Splash EXTRA

"A multi-year bull run starts with stocks that are very dislocated"

— Robert Bugbee, Scorpio's president

Hydrogen's belated strides to become shipping's real alternative fuel 8

Perfect storm hits dry bulk

Owners brace for bad year as BDI drops by a third this month to 797 points

Dry bulk owners are rapidly having to accept that this year risks being a worse year than 2018 with the very real threat of more bankruptcies hitting the sector that has yet to get off the floor from the global financial crisis.

The Baltic Dry Index closed on Tuesday at just 797 points, down by a third in January alone, hit by a string of disasters around the world as well as weakening demand and still too few ships heading for scrap.

The period between Christmas and Chinese New Year is rarely strong for the sector, but the past month has been disastrous, putting many owners on edge.

A deadly dam collapse at a Vale mine in Brazil on Friday combined with the cyclone season in Australia and a massive outbreak of swine flu in China have all combined to severely damage the sector's already weakened sentiment.

"This has been much more than a seasonal drop," said Jeffrey Landsberg from Commodore Research. "The global economy - both inside and outside of China - is continuing to show real distress. There also remain structural commodity import changes in China, and of course US soybean cargoes are also not flowing freely yet."

Joakim Hannisdahl, head of research at Cleaves Securities, noted how dry bulk shares were "slaughtered" on Monday thanks to the "perfect storm" of outside events hitting dry bulk.

The dam break in Brazil could potentially impact dry bulk demand growth by around 1% in 2019, Cleaves is predicting, reducing its demand growth forecast from 4% to 3%.

"What is more profound is how much risk/downside that are already priced into dry bulk shares," Hannisdahl told *Splash Extra*, noting how Genco Shipping is trading at a 27% discount to steel, implying vessel values at all-time lows.

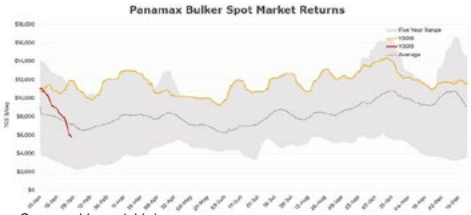
Dr Martin Stopford, president of Clarksons Research, commented: "The dry market is currently stuck in a rut, so bumps are to be expected."

With modest overcapacity tied up in slow steaming, deliveries are edging down, but so is trade growth, Stopford pointed out, suggesting today's market was similar to the 1990s, being "bumpy and vulnerable to swings of sentiment".

While the Vale disruption adds an extra kink to the demand picture it is other commodities that are cause for greater concern.

William Tooth, an analyst at Maritime Strategies International (MSI), pinpointed soybeans and coal.

Over 900,000 pigs have been culled in China following an outbreak of African swine fever. If the problem persists and swine numbers in China continue to decrease then the impact on soybean demand could be significant, Tooth warned. Moreover, dry weather in Brazil has weighed on yield expectations which are now 10-20% below what had previously been expected.



Source: VesselsValue

Very strong domestic production of coal in China, reaching highs last month not seen for 42 months, has not helped either.

Even the normally bullish John Michael Radziwill was cautious when contacted by *Splash Extra* yesterday.

"We are undeniably feeling macro headwinds at the moment heading into 2019 with the uncertainty created by US-Chinese relations affecting the global grain market as well as a subdued coal trade due to high stocks at the major importers, China and India," the GoodBulk boss said.

Khalid Hashim, managing director of Thailand's Precious Shipping and a vocal proponent of greater scrapping, reiterated what he has been saying in multiple quarterly newsletters in recent years.

"We had all along suggested that the dry bulk recovery would be solely demand led and would, therefore, be extremely volatile, prone to any movement, no matter how small or large, in the demand side of the cycle."

Hashim concluded in familiar fashion, telling *Splash Extra*: "The solution is staring shipowners in their collective faces. Recycle more ships, stop ordering ships, delay ships already ordered." ●

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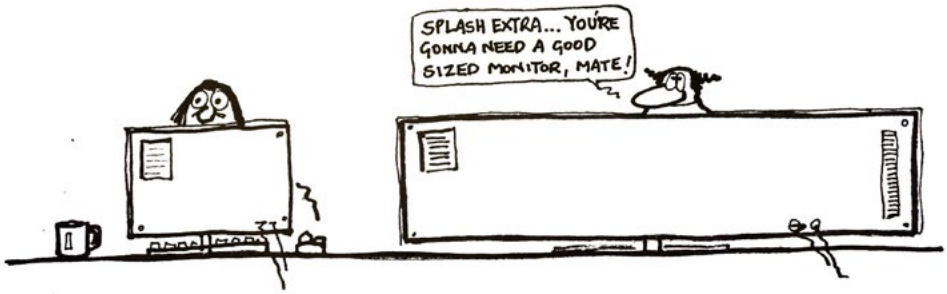
The big picture for you, dear reader



In these days of constantly connected news portals it is becoming increasingly difficult to see the big pictures behind the breaking stories. The rush to be first with the news, combined with smaller and smaller editorial outlays, often leads journalists to forget to impart the importance of any given development to their audience, something a mentor of mine from many years back used to describe as the 'dear reader' part of an article. Any hack can do the who, where and what of daily reporting; getting the 'why' part down pat is a finer art.

When we established *Splash* nearly four years ago the aim was to create a news service that delivered exclusive, concise and relevant news, something to cleanly cut through the clutter of what had become a flabby maritime media landscape.

The title has gone on to greater heights than we could ever have imagined with more than 250,000 of you clocking in each month to get your daily dose of shipping developments from around the world. Our newsletter, *Daily Splash*, serves as the perfect heads-up for the busy maritime executive to stay abreast of the most important shipping stories every day.

Rest assured, we do not aim to tinker with *Splash* as we feel we have the perfect model to impart the best shipping news available, and still all for free.

Where we felt there was a niche for our team of writers to exploit was in taking a step back from the rolling news cycle and delivering the bigger picture to busy shipping folk around the globe. With *Splash Extra* we're hopefully producing something that in the space of just 12 or 13 pages will impart knowledge as well as bring everyone up to speed with key topics affecting our industry.

We've handpicked a stellar team to deliver market analysis, financial and technical reporting, combined with unique data feeds and the best opinion writers in the business. What appears on this monthly subscription product will not appear anywhere else.

Priced for as little as $100 a year, *Splash Extra* provides people in our business with all they need to know to have the pulse of the shipping industry in an easy-to-read format delivered directly to their inbox.

On top of the single user subscription, corporate subscriptions are available providing global workforces with a well-priced, excellent, concise way to keep up with all the latest trends and developments in shipping.

I do hope you enjoy this first issue and I'm keen to hear from you, dear reader, how we can improve. Feel free to drop me a line at sam@asiashippingmedia.com.

