volume and rates remain strong as the US economy continues to expand. If both sides can reach an agreement, the high freight rates that will result from the rush to beat tariffs and Lunar New Year factory closings will carry into the annual trans-Pacific contract talks and put carriers in a position of strength for negotiations. If no deal is reached, shippers will be better placed to pressure carriers for concessions because of expected weak demand, but the low-sulfur fuel rule will complicate efforts.
- The trans-Atlantic trade is one of the world's most stable, as carriers manage capacity much more effectively than the Asia-Europe and trans-Pacific routes, but reliability is a major concern. Shippers can expect relatively minor fluctuations in rates depending on how supply and demand develops, and rates will start 2019 at levels above those at the outset of 2018.

Despite freight rates recovery in the last quarter of 2018, newbuilding deliveries are expected to weigh in on freight earnings in the first half of 2019

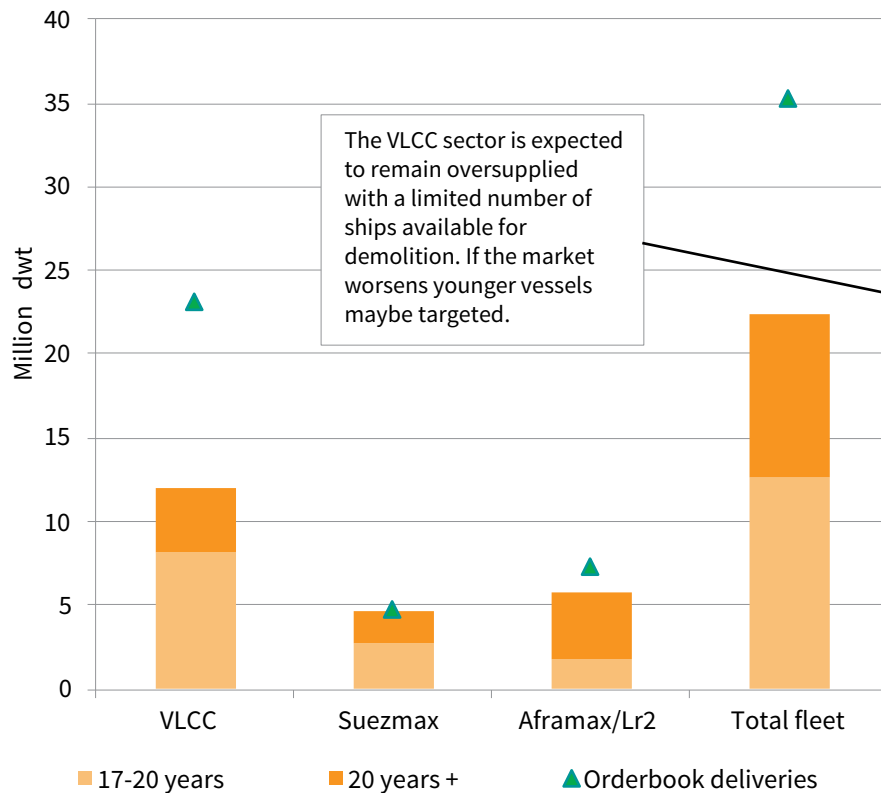
Deliveries and demolitions to intensify in the first half of the year



- Freight earnings started recovering in the last quarter in 2018, particularly in the VLCC sector, as seasonal demand started growing and deliveries started slowing down, consequently slowing demolitions.
- More than 80% of total capacity scheduled for delivery next year is scheduled for the first half of the year. The majority of fleet on order are in the VLCC sector.
- Although some deliveries are expected to be postponed, this is expected to put a downward pressure on freight rates which in turn is expected to intensify demolitions.
- Despite a larger number of potential demolition candidates only a handful of vessels were sent to breaking yards so far this year, mainly in the Suezmax and Aframax sectors. Demolition will continue to be used as a market adjustment factor and older inefficient units are expected to be sent to break yards.
- Announced scrubber fittings are expected to have a limited effect on freight rates as a portion of those are expected to be fitted within the next dry docking. Although it is worth noting that moving a larger number of ships into scrubber retrofitting (particularly in the VLCC sector) at the same time may distort the market supply at some stages.
- Expected OPEC cuts due to production growth coming from US, will have a negative effect on tanker demand. There are also signs of deceleration of global economies which is worrying for crude oil demand and tanker demand all together.

Our baseline forecast expects trade growth on major trade routes

Tankers demolition age structure

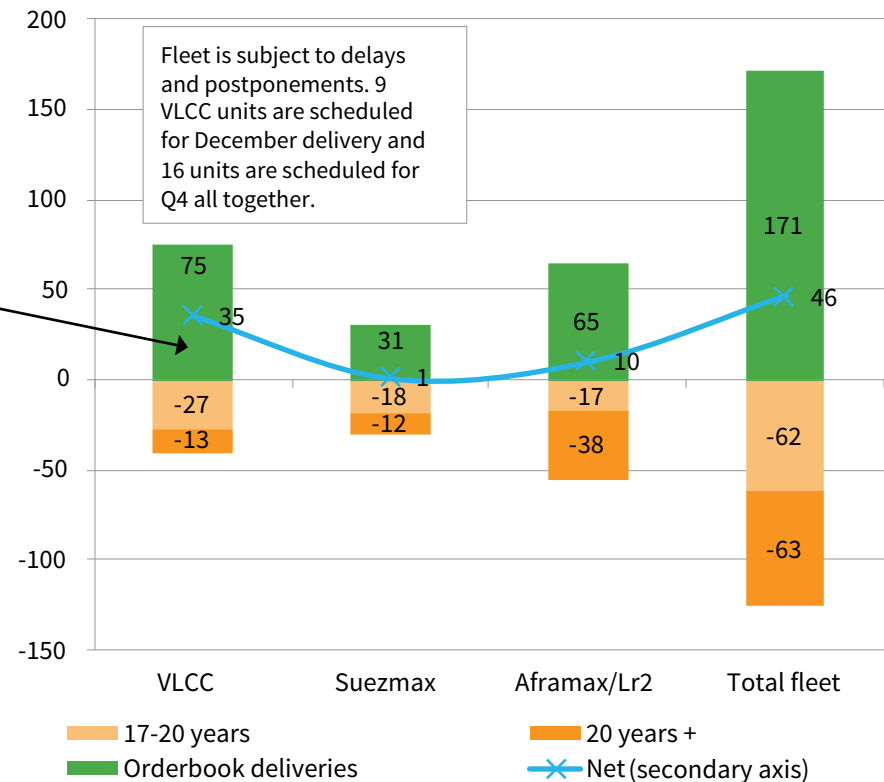


Notes: Total number of ships due for dry docking in 2019; when next dry docking information unavailable, we calculated dry docking age from historical information.

