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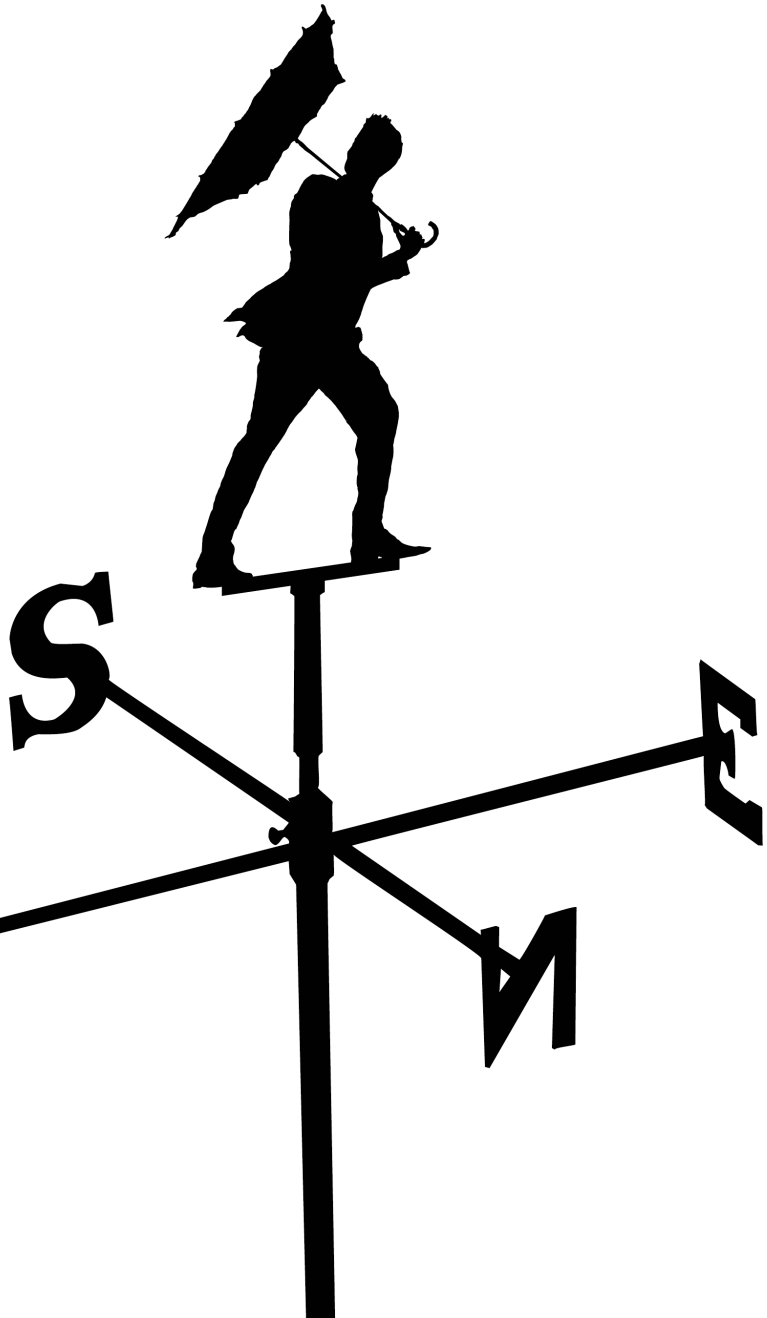

Changing Winds and Fortunes

The Asia Issue

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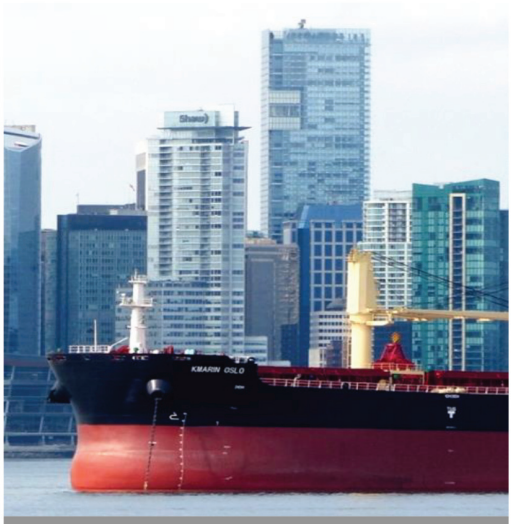

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Cover Art by John M. Kulukundis

CHANGING WINDS AND FORTUNES

By Andrew Oates

Over the last three years, we have been witnessing a rapidly changing global political, financial, technological and social environment within which shipping transports 90% of goods traded. Shipping and shipping services businesses are undergoing changes internally and externally to adapt to this changing landscape. Shipping finance is embracing the drive in support of a "greener" global economy; sources of shipping finance are growing in Asia as the center of global economic gravity is shifting East. Technological innovations are enabling increasingly transparent money flows and data driven investments, women are increasingly embracing the shipping industry and are in key decision-making positions, a new generation is taking the reigns and driving the industry forward, and environmental policies are pressuring the industry to innovate and adapt fundamentally. These winds of change will undoubtedly bring new opportunities and new risks from which new shipping fortunes will be made.