To subscribe to this new title go to www.splashextra.com. ●

CONTENTS

Product and chemical tanker consolidation proceeded apace in January. **BW Tankers** competed its merger with Denmark's **Hafnia Tankers**, creating a company with the world's largest product tanker fleet. The merged entity features 102 product tankers, four newbuildings and three product tanker pools. Michael Skov, Hafnia's CEO, has become CEO of the merged company.

Idan Ofer's Singapore-based **Eastern Pacific Shipping** and Israel-based **XT Shipping** acquired the chemical tanker fleet of **BW Chemical Tankers**. The deal – worth approximately $350m – for 13 vessels had subjects lifted just before Christmas after financing was put in place. The vessels were acquired between the two Ofer companies with a view to taking advantage of an improving chemical tanker market. Now that subjects are lifted, over the next six months delivery of the vessels will be completed and all 13 will go into the Ace Quantum chemical tanker pool, which will grow to around 35 ships.

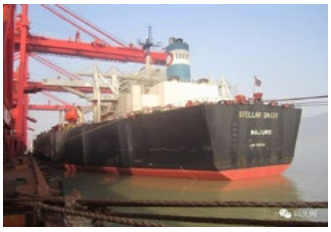
Mitsui OSK Lines' Singapore subsidiary, **MOL Chemical Tankers**, sealed a deal with private equity concern Triton to acquire Danish owner **Nordic Tankers**. Upon completion of the deal, expected next month, the company will be renamed MOL Nordic Tankers. MOL Chemical Tankers currently operates 56 chemical tankers, and the addition of Nordic Tankers will add a further 19 chemical tankers to its fleet.

Dutch outfit **Spliethoff** swooped for all five ships previously owned by bust **Hansa Heavy Lift**. No price has been revealed for the geared ships although online pricing portal VesselsValue put the combined price tag for the five ships at $39m. Hansa Heavy, the Hamburg-based successor to Beluga Shipping, declared its insolvency last month.

Danish gas ship owner **Evergas** offloaded its fleet of eight liquid ethylene gas carriers for $200m. It is believed that **Unigas** acquired the ships. Unigas is a pool operating for Schulte Group, Sloman Neptun and Ultragas, and rumours are the vessels have been split 3/3/2 amongst them with delivery scheduled for next month.

China Navigation Company (CNCo), part of the Swire Group, reached an agreement with **Hamburg Süd** to buy the German owner's bulk shipping business, including Rudolf A. Oetker, Furness Withy Chartering and the bulk activities within Alianca Navegacão (Aliabulk). Hamburg Süd's bulk business has a chartered fleet of around 45 vessels. In December 2017, Hamburg Süd was acquired from the Oetker Group by Maersk.

Arrest warrants were sought for five men in connection with the sinking of the **Stellar Daisy** VLOC 22 months ago. The Polaris Shipping converted bulker sank in the South Atlantic in March 2017 with the loss of 22 lives. A judge in Busan gave the go-ahead to arrest Polaris's former head of maritime affairs and said he would wait to pass verdict on the others, including Polaris's CEO, after a deepsea search for the vessel was concluded in the coming days.



The port of **Fujairah** in the United Arab Emirates, a major bunkering hub, **banned the use of open-loop scrubbers**, following a growing numbers of ports around the globe including China.

The largest shipyard in Southeast Asia by area has filed for court receivership. **HHIC-Phil**, the Philippines affiliate of South Korea's Hanjin Heavy Industries and Construction, becomes the latest victim of the prolonged downturn in shipbuilding. A number of shipbuilders from across the world have been contacted by Manila to look at a possible takeover and the Philippine government has not ruled out nationalising the yard.

January blues

Dry bulk owners know well that the beginning of the year tends to be grim. However, 2019's dire start is now raising alarm bells

What a terrible start to the new year it has been. Freight rates falling in January at a pace only seen very few times since the world fell apart back in 2008-2009. It's only somewhat soothing to see that capesize freight rates are managing to stay on top and almost within the profitable range - at least by the time of writing this. As it all becomes irrational and wishful thinking – sentiment takes over to give everybody a turbulent shake.

Obviously, seasonality is king, right? Or wrong? The first quarter in a year is always a bit of a cold shower to the dry bulk shipping business as the heat comes off quite suddenly and leaves everybody in a condition that has similarities to a shock. Focus becomes even more short term than it already was, and we are all looking forward to re-emerging on the other side of Chinese New Year.

But this time around may be different. As it is with cycles and season, they look familiar on the surface, but there is often a twist to it, something you just don't see until it's right in your face.

The number of open spot ships in the market, mostly in the smaller sectors, has been increasing rapidly in January. Operators easily accept a few days of waiting – on their own accounts – in order to get a cargo that takes them to some other location. The bargaining is quickly concluded as the charterers hold all the winning cards.

What do we know? Brazilians are soon to resume exports of soy. Exports normally run high from March through to June/July and this year seems to be an early one. February may already lift demand for transportation out of the South American Atlantic coast going east. Picking up where they left in September/October – minding the gap that US soy used to fill in.

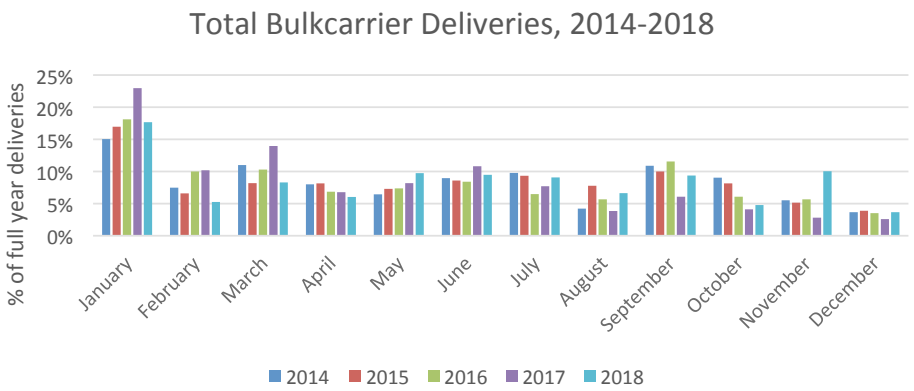
> *"The number of open spot ships in the market has been increasing rapidly in January"*

Speaking of seasonality – *Splash Extra* sees a trend here. There will be no help whatsoever from the supply side of the commercial realities. January is always a busy month for shipyards as they deliver an overwhelmingly large share of the annually tonnage within the first 31 days of every year.

And while we are at it – sentiment was very different back in November 2018. "Can I have my newbuilt ship delivered now, please!?" What a difference a crashing freight market makes.

What is left to hope for is that European animals stay hungry, as that seems to be the straw that US corn and soy exporters are clinging onto right now.