Source: IHS Markit

© 2019 IHS Markit

Tanker orderbook deliveries vs demolition potential 2019



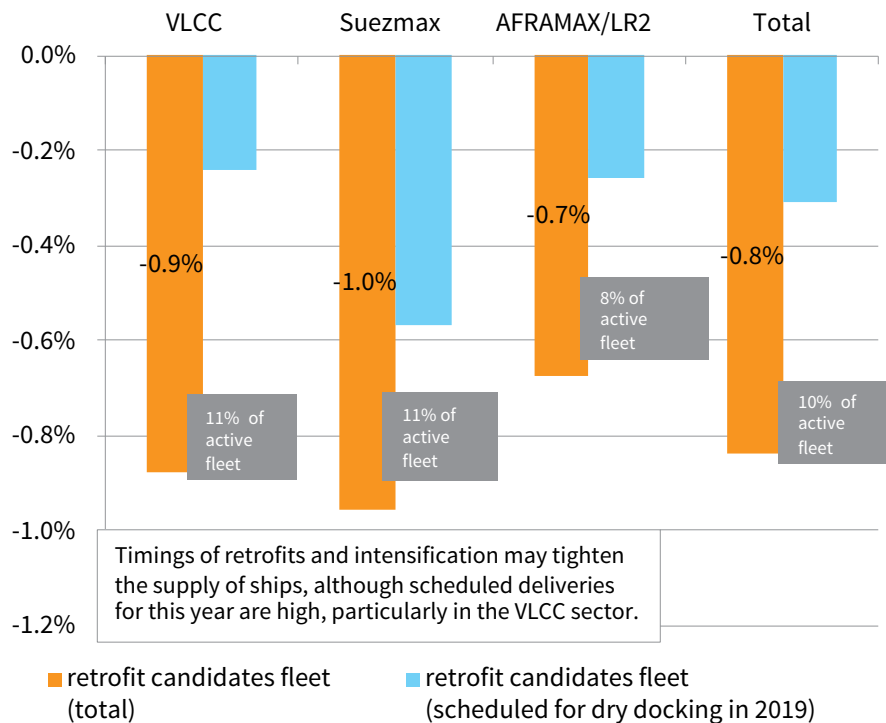
Notes: Total number of ships in the age bracket due for dry docking in 2019; when next dry docking information unavailable, we calculated dry docking age from historical information.

Source: IHS Markit

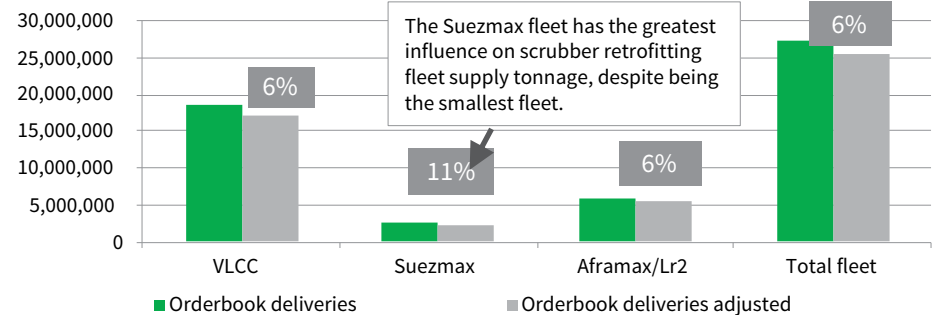
© 2019 IHS Markit

Announced scrubber fittings are expected to have a limited effect on freight rates but intensification of retrofitting may distort supply side

Confirmed and unconfirmed scrubber fitting tonnage influence on fleet supply (2018 fleet size)



2019 scheduled deliveries capacity adjusted for Scrubber fitting tonnage (2019 Dry dockings)

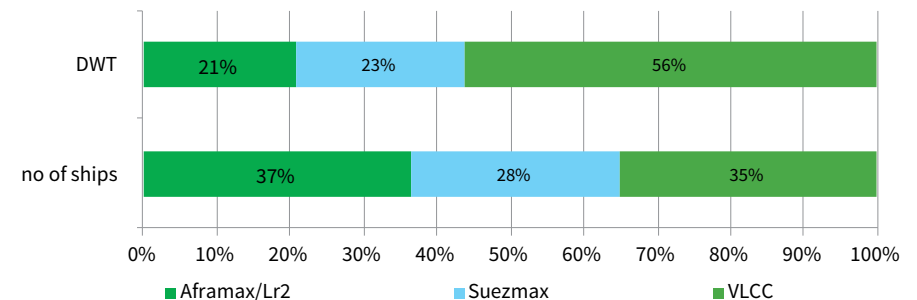


Notes: Scrubber fittings dates when non-available assumed to be around scheduled dry dockings time. The scrubber fitting information is collected from company announcement, press releases news websites and through various companies.

Source: IHS Markit

© 2019 IHS Markit

Confirmed and unconfirmed retrofits - vessel size breakdown



Notes: Scrubber fittings dates when non-available assumed to be around scheduled dry dockings time. The scrubber fitting information is collected from company announcement, press releases news websites and through various companies.

Source: IHS Markit

© 2019 IHS Markit

Notes: Scrubber fittings dates when non-available assumed to be around scheduled dry dockings time. The scrubber fitting information is collected from company announcement, press releases news websites and through various companies.

Source: IHS Markit

© 2019 IHS Markit

ROI for scrubber installation favours larger units – scrubber installation may not be the sole-reserve of young fleets

ROI for scrubbers on estimated CAPEX

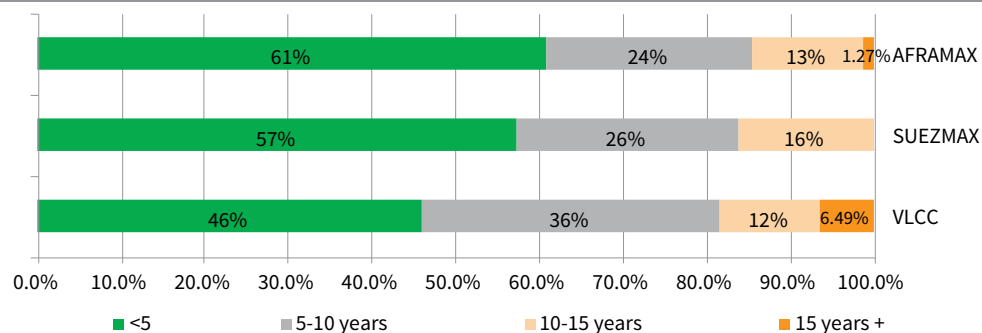
Ship type	VLCC	Suezmax	Panamax/LR1
Yearly LSFO/HSFO differential in million USD at (100\$/T)	2.1	1.3	0.9
Yearly LSFO/HSFO differential in million USD at (300\$/T)	6.5	4.0	2.7
Scrubber cost installation million USD	3-5	2-3	2-3
Estimated ROI in years - differential 100\$/T	1.7-2.8	1.7-2.5	2.4-3.6
Estimated ROI in years - differential 300\$/T	0.6-0.9	0.6-1.1	0.8-1.2

Notes: Yearly steaming at 300 days per year; Consumption numbers estimated/adjusted for slow steaming. Yearly scrubbers operating costs; cost of immobilization/time of charter and capital costs not taken into account

Source: IHS Markit

© 2019 IHS Markit

Scrubber retrofitting announcements - age profile



Notes: The scrubber fitting information is collected from company announcements, press releases, news websites and through various sources. Non-confirmed scrubber fitting numbers are subject to change and fleet slippage..