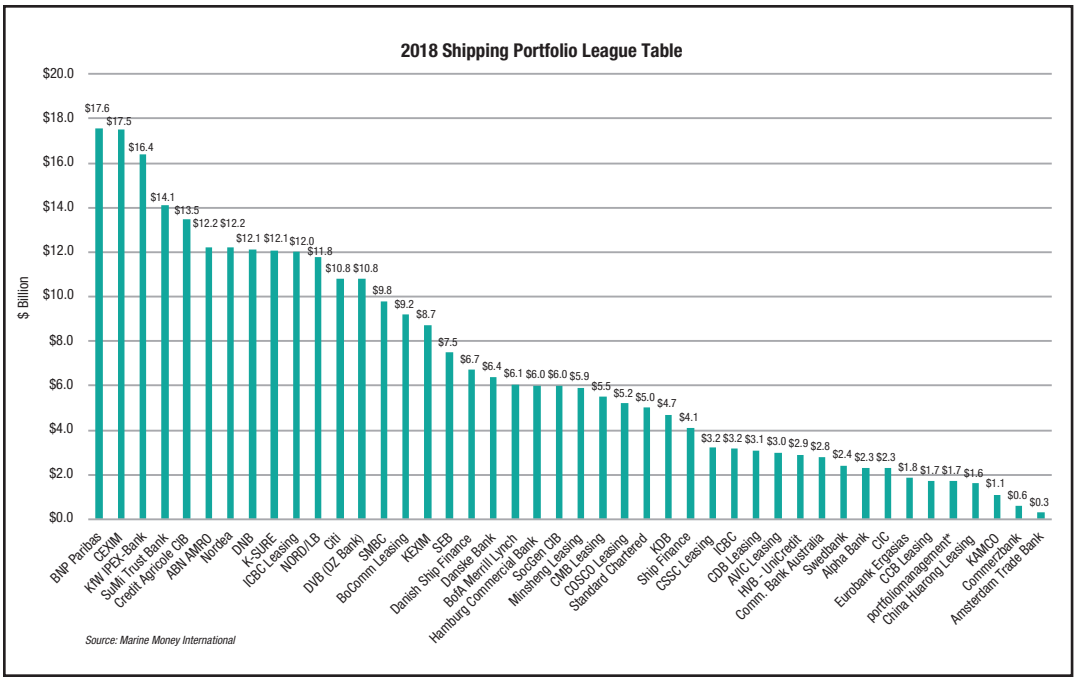
As we head into Q3, we are facing some of the most confusing shipping markets in recent years. Freight rates are strong almost across the sector spectrum, and shipping company executives seem optimistic for the next few months, while shipping stocks remain lacklustre at best, mostly moved by public sentiment driven by global geopolitical trade developments. With IMO2020 regulations coming into force on 1st January 2020 and the various trade wars shifting the needle on a daily basis, the industry seems to be adopting a "wait-and-see" attitude while shipping finance continues to diversify.

Underpinning many of the shifts we are witnessing are external and uncontrollable forces obliging shipowners and operators to adjust to new realities.

Our annual Marine Money Asia Issue, aptly titled 'Changing Winds & Fortunes,' focuses on these external forces.

The continuing strong growth in the Chinese economy, and the political and trade tensions it is creating, and the ways these tensions are affecting the global shipping markets and supply chains, is an issue analysed in depth and from differing perspectives in articles contributed in the following pages. One constant, however, that our writers seem to agree on is that cooperation and alliance building is much preferred to bilateral international relations pitting one nation against another.

Another area of significant focus in this issue is the industry's initiatives to promote, comply with, and accelerate the pace towards environmental sustainability and diligence. Looking at the role that LNG can play towards this end and the actions that ship financiers can take to quicken the pace of change are two of the highlight topics we hope you will enjoy digesting and find informative. Other topics touched upon are Chinese leasing, ship finance reality check, and whether the LTV ratio is a good benchmark for lending.



SETTING THE MATTER RIGHT

Earlier in the year, we produced our annual Bank Portfolio League Table. For various reasons, the portfolio figures for one major Asian lender were omitted. To set the matter right, we hereby reproduce the graph showing the end year 2018 maritime finance portfolios with that lender included.