Shortsightedness amongst all market participants (deliberately or not) increases volatility and generates even more shortsightedness. It's a vicious circle that leaves all parties to sub-optimise rather than building strong mutually beneficial relationships for the future. Inescapable too it seems, at least until the markets catch a lasting break. Which could be in the form of a slower fleet growth (unlikely to happen in 2019) or geopolitics that facilitate trade for once as opposed to setting up more barriers to it. Close the hatches, the soft patch will get you wet, but should not capsize you.



Heading up into the sky

Splash Extra tanker analysis suggests we're in for a fun year ahead

Oil tankers are in for an amazingly exciting year. As the entire shipping industry prepares for the IMO 2020 sulphur cap the uncertainty around the global oil market is constantly getting bigger. Venezuela is once again at the brink of disaster, OPEC and friends are trying to control and limit oil production, while the US is trying to do the opposite. Iran is again facing sanctions and China stopped importing US crude several months ago. What a feast! Rumours have it that three VLCCs heading for Singapore with US crude oil are in fact set to be discharging in China.

In the final months of 2018, product tanker freight rates tracked crude oil carriers upwards, with a bit of time-lag. But January has seen both somewhat down again. But that time-lagged relationship may be off later in 2019.

Why? Fleet growth is the reason especially among VLCCs where fleet growth is picking up again in 2019. A constantly expanding fleet makes sure the lid stays on the can that holds much higher freight rates. Secondly, underlying oil consumption is simply not powerful enough to give tankers a positive spill over effect – as crude oil stock building during the second half of 2018 built a buffer. China, which is so much in love with VLCCs, and favours to buy oil when prices drop rapidly, is unlikely this year to repeat the massive import growth of 10+% that we saw in 2018.

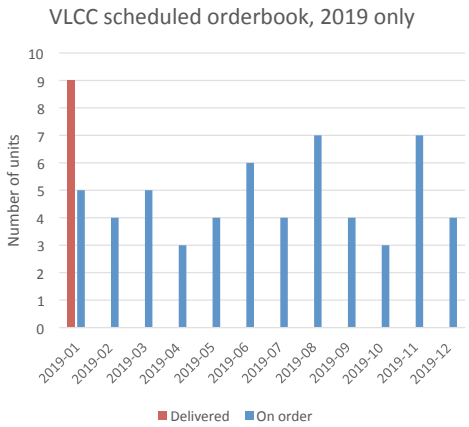
> *"The sulphur cap is a zero-sum game to a large extent for the tanker sector"*

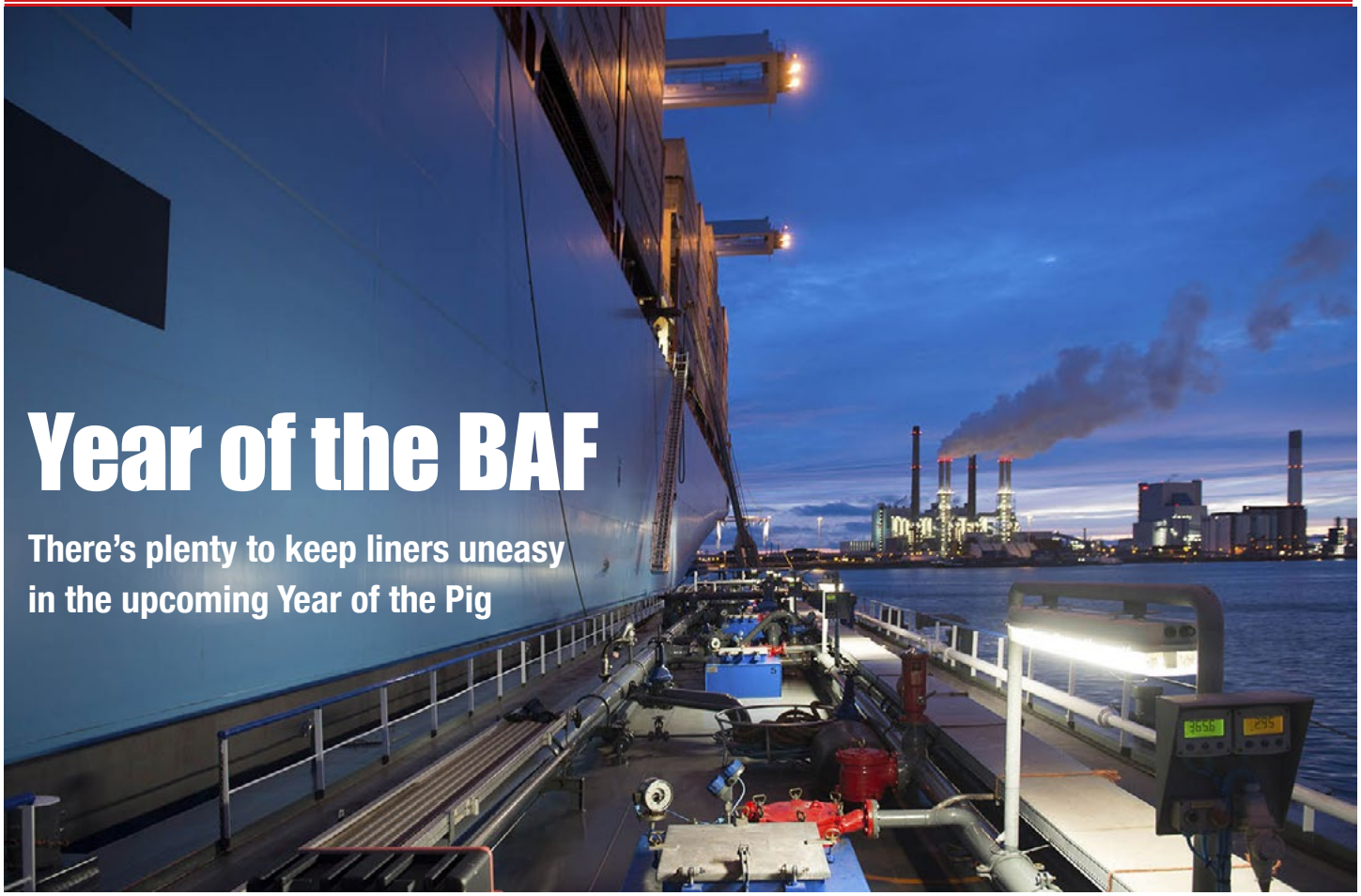
In short, crude oil tankers are currently enjoying a strong season helped along by what happened to oil production and oil prices in the aftermath of the killing of journalist Jamal Khashoggi. At a point in time when geopolitics seems to be all about nationalism, anti-globalisation and limiting global trade, we have an example of the opposite.