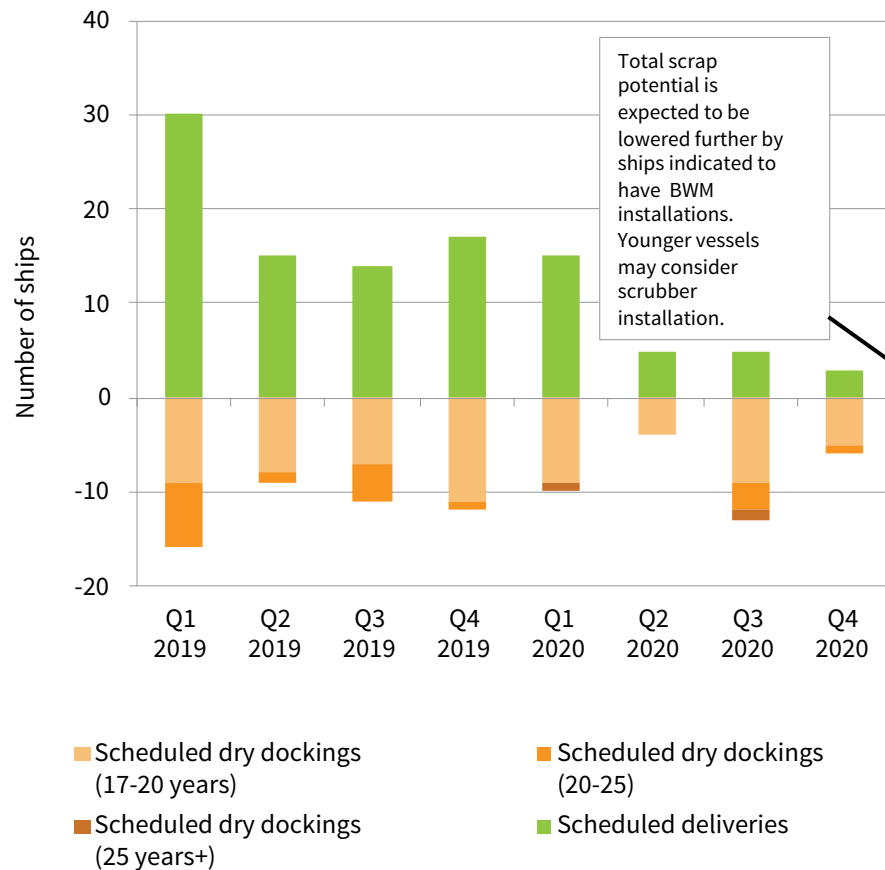
Source: IHS Markit

© 2019 IHS Markit

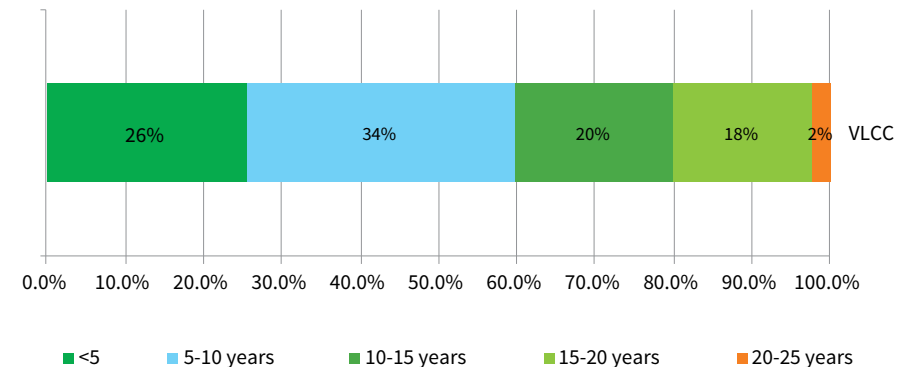
Confirmed scrubbers fittings	In service No of ships	In service DWT	On order No of ships	On order DWT
VLCC	12	3,785,507	48	14,830,012
Suezmax	7	1,064,900	19	2,944,193
Aframax/LR2	10	1,124,968	14	1,575,430
Total	29	5,975,375	81	19,349,635

VLCC sector is expected to see the majority of older scrap candidates removed this year – some relief is expected to come from scrubber fittings

VLCC - quarterly scheduled deliveries and demolitions



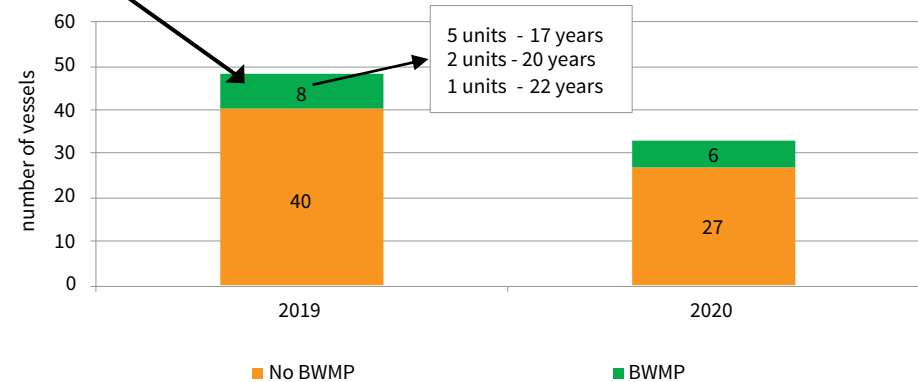
VLCC fleet age profile



Source: IHS Markit

© 2019 IHS Markit

Demolition candidates BWMP installation indication



Source: IHS Markit

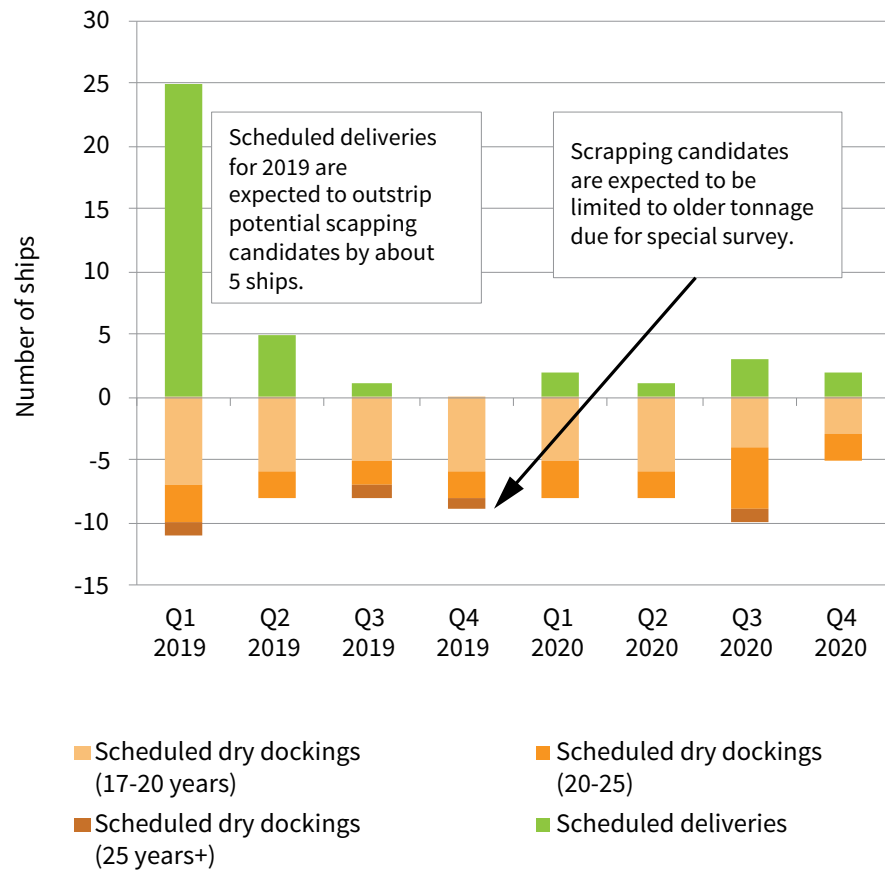
© 2019 IHS Markit

Source: IHS Markit

© 2019 IHS Markit

Suezmax – drop in scheduled deliveries is expected to relieve pressure of demolition candidates in the latter part of the year