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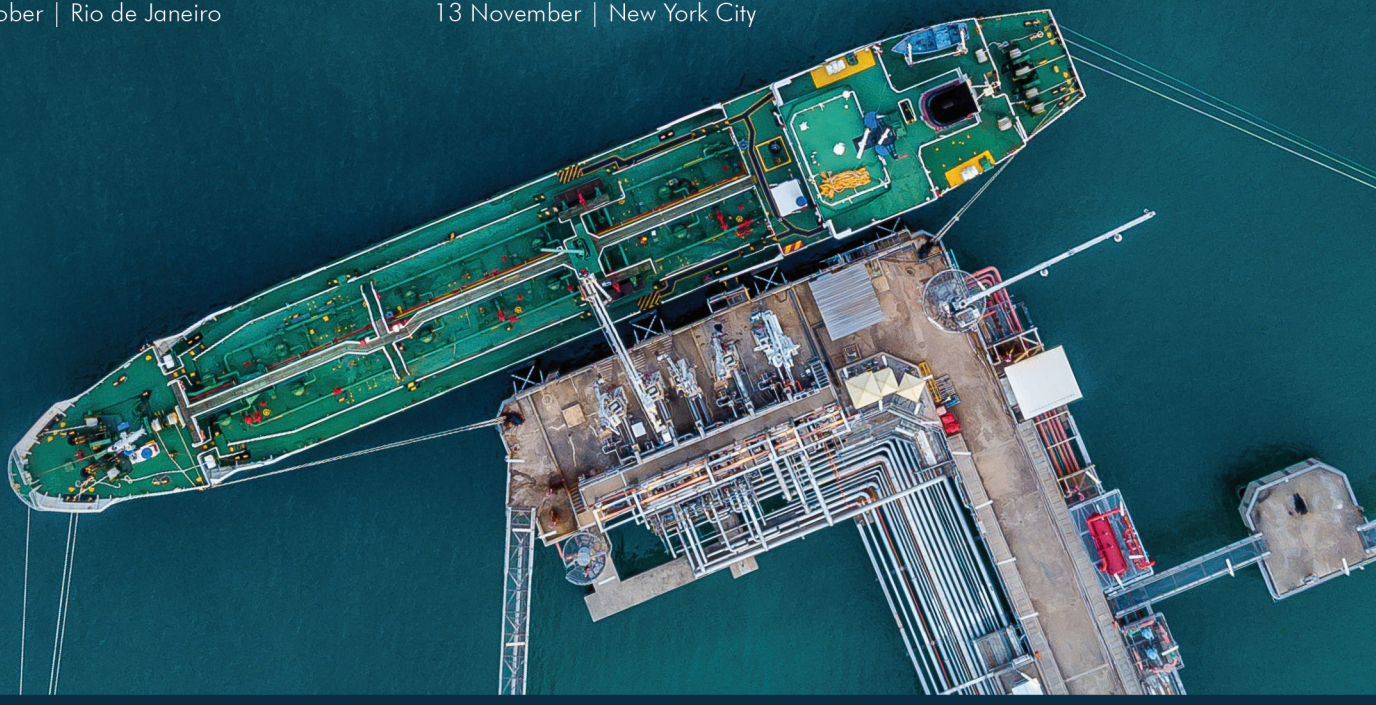

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CHINA/US TENSIONS[1]

By Joergen Oerstroem Moeller, ISEAS Yusof Ishak Institute

GLOBALIZATION

US and Britain shaped a global system in the immediate post World War II period. In reality, it was a system designed to project American power onto the global stage. It worked well because the US, with the support of Britain, offered a model that was attractive for the rest of the world. Liberal representative democracy was seen as a good model. The American economy was humming. The US was ready and willing to defend the system and pay for it.

Its plinth was that all nations including the US complied with the rules set up by three global institutions: The International Monetary Fund, the World Trade Organization, and the World Bank in the expectation that everybody else also complied. And they did because it was in their interest to do so and stay inside the global system. It worked. China saw the merits of the system and joined economic globalization in 1979 with Deng Xiaoping's reforms. It joined institutionalized globalization in 2001, becoming a member of the World Trade Organization.

Over the last couple of years, amazingly, the two founding fathers have started to dismantle the system they set up themselves. The US says that it will comply with global rules if it is in its interest. Britain leaves the EU and, by doing so, cuts the links to the strongest kind of institutionalized globalization the world has seen. The key slogan is "take back control."

It seems that these two nations have not realized that, if everyone complies provided it is in their interest and breaks away from institutionalization saying "taking back control," the world will discard a rule-based globalization, turning economic globalization into some kind of "the strong do what they can and the weak suffer what they must."