Product tankers, for their part, have a few aces to play in 2019. But it may not be in the first few months of the year that we will see these positive effects. A renewed pick-up in fleet growth will limit the extent of the recovery initially. Later, the push in demand will come from higher US exports of oil products as the oil production growth steams full ahead – and refineries still seem to be able to process it all with currently available capacity.

We've deliberately left out the 'boost' in tanker demand that could/would/should happen when heavy sulphur fuel oil gets swapped for low sulphur compliant fuels as this is simply a zero-sum game to a large extent for the tanker sector as such. What will be gained in clean petroleum product cargoes will be lost in terms of dirty petroleum product cargoes. The effect on sailing distances could even be negative, as new fuels get sources from refineries nearby the bunker hubs of tomorrow (existing or new ones).

Getting back to what could trigger a much better market for the VLCCs. A return of China to the US Gulf for more American oil. But if we judge the pace of easing trade tensions now between US and China – this is a long shot. ●





Year of the BAF

There's plenty to keep liners uneasy in the upcoming Year of the Pig

Being only two hours away from the US cancelling a trade planning meeting with Chinese representatives at the time of writing this, please excuse me if I'm being too much of a doomsayer. Regardless of the potentially genuine reasons behind this move – it is without doubt a negative development in the standoff between the two mighty trading partners. And one that is for sure not helping lift demand for containerised goods and make them move more freely anytime soon.

Unless America's importing retailers really have recorded strong Christmas sales, resulting in stocks being close to normal levels again. Their eyes could then be on March 1 2019, as the likelihood of higher tariffs by then has just gone up – leading for another round of stocking up. This is not the most likely scenario as other indications pointing in the other direction seem stronger.

This brings us to the other side of the market equation – fleet development. At face value, it's a no brainer translating a containership net fleet growth of no more than 3.5% into a better market. Higher earnings. Higher freight rates. A better opportunity to pass on some of those extra costs that are bound to become challenging to pass on come January 1 2020.

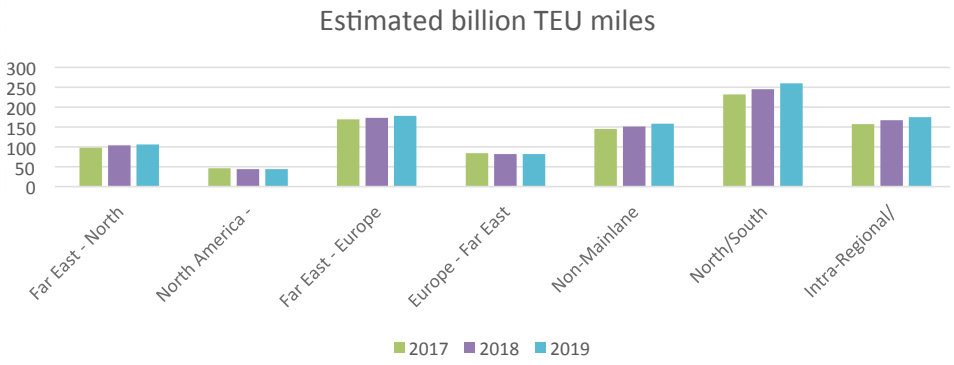
But surely, looks may be deceptive. Most of the risk will no doubt be on the demand for container shipping. Looking beyond the US-China trade war, European demand for containerised goods seems to have cooled quite a lot since the heydays of pre-2008. 2019 is unlikely to become a turnaround year.

That leaves us, relying on demand growth on North-South and Intra-Asia trades. Good – but not good enough. Volumes are high, but distances are short – resulting in sub-par teu-miles demand growth. But isn't it good to spend more time in ports than sailing if fuel costs are about to rocket? The short reply to that is: No.

January saw a return to the shipyards for more ultra large containerships. The rationale and the economic benefits behind more mammoth containerships are far from being crystal clear. But then again, have the recent rounds of ordering sprees for these mammoths proved correct?

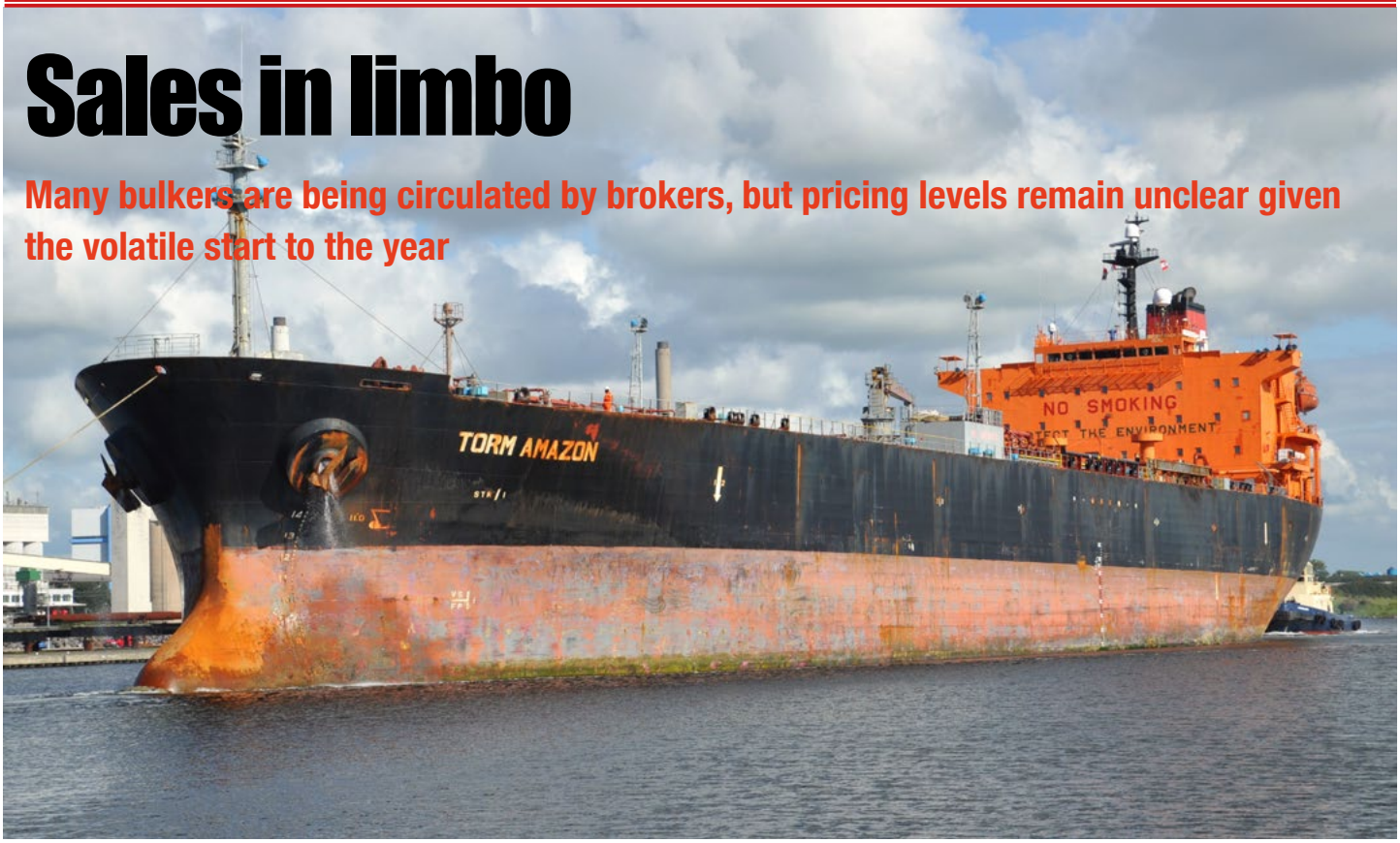
Something is changing in the way that consumers behave today – most of it puts pressure on container shipping – even though containers hold much more than clothes and iPads nowadays.