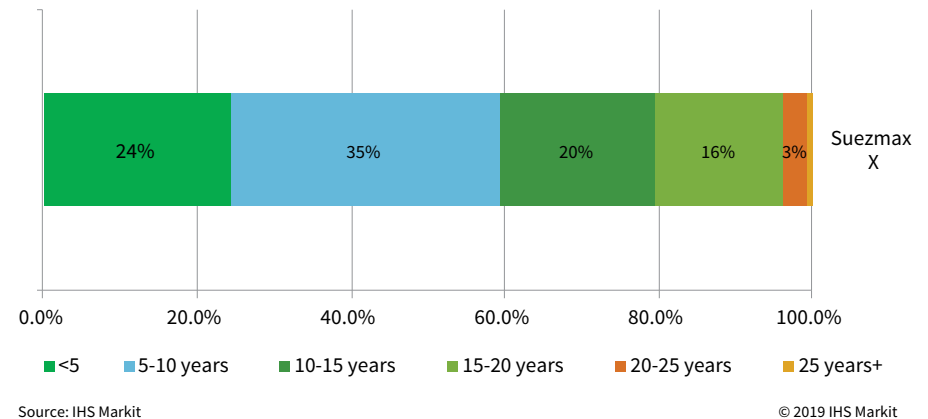
Suezmax - quarterly scheduled deliveries and demolitions



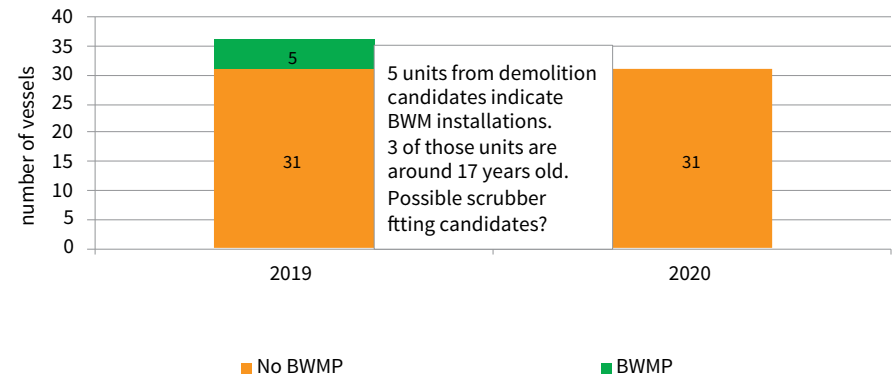
Source: IHS Markit

© 2019 IHS Markit

Suezmax fleet age profile



Demolition candidates BWMP installation indication

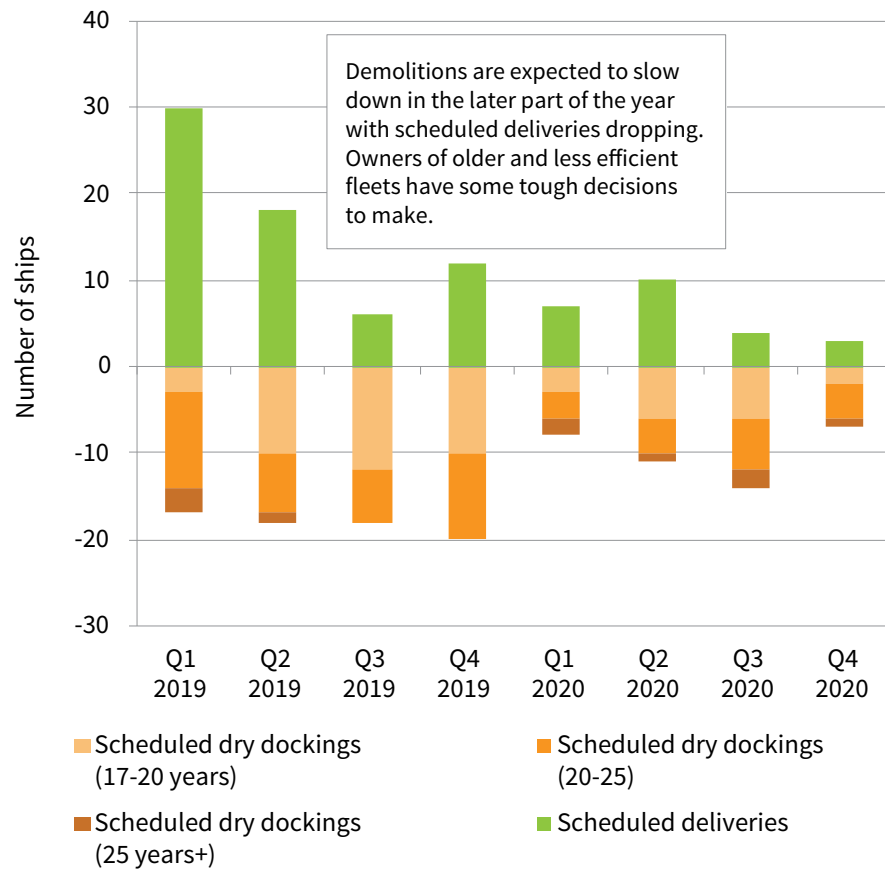


Source: IHS Markit

© 2019 IHS Markit

Aframax/LR2 – older and less efficient units are expected to be under pressure due to newbuilding deliveries and IMO 2020 fuel spec change

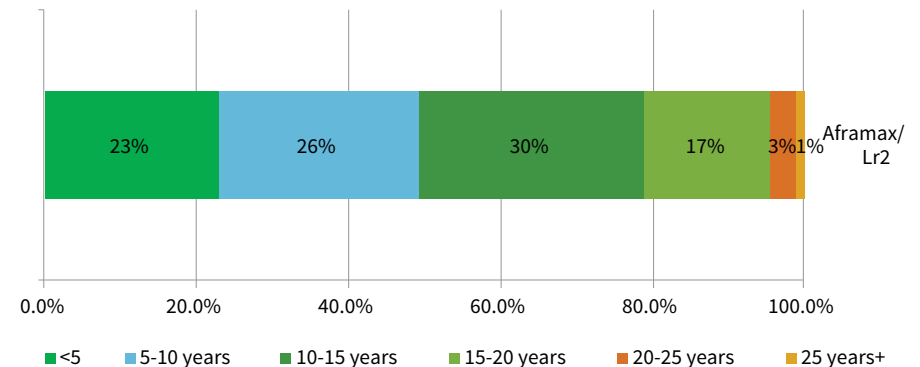
Aframax - quarterly scheduled deliveries and demolitions