The background for China/US tensions can, to a large degree, be explained by this change of the global order. The US has chosen a unilateral approach at the moment when China expects to reap the benefits of a multilateral system.

CHINA'S CHALLENGE

Many commentators have put forward views of the rise of China as a challenger to the US. The fact is that the US is still uncontested as the strongest global power. Most prominent is the Harvard scholar Graham Allison who says that, in the last 500 years where an aggressive rising nation threatened a dominant power, in 12 there was war.

This is academically interesting, but does not tell us much about China/US tensions today. First of all, China is nowhere near classified as an aggressive rising nation able to threaten the US. True enough, China's economic growth has been phenomenal, but its gross domestic product (GDP) is only about 70 percent of US GDP. Measured per capita, it is not more than about one-sixth of the US figure. Even if China spends enormous sums to develop innovation and technology, it is far behind the US. Its military is getting stronger, but cannot be compared to the US, and will not be close to such a point for a foreseeable future. There is no doubt about the capability of the US military to project power. China's military is still basically designed to defend China. China as a challenger for the role of global super power is nowhere near for the next decades – if it ever happens.

The future relationship between these two nations of different natures cannot be seen in an historical prism when the power play was steered by other factors, but requires an analysis of factors underpinning their world view as the world is today and looks to be in the future.

US AND CHINA: GRAND STRATEGY

The objective of a great power is to be strong enough to win a war without having to fight one. The British Empire started to crack when it entered World War I. Economic and financial power must be solid enough to sustain a major war — even a long one — and seen as such by other powers, diminishing their wish to enter into conflict.

Most important of all, trade routes must be kept open. No power, irrespective of how strong and dynamic it is, can prosper and build a sound economic base without trading with other countries. To do so, it must keep trade routes open, having the military capability and political clout to achieve that objective. This is what controls US and Chinese grand strategy.

China is more dependent on the outside world – import/exports and buying resources – than the US. Its access to the outside is mainly over land and goes through adjacent countries. Its maritime vector is weak. Grand strategy becomes a question of establishing trade routes (corridors). Due to geography, they go through adjacent countries, which must be willing to host corridors and allow China some control over installations on their territory. They demand a price for doing so and may easily be reluctant about the sovereignty issue. China bargains to lower the price and exercise

[1] *Some of the views in this article were published 13. February 2019 in YaleGlobal online and will be further elaborated in a forthcoming book.*

control over installations. It is a fine balance, calling for adroit diplomacy.

The US is less dependent on foreign markets – higher degree of autarchy and less need for resources from outside explain this – and trade routes do not cross adjacent countries, but are maritime. There is no need to negotiate with adjacent countries about access to the outside world. Grand strategy becomes a question of naval supremacy. Not to project power to help allies or threaten adversaries, but to guarantee US naval supremacy in the Atlantic and Pacific Oceans. It is less costly, less difficult and poses less risks than the Chinese predicament.

Both pursue analogous goals: secure trade links. But, due to their different geographical positions, they opt for distinct tactics that, paradoxically, lead to classify both as regional instead of global powers.

China has tabled a range of regional policies such as Belt and Road Initiative (BRI), Asian Infrastructure Investment Bank (AIIB), and Shanghai co-operation among a number of countries in Central Asia. This is where China really is active. There are a number of what may be called 'imperial' outpost such as Greece (Piraeus harbour) and similar activities in a few Central- and Eastern European countries, Africa and South America but, without the regional assets, they are useless, as Chinese products cannot reach them for further distribution.

The US is cutting global commitments, breaking up alliances, no longer puts emphasis on American values, and focuses on America first, which gradually turns into America only. To secure trade links across the Atlantic and Pacific an ambitious and costly naval programme has been put in place to modernise and upgrade the navy.

Both are continental and maritime powers at the same time. China tilts, forced by its geography, towards a continental power. The US, again due to geography, tilts towards the maritime vector.

A fundamental element in their power play is that they do not threaten each other's vital interests. Where they do confront each other is to gain the technological edge as this defines the status of a superpower nowadays, but this is not enough to trigger a war. Going back to the 20th century when Britain was a world power, Imperial Germany and later Nazi Germany did threaten Britain's vital interest, forcing it to enter into the two world wars.

They both build strategic positions that can and will be used to link countries in the region to them.

China is building its own internet (so is Russia) and the US contemplates doing the same, which augurs the death of the global and international internet, giving birth to the sarcastic label 'splinternet.' This is one of the areas where having the technological edge comes into play. The relevance in this context is that China — and probably the US down the road — invite adjacent countries to join, maybe also share the cost because they will reap the benefits, goes the argument. If they refuse, the response will be to squeeze them out of the regional co-operation, leaving them outside effective institutionalized co-operation to defend their interest because the global system has lost its strength to do so.