Let's wrap up with the safe bet that 2019 will not only be the Year of the Pig, but will also be the Year of the BAF (Bunker Adjustment Factor). Liners and shippers as well as the many other parties in global supply chains are bound to find a way to share the costs that occur when more expensive fuels will be used for the transportation of goods. The first couple of punches have been exchanged with some new BAFs supposedly already implemented. Rest assured, hard bargaining lies ahead for many people affected by this regulation. ●



Sales in limbo

Many bulkers are being circulated by brokers, but pricing levels remain unclear given the volatile start to the year



Caution has descended on the dry bulk S&P scene as the year got off to a volatile, troubled start, sparking concern that the much-heralded recovery has been sideswiped.

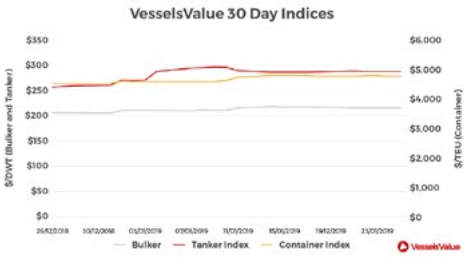
Traditionally bulker sales are slim on the ground in the period between Christmas and Chinese New Year (CNY) and 2019 is no exception, albeit there are a host of vessels being circulated for sale. What's evident this time around is that owners are not making too many bullish, hopeful post-CNY comments; there's palpable concern on the ground that too many factors have emerged at the same time to obscure chances of a decent bit of momentum for this shipping segment.

Prices are coming under pressure for bulkers of all sizes with five-year-old capes now being discussed for under $35m and hard-hit secondhand panamaxes likely heading below the $22.5m mark. In recent days bargain hunters have sought to snap up a number of vintage panamaxes, with this segment having suffered an especially dire start to the year (see graph on page one).

"It will likely take some time before a more stable picture starts to prevail, both in terms of volume and price levels," Allied Shipbroking noted of the dry bulk S&P scene in its latest weekly report.

Andreas J. Zachariassen listed a resale deal this week of two Sasebo-built 84,000 dwt kamsarmax bulkers (hull 854 and hull 855). Greek owner Mylonas Charalambos' Transmed Shipping sold the two newbuildings to Taiwan's U-Ming for $64m in total.

Multiple shipbroking houses reported that Italy's Augustea Group has sold the 2010 Chinese-built post panamax bulker A Navigation to Chinese interests for conversion at $14.9m. *Splash Extra* understands that Chinese commodity trader Jinchuan Group is likely to be the buyer.



While multiple analysts are talking up crude tankers this has yet to result in a swathe of concluded deals.

"Walk before you can run," one Singapore broker told *Splash Extra*. "Sellers have got a little ahead of themselves pricing-wise, hence the impasse."

"The only spark in activity seems to have been in the MR segment, where the buying spree that started off back in late 2018 continues to progress, giving an ever more aggressive appetite and approach for this size," Allied noted this week.

Torm's 2002-built MR2 tanker Torm Amazon (pictured) fetched $8.5m when it was sold to India's Seven Island Shipping earlier this month, while Michael Karayiannis-led Roswell Tankers was revealed as the buyer of FSL Trust's MR product tanker FSL Hamburg, paying $11.7m for the 2005-built ship.

Finally, following weeks of little action, the secondhand containership sale and purchase market has finally picked up over the past week with three feeders and one 9,400 teu vessel changing hands in recent days. ●

High time for hydrogen

H2 is making a late run to be shipping's alternative fuel

The talk surrounding hydrogen as a fuel for shipping appears to be where LNG was in the minds of shipowners around 15 years ago, namely a distant reality. The problem is that shipping is unlikely to have a decade and a half to get infrastructure in place for this green fuel. If shipping is to meet its decarbonisation pledges by 2050 it'll need to be ordering some radically different ships by as early as 2025 with hydrogen very much in the mix. The good news is that compared to 15 years ago fuel/propulsion research and development is happening far more rapidly.

Hydrogen is the most abundant element in the universe and stores more energy than a battery of equivalent weight. It's a colourless, odourless and non-toxic gas and it can either be stored on ships as a cryogenic liquid, as compressed gas, or chemically bound. It is also an energy carrier and a widely used chemical commodity. It can be produced from various energy sources, such as by electrolysis of renewables, or by reforming natural gas. Today, nearly all hydrogen is produced from natural gas.

For applications in the transport sector, production by reforming from natural gas is currently the most common method. If the resulting CO2 could be captured, this would result in a zero-emission value chain for shipping.

CMB takes the lead

Among shipowners, Antwerp-based Compagnie Maritime Belge (CMB) is a real pioneer in the development of hydrogen as an alternative fuel. Roy Campe, CMB's R&D manager, reckons to begin with dual fuel hydrogen - diesel combustion engines will be the best transition technology to enable hydrogen to be used on a large scale in shipping.

CMB launched the world's first accredited passenger shuttle (pictured above) to operate under both hydrogen and diesel propulsion at the end of 2017 to primarily test hydrogen technology for future applications in other commercial vessels. The company plans to introduce the world's first hydrogen-powered bulk carrier as early as 2023. CMB has also revealed plans to equip a containership with a hydrogen-powered auxiliary engine.

> *"We went from zero powered flight to jet engines in around three decades"*

"The combustion engine offers a good opportunity to improve H2 infrastructure, because one can always sail on pure diesel. Compared to fuel cells which can only run on very pure hydrogen, it has comparable efficiency at its nominal load, it is much lighter, three times as cheap and will last 10 times as long. With hydrogen combustion we can rely on the basic engine which has undergone 100 years of refinement and which has proven itself in the field," Campe says.