Source: IHS Markit

© 2019 IHS Markit

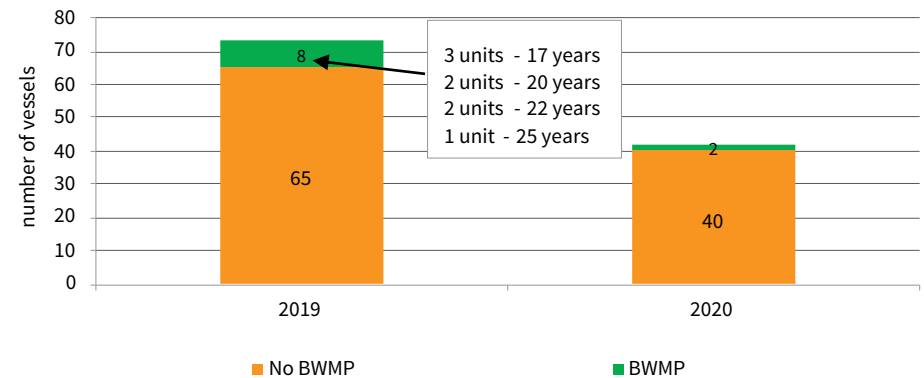
Aframax/Lr2 fleet age profile



Source: IHS Markit

© 2019 IHS Markit

Demolition candidates BWMP installation indication

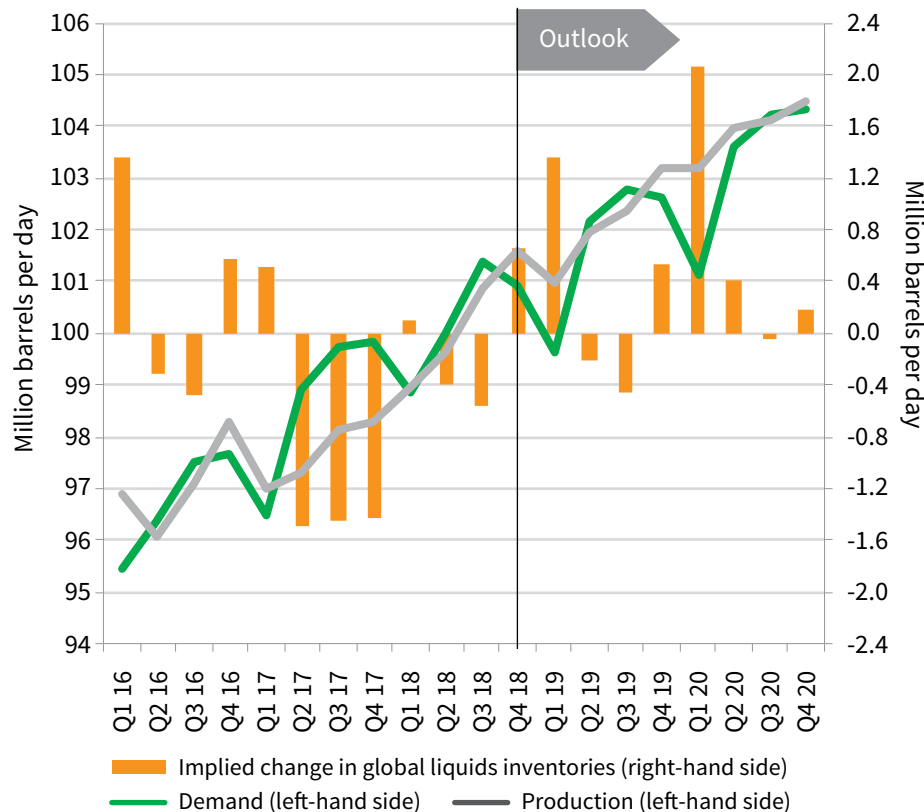


Source: IHS Markit

© 2019 IHS Markit

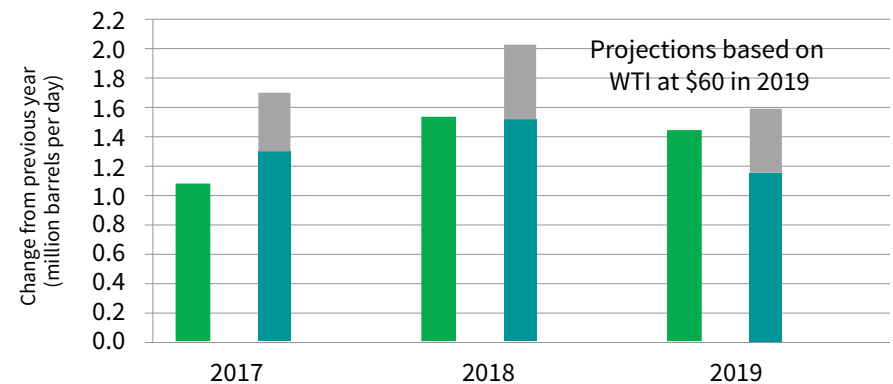
Global balances set to loosen in 2019–20; as US supply rises rapidly, Gulf-3 will likely return to active market management to keep global supply in check

World oil (liquids) demand and production, and implied change in global liquids inventories



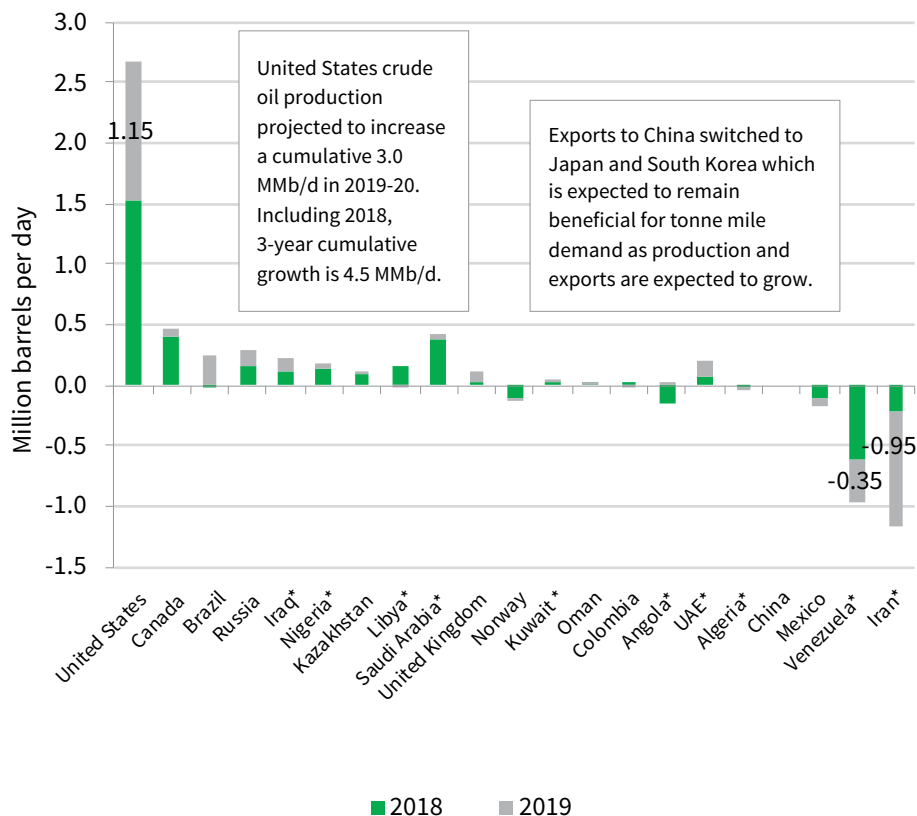
- On the supply side, the bad news is that the Vienna Alliance – OPEC countries plus Russia, reversed their previous decision and decided to cut oil production. Active supply management seems to be needed in order to support prices/balances as the US is set to increase its production even further.
- United States crude oil production projected to increase a cumulative 3.0 MMb/d in 2019-20. Including 2018, 3-year cumulative growth is 4.5 MMb/d. Nearly 80% of new US lower-48 onshore barrels in 2019-20 will come from wells that breakeven below \$50/bbl WTI which will make the Vienna alliance more difficult, particularly through Q1 2019.