The same is happening for the energy sector. The US was the second biggest importer of fossil fuel in 2013. In 2023, it will be a net exporter. China is building large transmission nets linked to BRI. Both see energy as a power parameter to 'invite' adjacent countries into a closer regional framework.

In a medium- or long-term perspective, the Renminbi can be expected to rival the USD at least in its region using it, as the US is now using the USD, as a kind of weapon in economic warfare.

What we see is a seminal swing away from globalization to regionalization.

Statistics underpin this observation. Asia's interregional trade share rose to 57.3 percent in 2016, a record high, from 55.9 percent in the years 2010 to 2015.

Foreign direct investment shows the same trend. Inside Asia, intraregional investments increased as share of total investment from 48 percent in 2015 to 55 percent in 2016.

Both face limits for increasing their global offshore assets. US is the biggest global debtor. China's saving surplus, close to 10 percent of GDP a decade ago, has disappeared. In 2018, it was close to nil.

Neither the US as the existing global superpower nor China, as seen by many as the next one, can afford this role. And they know it. The consequence is that they go regional. That has strong repercussions for China-US relations.

CONCLUSION

A duopoly with China and US working in tandem to 'rule the world' is unlikely because they are in many respects competitors and would not be able to agree on such a model. Chimerica, as it is called, will not materialize. A conflict in a large scale also seems extremely unlikely, as both know they are not strong enough to prevail. The most likely outcome is that they will tolerate each other with occasional brawls as we see with the so-called trade war. They will respect the other power as a regional superpower, and refrain from challenging it inside its sphere of interest. Outside their regions, they will co-operate and occasionally fight small wars by proxies but manage them carefully as not to escalate into something they cannot control.

Joergen Oerstroem Moeller is an Associate Research Fellow, ISEAS Yusof Ishak Institute, and a former State Secretary at the Danish foreign ministry.

US-CHINA TRADE WAR: ZOOMING INTO THE SECTORAL IMPACT AS WELL AS THAT FOR THIRD COUNTRIES

By Alicia Garcia Herrero, Chief Economist Asia Pacific, Natixis

As a new round of escalation of trade tension took place when President Trump announced imposition of 10 percent tariffs on another US$300 billion of Chinese goods, the US-China trade dispute has been taken back to central stage. Soon, CNY broke '7' followed by President Trump's accusation of China as a "currency manipulator," stirring up market concerns over a potential currency war, pushing back the global trade flow, and tumbling world market drastically. What's more, Huawei's Licenses to resume business with US companies soon were held off by the US, suggesting full-fledged confrontation and hostility between the two superpowers. At this juncture, we believe it is a good time to examine the goal and implications of the US-China trade dispute.

Given the increasingly structural nature of this trade war, it seems important to analyze its impact at a more granular level, both sector-wise but also for third countries. The starting point for this goal is to better understand which products have been taxed so far both by the US and China, and possibly the reasons behind the choice of products (Charts 1 & 2). The first round of US tariffs ($50 billion) were aimed at China's high-end exports with a view to contain China's technological advance, with 7 percent of the tariffs on very high-technology products and 55 percent on high-technology products, even when some of the products included not yet exported by China to the US. China reacted quickly by rapidly modifying its own retaliation list from a more balanced one which included high-end imports from the US (including aircraft and aerospace) to one more focused on low-end products, such as agriculture (especially soybeans) and energy.

In the second set of US import duties of $200 billion, effective in June 2019, low-end and intermediate products dominate the list. One could interpret this second wave of import tariffs as a way to reshore the production of intermediate goods back to the US (or at least to a third country) and to reduce China's role in global value chains. This interpretation of the second round of tariffs could have tangible implications for third countries that are now part of value chains and have better economic relationships with the US, such as Vietnam. In this round of retaliation from