However, Campe, like many others, believes the major challenge to apply hydrogen into deep sea shipping is the storage issue as storing hydrogen in a compressed state requires very strong tanks which are too heavy and too expensive, while using liquefied hydrogen will also be difficult since liquid hydrogen only weighs 71 kg per cu m at -253°C, resulting in a very large tank with cryogenic requirements for complete installation.

Continued on page 9

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Nevertheless, new technologies are being developed which are very promising to be used in shipping, Campe points out, such as liquid organic hydrogen carriers (LOHCs).

"With the exhaust heat of our combustion engines, we can boil out the hydrogen gas from the fluid carrier. LOHC is compatible with existing infrastructure and can be pumped easily in high volume with a bunker barge alongside. The liquid is stable and safe to use and LOHC is suitable for long-term storage inside the structural strength holds which are now used for fuel oil," Campe explains.

Another exciting hydrogen vessel project called Zero-V is being led by Sandia National Laboratories in the US, with the support from the Scripps Institution of Oceanography at the University of California, naval architecture firm Glosten, and class society DNV GL. The project evolved from earlier Sandia work on the SF-Breeze, a hydrogen-powered passenger ferry designed to operate in the San Francisco Bay. The design of the ship is now on the drawing board after it received an approval in principle from DNV GL.

Sandia also completed a study of how fuel cells might apply to larger commercial vessels. In the study, hydrogen and fuel cells were studied as an alternative power plant for maritime vessels by considering 14 case studies of various ship sizes and routes varying from small passenger vessels to the largest cargo ships. The results show that it is feasible to consider zero-emission hydrogen fuel cell technologies for most vessels in the world's fleet.

Lennie Klebanoff, leader of the project at Sandia National Laboratories, believes there is no hardware challenge to develop hydrogen fuel cell vessels as the fuel cell power plants, hydrogen storage technology, and all the associated plumbing have been in commercial use for many years in other applications. One of the development challenges is the current cost of hydrogen fuel, Klebanoff observes.

Additionally, the SF-Breeze and Zero-V studies showed that hydrogen suppliers can provide sufficient liquid hydrogen (LH2) for these vessels to operate on their required operational profile and these vessels can be refuelled by existing LH2 tanker trailers, and do not require dedicated fixed refuelling infrastructure.

Compared to the energetically equivalent amount of diesel fuel, hydrogen is currently two to five times more expensive than diesel fuel, according to Sandia data.

MAN makes hydrogen headlines

In a landmark development for hydrogen's path to global adoption among shipowners, MAN Cryo, a wholly owned subsidiary of MAN Energy Solutions, last month became the first supplier to develop a marine, liquid hydrogen fuel-gas system. The system (pictured above) was developed in close cooperation with owner Fjord1 and Multi Maritime in Norway.

The new system has a scalable design that allows adaptation for different shipping types, sizes and conditions. The design is suited for both above- and below-deck applications, offering ship designers the flexibility to optimise their designs in relation to efficiency, and to cargo or passenger space.

A month prior to MAN's big announcement, Swiss manufacturer ABB and Norwegian research outfit SINTEF Ocean provided an update on groundbreaking research to test the viability of fuel cells as an energy source for main ship propulsion.

The research project is using two 30 kW fuel cells to model the operation and control of a complete marine power system in a megawatt-scale propulsion plant.

Using hydrogen as fuel, the proton exchange membrane fuel cells (PEM) separate electrons and protons, with protons passing through and electrons used as electrical output. Hydrogen is converted directly to electricity and heat without combustion. PEM fuel cells operate at a lower temperature, are lighter and more compact than their solid oxide counterparts.

Continued on page 10

"Toyota are way ahead of the curve and I'm sure their tech will end up on ships"

Continued from page 9

Last month Scandinavian carrier Samskip detailed plans of a new emissions free, autonomous box shipping project called Seashuttle, backed by funding from Norway. The ships will feature hydrogen fuel cells for their propulsion power.

Familiar chicken and egg dilemma

DNV GL recently completed a study on alternative fuels in which it identified battery systems, hydrogen fuel cell systems and wind-assisted propulsion as having the best potential for green ship applications.

According to the study, the cleanest fuel is hydrogen produced using regenerative energy after comparing all the alternative fuels in terms of CO2 emissions.

"Reducing global, regional and local emissions are key motivations for introducing hydrogen as fuel. Therefore, energy use and emissions related to hydrogen production and distribution to the location where it is used are relevant. Hydrogen used as fuel in fuel cells will remove emissions where it is used, and in some locations, this might be more important than what happens during production and distribution," says Simon Adams, a spokesperson for DNV GL.

Adams also notes that high costs, larger storage space and the "chicken and egg dilemma", like LNG before it, as the current challenges for hydrogen to become a marine fuel. Additionally, specific regulations for storage of hydrogen as fuel on ships is missing making approval more complicated and costly.

"It would only be competitive under the assumption of massive subsidies, or of heavy taxes on conventional fuels. Today, nearly all hydrogen is produced from natural gas and is therefore more expensive than natural gas," Adams says.

According to the DNV GL report, there are some smaller scale hydrogen projects on the way. One example is a hydrogen ferry that will be in operation from 2021 on the west coast of Norway.

This month, the Korea Marine Equipment Research Institute (KOMERI) signed an MOU with two local partners to develop hydrogen fuel cell technology suitable for marine applications. The MOU covers the development of a solid oxide fuel cell suitable for deployment in a test vessel, as well as the modification of other vessels.

Not a silver bullet, more a bronze mallet

Dr Tristan Smith from UCL Energy Institute in London, one of the world's foremost experts on marine fuels, is a believer in the potential for hydrogen.

"Hydrogen and hydrogen-related fuels such as e-ammonia have looked attractive as future shipping fuels in our analysis work for some time, especially for deep sea shipping that cannot use battery electrification to reach zero emissions," he says.

Smith argues that both production of hydrogen from renewable electricity and its deployment on ships looks highly scalable and sustainable and therefore does not suffer the drawbacks of the main competitor - biofuels.

"Renewable methanol is the other competitor that often gets mentioned, but the total cost of production and shipping use of this option seems to be consistently higher in our studies, and so it does not look promising competitively at the moment," Smith suggests.

Shipping tech experts are not convinced however that hydrogen is the key to decarbonise.

Antti Pohjoranta, a senior scientist at VTT Technical Research in Finland, tells *Splash Extra*, "H2 is no silver bullet, maybe a bronze mallet for hammering down carbon emissions."

Pohjoranta says hydrogen has the potential to help decarbonise inland waterway transport, short sea shipping and some marine transport cases where frequent access to refuelling sites is possible.

Greg Atkinson, chief technology officer for Japanese green shipping pioneers, Eco Marine Power, reckons big advances for hydrogen are going to manifest quicker than many anticipate.