Will it happen again in 2019? Growth in world oil demand and US production from preceding year

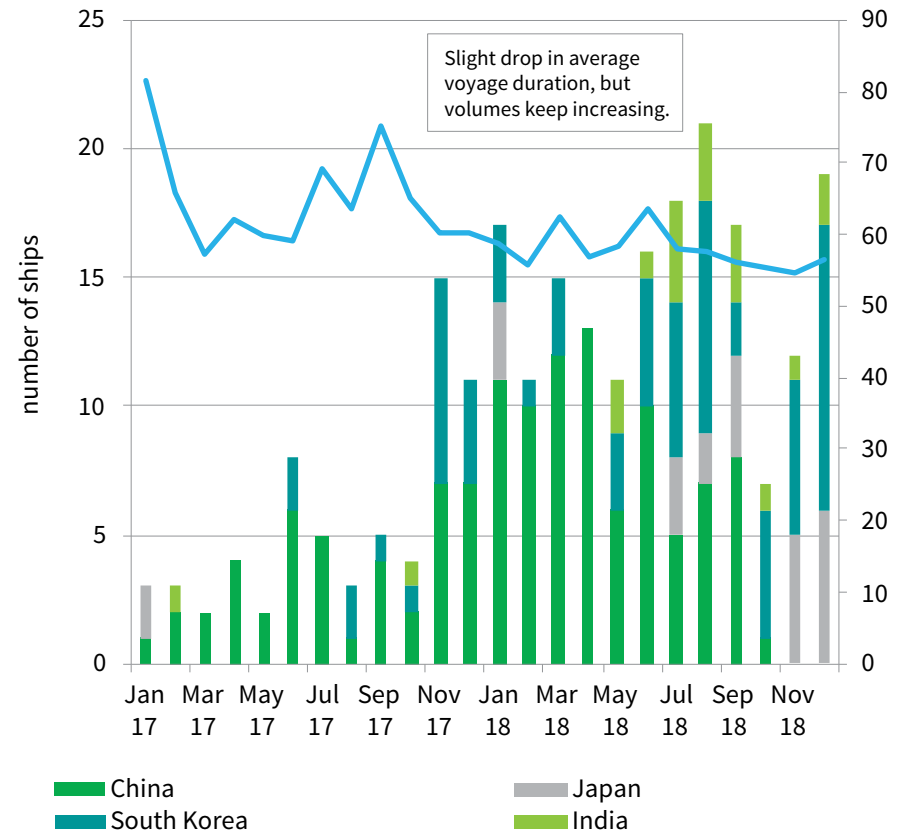


US production growth is expected to support exports further, currently exports are curtailed by infrastructure but this will change come 2020

Annual change in crude oil output for large global producers, 2018–20



VLCC loadings in US by destination



Note: * indicates OPEC member

Source: IHS Markit; IHS Markit Global Crude Oil Markets Short-Term Outlook - December 2018

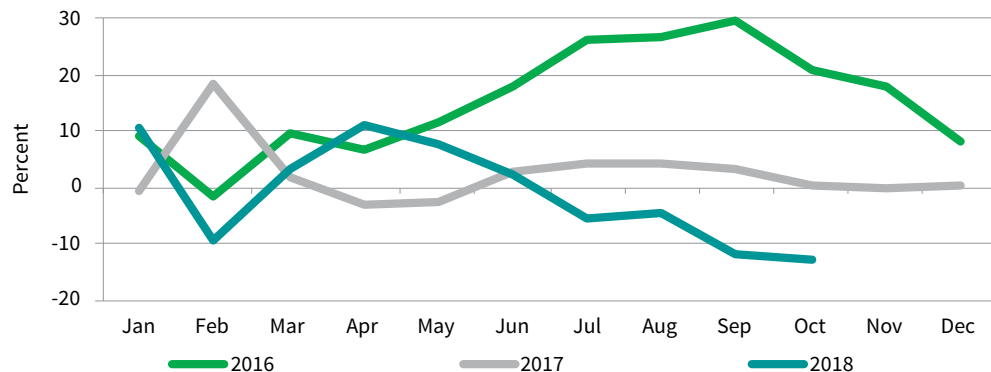
© 2019 IHS Markit

Source: IHS Markit

© 2019 IHS Markit

While demand continues to grow by 1.4 MMb/d in 2019; Supply growth is expected to match the growth with 1.5MMB/d

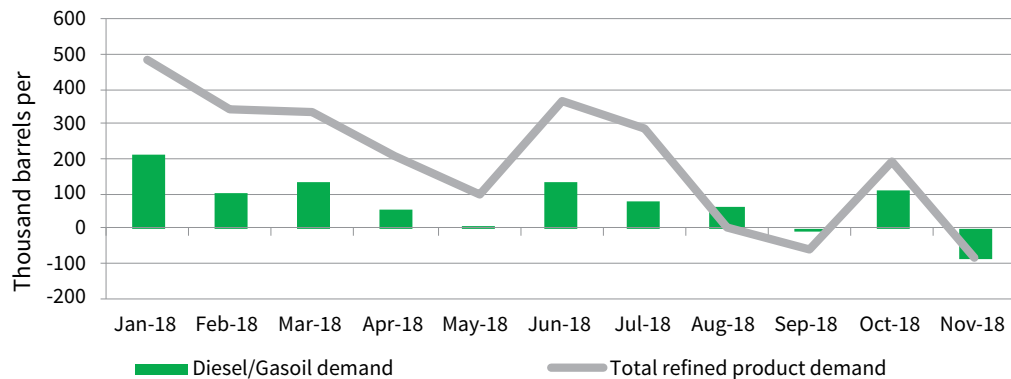
China passenger car sales growth, year-on-year



Source: IHS Markit; IHS Markit Global Crude Oil Markets Short-Term Outlook - December 2018

© 2019 IHS Markit

Net change in India refined product demand, year-on-year



Source: IHS Markit; IHS Markit Global Crude Oil Markets Short-Term Outlook - December 2018

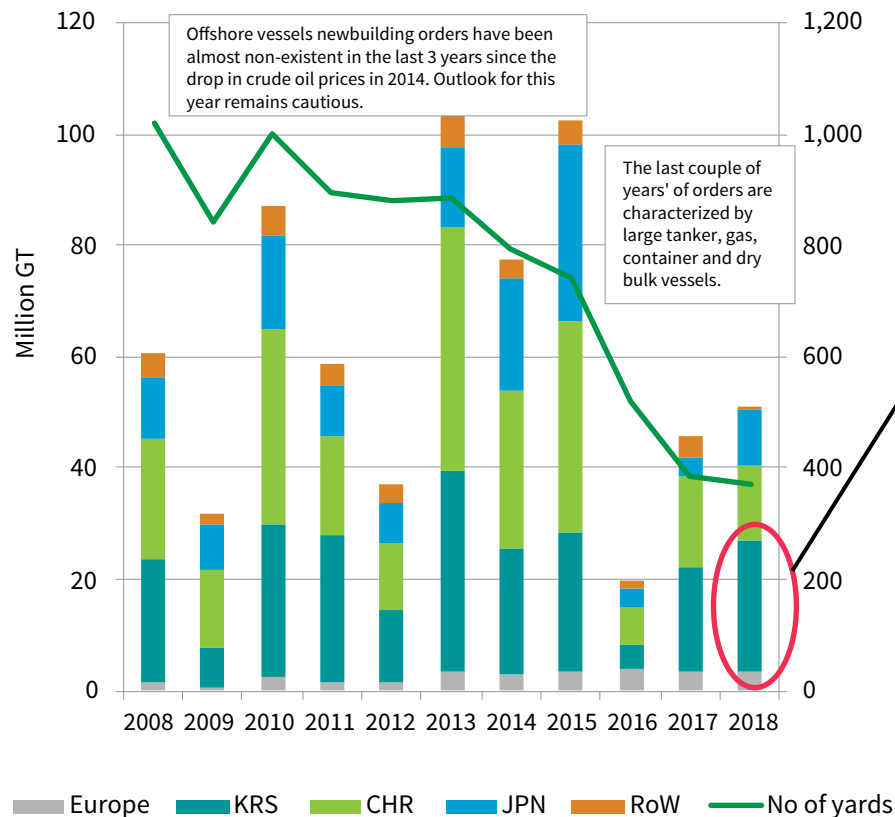
© 2019 IHS Markit

- Refining crack spreads depict a deteriorating global refinery margins environment that will likely act as a headwind for crude demand and in turn the Vienna Alliance's market management efforts in Q1 2019.
- US gasoline demand fell 260,000 bd year-on-year in September 2018. US gasoline margins have tumbled in Q4 2018.
- By November 2018 India's refined products demand had continued to reduce causing a material contraction in diesel consumption.
- The contraction in China's vehicle sales growth relative to year prior levels for six consecutive months suggests mounting pressure on gasoline demand.
- While these trends reflect demand fears, it is too early to tell whether these data points are indicative of a broader slowdown.
- Some of the economic pressure can be offset (even temporarily) as the recent decline in crude oil prices has translated (to a varying degree) into lower refined product prices, helping to ease price pressure on consumers.