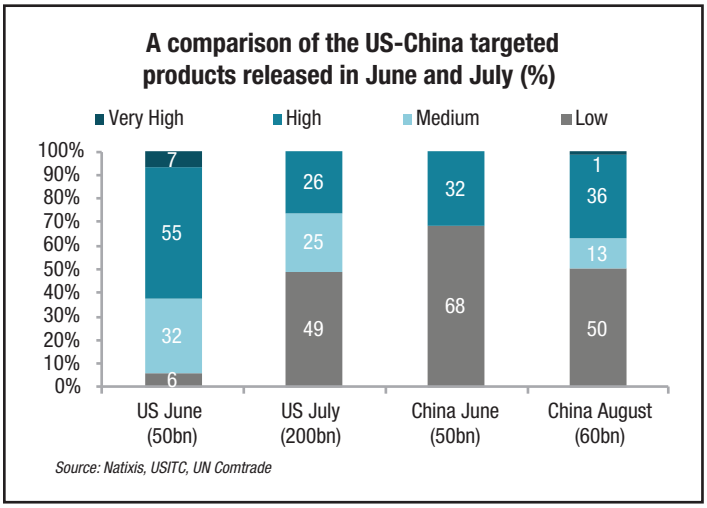
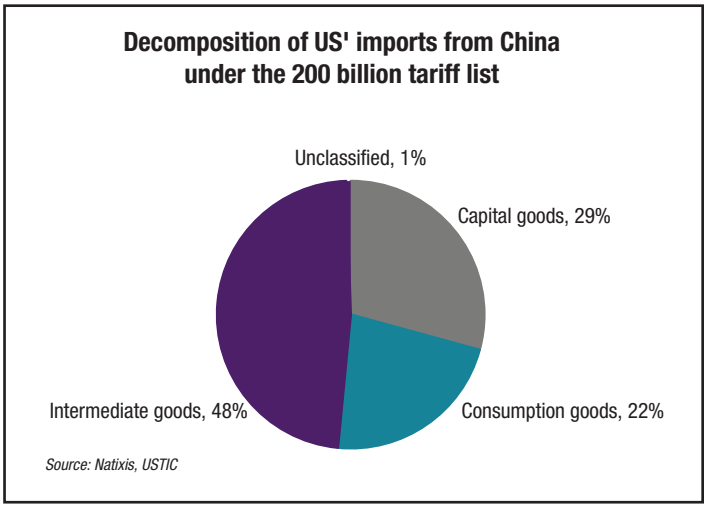


CHART 1



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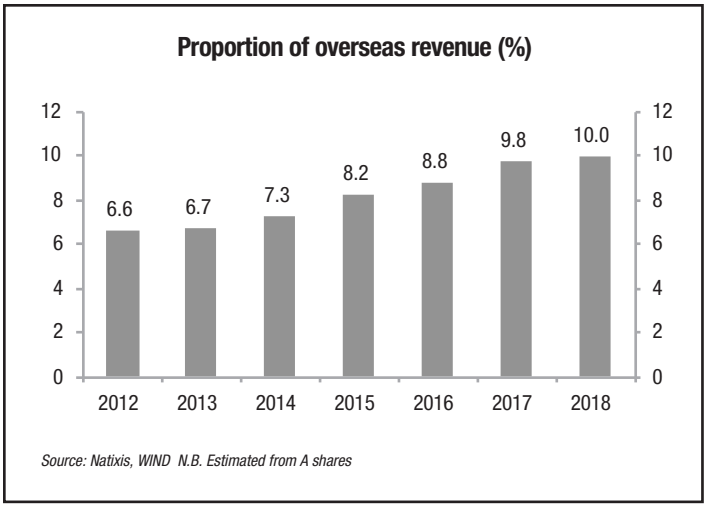

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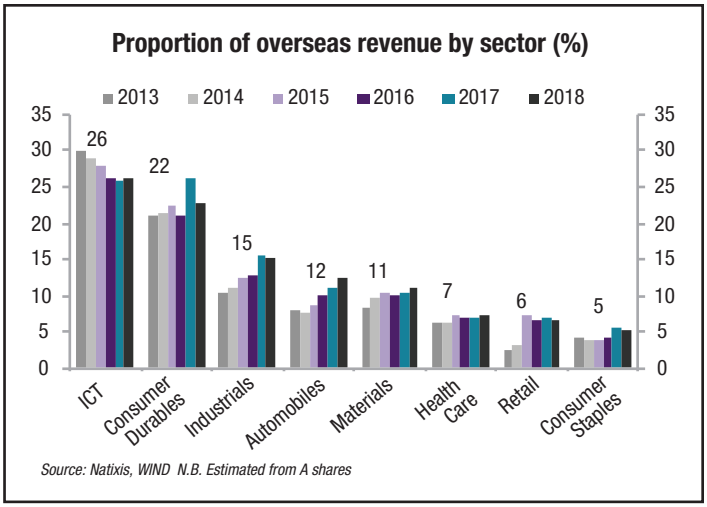


CHART 4

China, all low, medium and high technology products are included, showing China's determined stance to not retreat before the US threat, taking into account China's limited imports of high-technology products from the US. With tariff levied on another US$300 billion of Chinese goods, almost all Chinese imports will take the hit, and more sectors will be under pressure.