"There's a lot of R&D going on in that area and much of it is out of sight at the moment so I would not be surprised to see some major steps forward being announced in a few years," Atkinson tells *Splash Extra*, concluding with a warning to the naysayers: "When someone says that hydrogen will never be used on ships, remind them that we went from zero powered flight to jet engines in around three decades." ●

Toyota drives the H2 revolution

IN THE WORLD of transport no company is doing more to push ahead with hydrogen than Japanese car manufacturer Toyota.

Toyota is using hydrogen to help power vehicles on land, including cars like the Toyota Mirai, as well as buses, trucks and forklifts.

The maker of the Prius, the world's first mass-produced eco-friendly gasoline-hybrid car in the 1990s, says it can popularise hydrogen fuel cell vehicles by making them cheaper.

Toyota also has its eyes on vessels. Kicking off last July, Toyota started sponsoring one of the world's first hydrogen-powered ships on a six-year world tour.

The specially adapted race boat, Energy Observer (pictured), uses solar, wind and wave-generated power – as well as hydrogen generated from seawater.

The ship creates hydrogen by demineralising seawater, removing salt and ions, then separating the oxygen and hydrogen through electrolysis. The hydrogen is compressed at 350-700 bar, then stored in tanks ready to be used in the energy stacks when needed.

"Toyota are way ahead of the curve and I'm sure their tech will end up on ships," says Greg Atkinson, chief technology officer at Japan-based Eco Marine Power. ●

'Public players are buying back their own stock as opposed to ordering new ships'

Scorpio's Robert Bugbee sees slowing scrubbers, tighter leasing, muted orders and stocks poised in an exclusive sit-down with Splash Extra

This should be a pivotal year for shipping, given major changes looming on the regulatory and financial fronts. To gauge potential impacts, *Splash Extra* conducted an exclusive interview with one of the most prominent shipping executives in New York: Robert Bugbee, president of NYSE-listed Scorpio Tankers, Scorpio Bulkers, and Nordic American Offshore.

IMO 2020 will be front and centre this year, although Bugbee believes scrubber installation announcements will drop. "The announcements will taper off, partly because it's going to be very hard for people to get scrubbers that haven't been ordered yet installed by 2020 because of drydock capacity. Those who haven't got scrubber orders fall into three camps," he tells *Splash Extra*. "One, the Eurnoav camp, which doesn't believe in them. Two, the camp that can't afford them. And three, those who think it would be a good idea, but not if you're late to the party, because the fuel price differential will narrow over time."

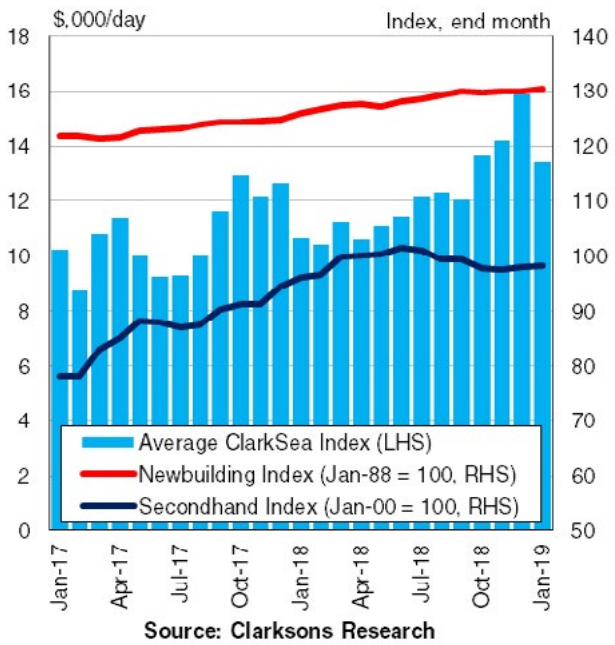
He foresees IMO 2020 shipping market impacts emerging as soon as next month. Vessel supply reductions from downtime for scrubber installations could start "in February or March", while the expected increase in product tanker demand will likewise be a 2019 event – with evidence already seen in the charter market. "Our customers are expecting significant increases in seaborne products, and as a result, they are already increasing their charter coverage or expressing more interest in charters," he confirms.

Asked about vessel supply trends, Bugbee cites several factors that could prevent excess ordering. "The public players are choosing to buy back their own stock as opposed to ordering new ships, there are limits on credit, and we're seeing yard pricing stay reasonably firm," he says. "Because you've had a rationalisation in shipyard capacity and there's generally been enough appetite for orders across all segments, shipyards have been able to maintain stronger pricing."

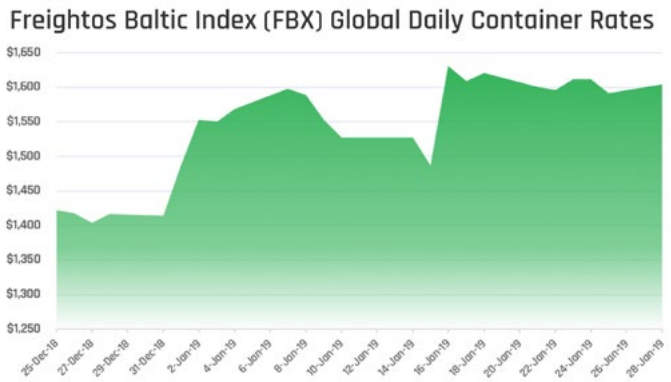
One of the top trends in shipping finance in 2018 was a move by European banks to focus their remaining debt capacity on their strongest borrowers. "Lease financing is going to become much more focused too," predicts Bugbee. "It's happening already. They are going to become much choosier and I don't think they'll be there in the future to do these very highly leveraged leases for speculative newbuildings. I also think if we get some normalisation in US-China trade relations and we have some kind of stabilisation of the Chinese currency against the dollar, you could see a very substantial cutback in the money available for lease financing. So far, they [Chinese lessors] have done pretty good with all of these leases lending in dollars and transferring back to yuan."