Source: IHS Markit Global Crude Oil Markets Short-Term Outlook - December 2018

Majority of retrofits are expected in larger ships, although the decision will make economical sense for smaller vessels used on longer routes

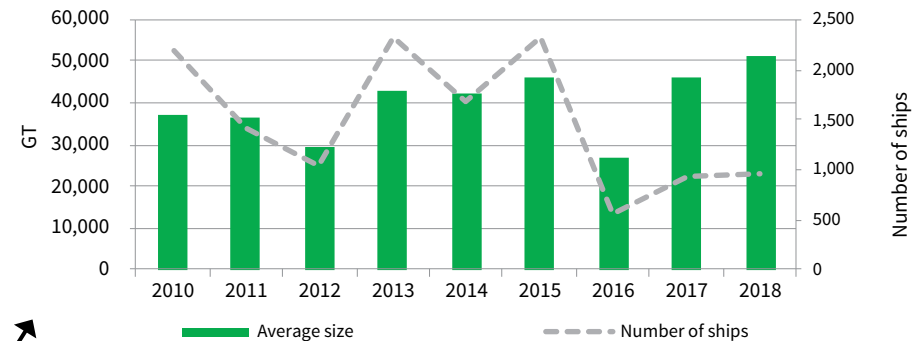
Ordering activity versus number of yards taking orders



Notes: Vessels over 100 gt
Source: IHS Markit

© 2019 IHS Markit

Average ship on order getting bigger again



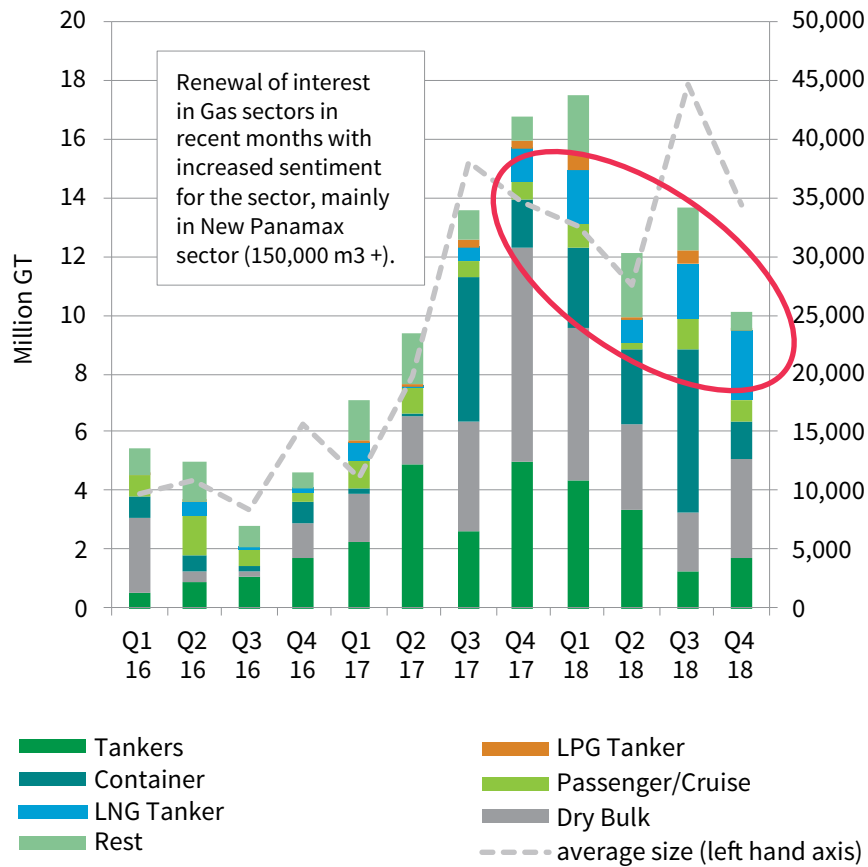
Notes: Ship types included: Tankers (Gas and liquid), Dry Bulk, Container, Ro-ro, Vehicle carriers, General Cargo, Cruise
Source: IHS Markit

© 2019 IHS Markit

- Korean yards newbuilding orders almost reached the level of orders seen in 2015. This is 5th best result for Korean yards in the last ten years which have been turbulent, a result that can not be disregarded considering owners are very cautious about newbuilding orders, and that sentiment in the majority of markets is "cautiously optimistic at best." Korean yards managed to capture the majority of large vessels on order as shipowners appetite for fleet expansion in the last few years switched to large Tanker and Container units, where Korean yards specialize. During last year there have been calls from Europe and Japan to curtail on state help and propping of Korean shipyards. Drop in shipyard activity can be attributed mostly to drop in newbuilding orders in Chinese yards, and newbuilding orders but also partially to the demise of specialist sectors such as Offshore since 2015.

Total capacity of orders grew last year, but number of yards taking orders dropped even further

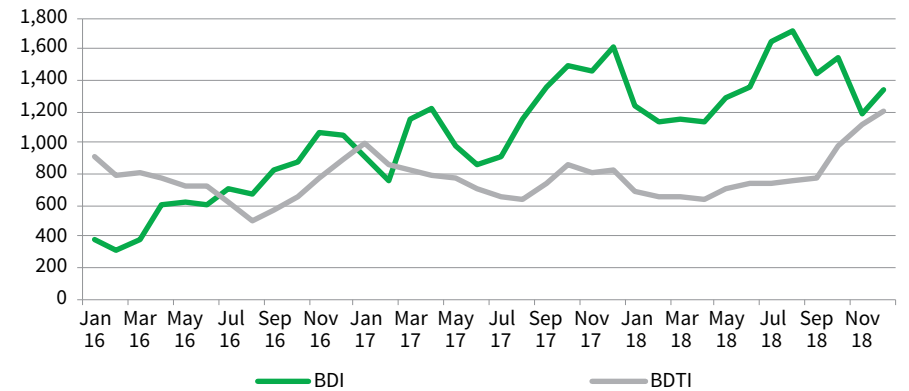
Ordering - some recovery in the last few quarters in capacity orders