Moving to the impact of US tariffs on China's sectors, we should start by noting that all Chinese corporates are increasingly dependent on overseas revenues, so this trade war should be more damaging today that it was in the past, other things equal (Chart 3). Still, the sectoral impact is very diverse: Information and Communications Technology (ICT), followed by Consumer Durables, are the two sectors which should be hit the hardest (Chart 4). In addition, increasing difficulties in technology transfer as well as potential bottlenecks in China's imports of semiconductors are also likely to pose uncertainty in China's ICT sector going forward. Other sectors such as retail and consumer staples should be less affected by the trade war, which is in line with the recent earning data of major Chinese retailers including Alibaba.

Moving beyond the Mainland towards Hong Kong, there is no doubt that an economy that links China to the rest of the world, and especially the US, cannot but be caught in the middle of the crossfire. Hong Kong's role as an international financial hub is increasingly dominated by Chinese corporates, not only in the stock market but also in the dollar bond market. In addition, Hong Kong, being an independent member of the World Trade Organization (WTO) is not subject to US import tariffs, which might explain why its exports to the US, as well as its exports from the US into China, have ballooned recently. In the same vein, Hong Kong's separate status at the WTO and its backing by the US under the Hong Kong Policy Act, grant the city a preferential status to import sensitive technology from the US when compared with the Mainland. All of this might be at stake as a consequence of the trade war.

North Asia is also being severely affected, since the semiconductor value chain is at the

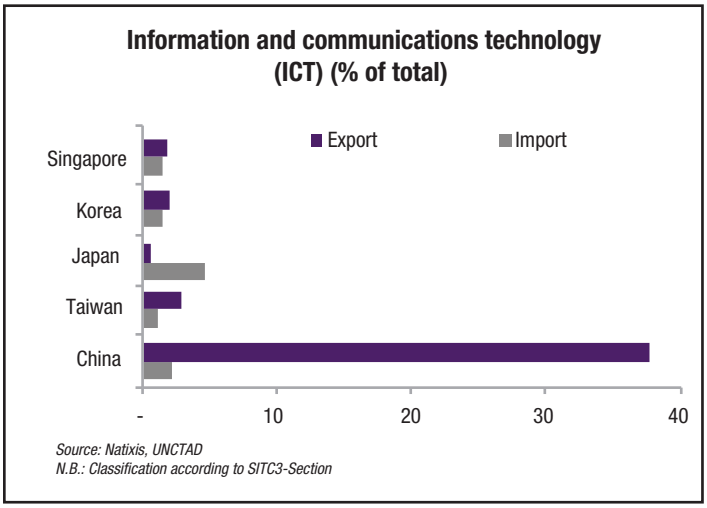
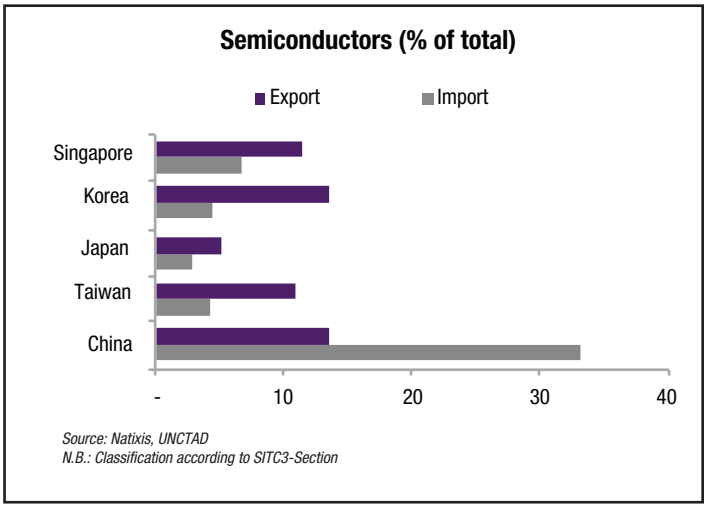


CHART 5



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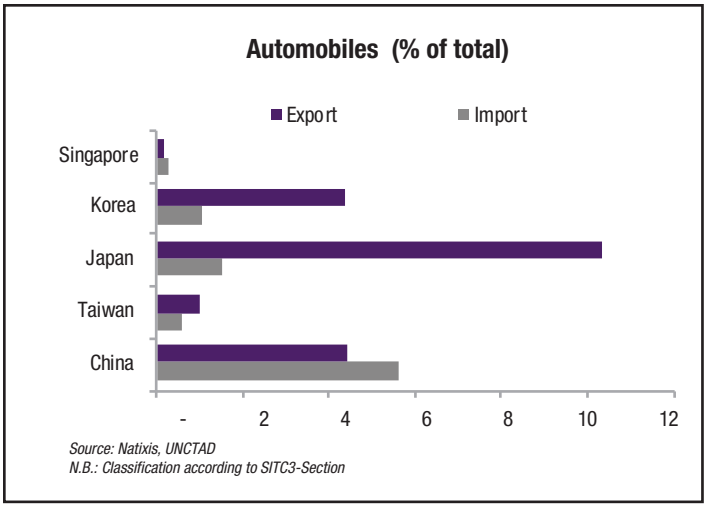