> *"What's causing me great optimism today is just how distressed and how dislocated shipping stocks have become"*

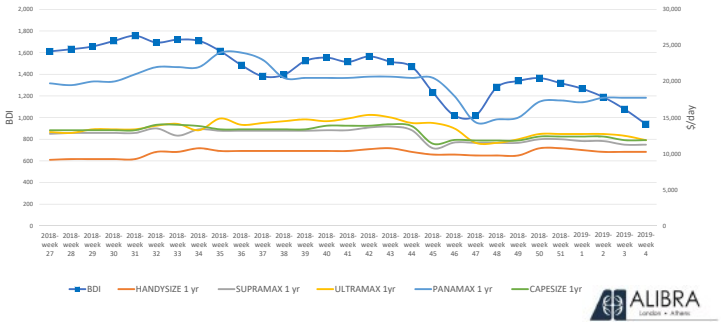
Another key finance trend in 2018 was the dislocation of US shipping equity value from listed companies' intrinsic value. Bugbee actually takes this as a positive omen for 2019. "People at this stage are exhausted with shipping. They've been hurt by shipping. But a multi-year bull run in shipping starts off with stocks that are very dislocated because so many people have given up – and what's causing me great optimism today is just how distressed and how dislocated these stocks have become." ●



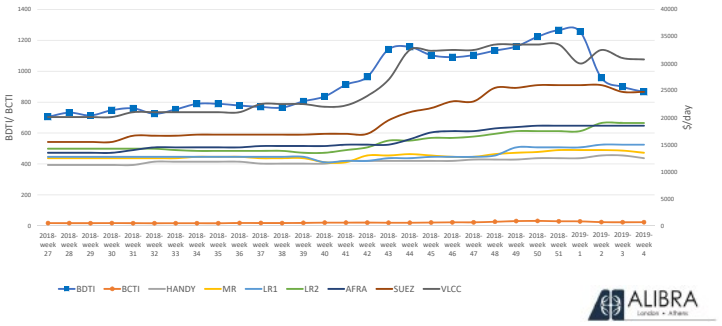
** The ClarkSea Index is a weekly indicator of earnings across the main commercial vessel types including bulk carriers, tankers, containerships and gas carriers, weighted by the number of ships in each sector*

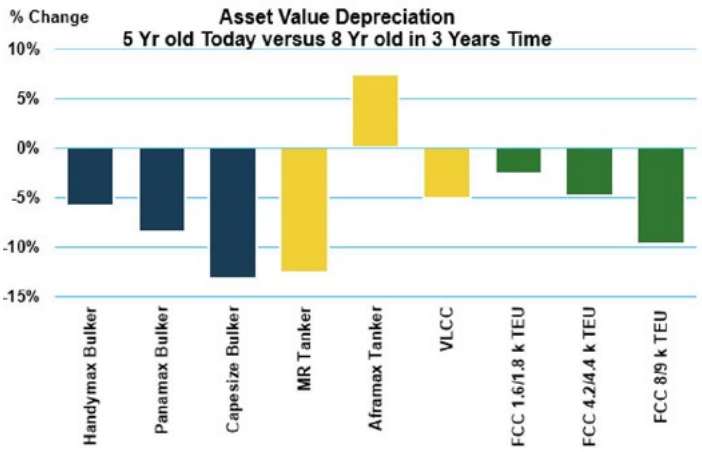


Dry Spot rates v 1 T/C year rates



Tanker Spot rates v 1 T/C year rates

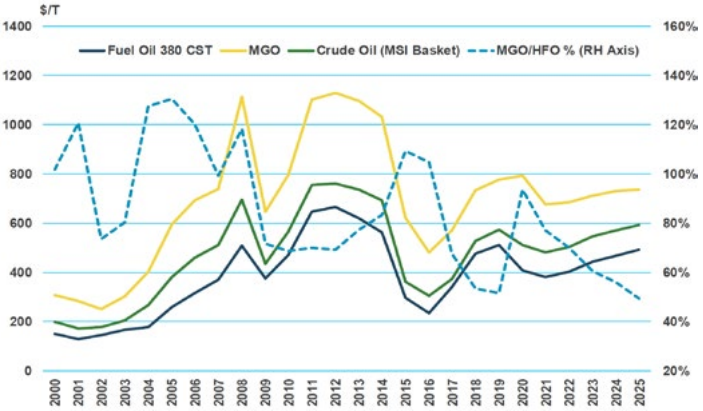




Source: MSI

MSI's secondhand price forecasts are based on the interplay between new build prices, earnings, scrap prices and life expectancy. No responsibility for errors of fact, opinion or market changes are assumed by MSI Ltd

Fuel Forecaster



Source: MSI

Why stocks are unmoored from shipping rates

New York correspondent Greg Miller explains the tricky year ahead for shipping stocks on Wall Street

Two economists go out for a stroll. The first sees a $100 bill on the sidewalk and points it out to the second. The second says, "It can't be a $100 bill lying there. If it was, someone would have already picked it up." The first agrees and the two economists walk on, leaving the cash behind.

This old joke about the Efficient Market Hypothesis – which claims that everything is already priced in and there are no easy bargains – comes to mind when considering the woeful state of US-listed shipping stocks. Today's investors act like the two economists. They see that shipping equities persistently trade well below what's implied by freight rates and asset values, but they still don't believe in this metaphorical $100 bill. They're not buying.

Share pricing is not just cheap relative to fleet value, it now seems almost entirely divorced from moves in underlying freight markets. All else being equal, if rates improve and profits go up more than expected, share prices should increase. They haven't.

Product tanker rates rose sharply in the fourth quarter of 2018, and sector fundamentals are widely believed to have turned the corner. The Baltic Clean Tanker Index was up 40% in mid-December versus the beginning of 2018, and up 34% year-on-year. Yet shares of NYSE-listed Scorpio Tankers and Ardmore Shipping, both of which are heavily exposed to product tanker spot rates, were down over 40% in December versus January 2018 (see chart).

Crude tankers enjoyed strong fourth quarter rates, but shares have remained mired at or below 2016 levels. Dry bulk rates have steadily improved from their all-time lows in early 2016; stocks have yet to budge. LNG spot rates hit an all-time high of $200,000 per day in November, but most shares didn't follow suit.

Equity pricing is not moving in parallel with freight markets because there are not enough investors. Without sufficient interest, a rate rebound's effect on stocks is akin to the proverbial tree falling in an empty forest. Four possible reasons why investors have vanished:

(1) Buying shipping stocks has been a proxy bet on the Chinese economy and/or globalisation. Those bets are no longer so attractive.

(2) Many buyers in the past were energy investors pursuing portfolio strategies that included shipping stocks. The plunge in crude pricing in 2014-15 took out a lot of those buyers.

> *"Share pricing is not just cheap relative to fleet value, it now seems almost entirely divorced from moves in underlying freight markets"*

(3) The global money pool is finite. Funds are inexorably flowing toward tech stocks, where innovation and digital scalability can create sustainable outsized returns, and away from old fashioned, physical asset-heavy, cyclical businesses like shipping.

(4) Those two strolling economists were right, after all. Shipping shares are accurately pricing in the future. They're discounted to reflect the chance of losses ahead.

The answer is likely a combination of 1-3, and possibly 4. Consequently, shipowners hoping to tap US equity markets face a Catch 22 in 2019. As long as stock pricing appears disconnected from rates, there won't be enough investors to move the dial, and as long as there are too few investors, stock pricing will remain disconnected from rates. ●