Source: IHS Markit

© 2019 IHS Markit

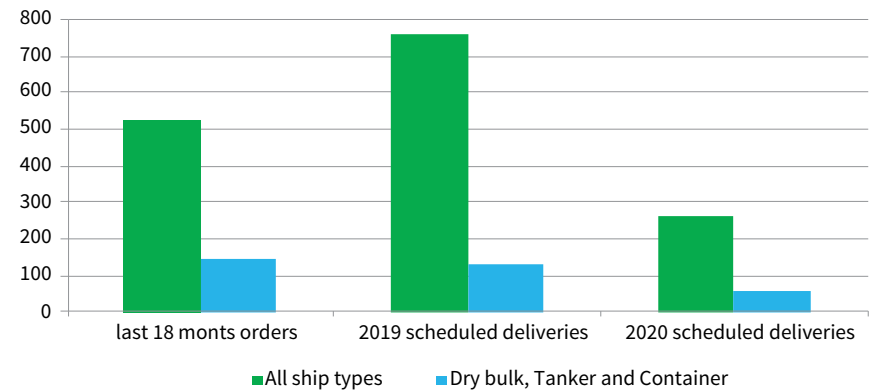
Major indexes monthly averages



Source: IHS Markit; Baltic exchange

© 2019 IHS Markit

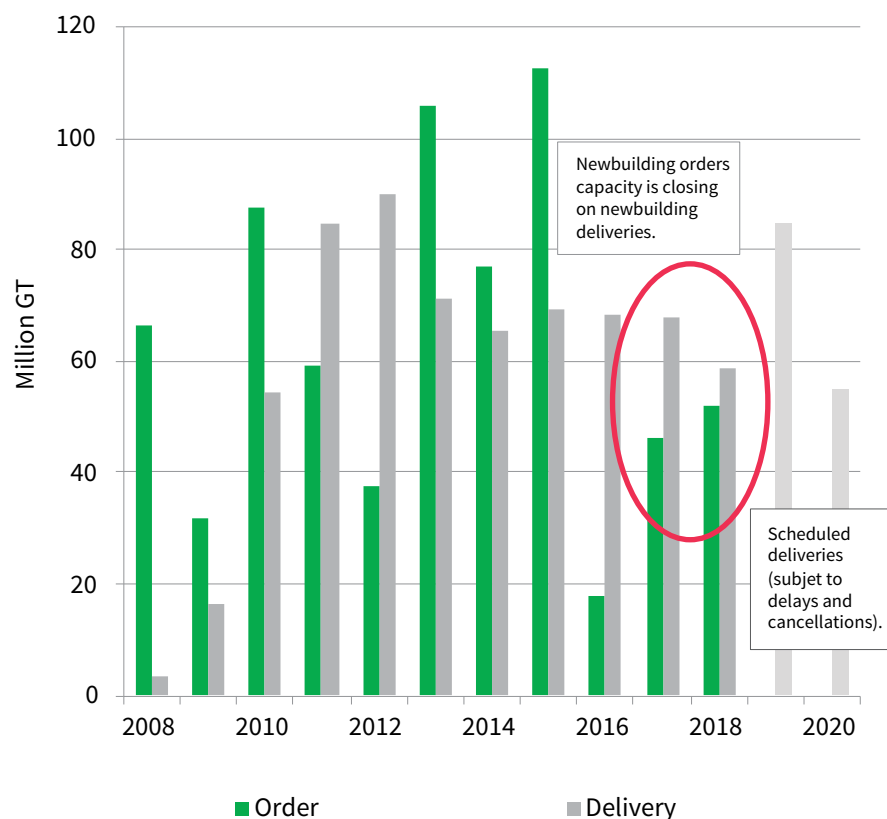
Number of shipyards - orders and scheduled deliveries



Source: IHS Markit

Majority of retrofits are expected in larger ships, although the decision will make economical sense for smaller vessels used on longer routes

Ordering versus deliveries

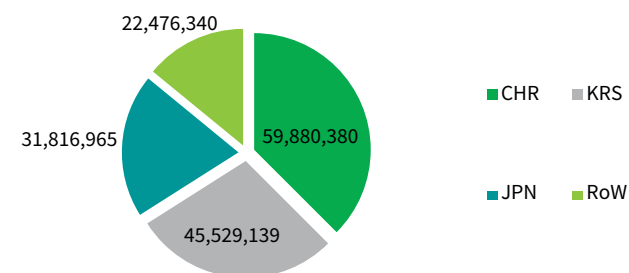


Notes: Vessels over 100 gt
Source: IHS Markit

© 2019 IHS Markit

- There is still a large number of orders sitting on orderbook and despite a large number of orders taken in 2018 in Korean yards, the largest capacity to be built still remains in Chinese yards.
- Market conditions have been challenging in the last three years with the majority of sectors suffering greatly. With signs of recovery orderbooks are starting to grow, although still a far cry from orderbooks between 2013 and 2015.
- With IMO 2020 closing in, there is a general notion that demolitions may incentivise, but that will heavily depend on freight rates earnings that may get pushed up by supply side distortion related to fuel availability and scrubber retrofitting in some sectors and sudden upward demand movements. This certainly can push demand for older vessels and in case of high differential and short ROI may incentivise scrubber adoption for some older vessels.

Total orderbook per country of build



Source: IHS Markit

© 2019 IHS Markit

Find out more

For more information please contact:

DALIBOR GOGIC

Principal Analyst

T +44(0)2032532388

E dalibor.gogic@ihsmarkit.com

CUSTOMER CARE

AMERICA

T +1 800 447 2273 (1 800 IHS CARE)

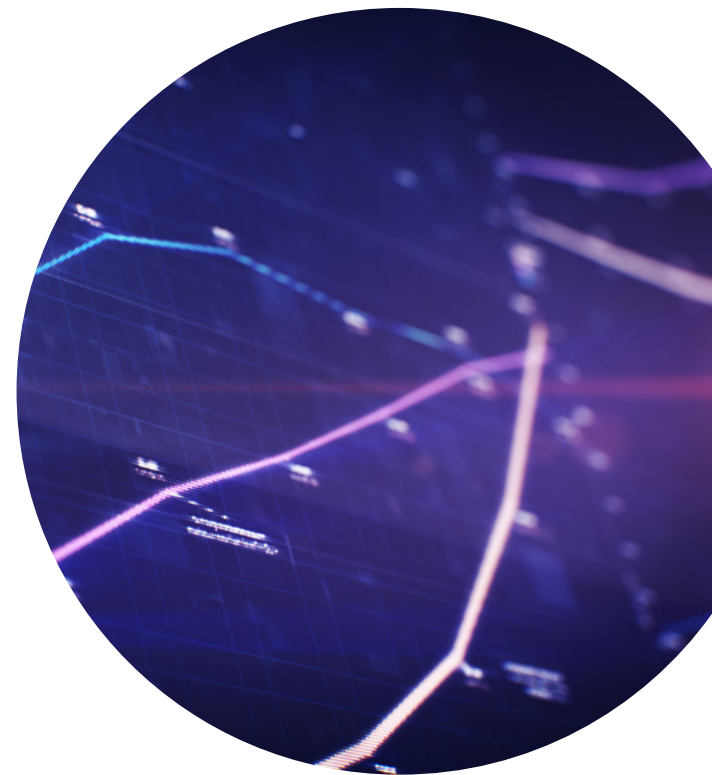
EUROPE, MIDDLE EAST AND AFRICA

T +44 1344 328 300

ASIA PACIFIC

T +604 291 3600

E CustomerCare@ihsmarkit.com



About IHS Markit

IHS Markit (Nasdaq: INFO) is a world leader in critical information, analytics and solutions for the major industries and markets that drive economies worldwide. The company delivers next-generation information, analytics and solutions to customers in business, finance and government, improving their operational efficiency and providing deep insights that lead to well-informed, confident decisions. IHS Markit has more than 50,000 key business and government customers, including 80 percent of the Fortune Global 500 and the world's leading financial institutions. Headquartered in London, IHS Markit is committed to sustainable, profitable growth.

ihsmarkit.com/maritime_trade