CHART 7

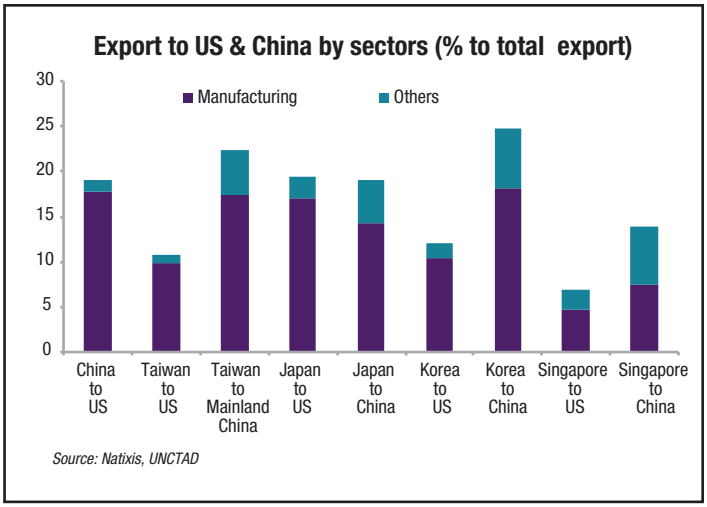

CHART 8

center of the trade war. Since most of the imposed tariffs from both the US and China sides targeting manufactured goods, developed Asia took the hit hard given its dominance over the global market share of manufactured goods. In particular, machinery, equipment manufacturing and miscellaneous manufacturing are most exposed. In addition, high-technology sectors on the supply chain also have higher exposure to the trade war, and the relative importance of such sectors changes drastically across countries. In particular, ICT exports are key for China while exports of semiconductors are essential for Korea, followed by Singapore and Taiwan. Finally, auto exports are the most important for Taiwan (Charts 5, 6, 7).

However, not all sectors or countries will be losers. Given the expected offshoring of manufacturing production from China, any country that has the excess labor — at low enough wages — and the necessary infrastructure to accommodate this manufacturing should benefit in the medium run. The short-run will be harder because China's dominant manufacturing capacity and high comparative advantage is hard to beat. For example, one out of three global labor-intensive manufactured exports are from China, which makes even a manufacturing rock star like Vietnam difficult to replace China, as Vietnam only has a 4% global market share. Moreover, even if ASEAN can benefit from higher volume of sales, China would likely reduce prices if demand for its goods decline in the short-term, negatively impacting ASEAN through the price effect given its market-making position.

In the medium run, though, there will be winners in the rest of Asia not only because of trade tariffs but also rising costs in China. In particular, ASEAN and India do have a cost advantage for some of the labor-intensive manufacturing currently produced in China, and China's aging population will only push labor costs higher due to declining working age population. Many ASEAN countries (except Thailand) are in a much better position in terms of a growing working population, with the Philippines topping the ranking. In addition, rising income means that China's comparative cheap labor advantage will deteriorate. At the same juncture, the US non-existent labor-intensive comparative advantage means that it is unlikely to re-shore labor-intensive manufacturing, so the US will need to find other geographies for the sourcing of goods. In addition to labor-intensive manufacturing, ASEAN are also expected to capture the arbitrage from China in medium-skill manufacturing, as these countries already have significant market share and infrastructure.

Companies are already reacting to ASEAN long term competitiveness in manufacturing. According to the latest UNCTAD investment review (Chart 9), China still absorbs the bulk of Foreign Direct Investment ("FDI") into Asia, but ASEAN, as a region, has exceeded China as an attractive investment destination. Although China is still attractive, it is increasingly less so for manufacturing, which declined from 62% of total FDI in 2006 to only 27% by 2017. Chart 10 shows FDI inflows into manufacturing as a share of total FDI. Manufacturing FDI into Vietnam, Indonesia, and India are already quite large as a share of total FDI received, and larger than for China. The Philippines is an outlier in that it has cheap costs of labor but still does not attract a large share of manufacturing FDI, likely due to relatively uncompetitive infrastructure and electricity costs.

What's more, the countries in emerging Asia to benefit the most are different depending on the industry. Our finding can be seen in the following table. For labor-intensive manufacturing, we focus on demographics and input costs. Vietnam is expected to be in the best position, while India and Indonesia follow, reflecting both favorable demographic transition and cheap wages. For medium-tech and capital-intensive manufacturing, we focus on intangibles such as soft

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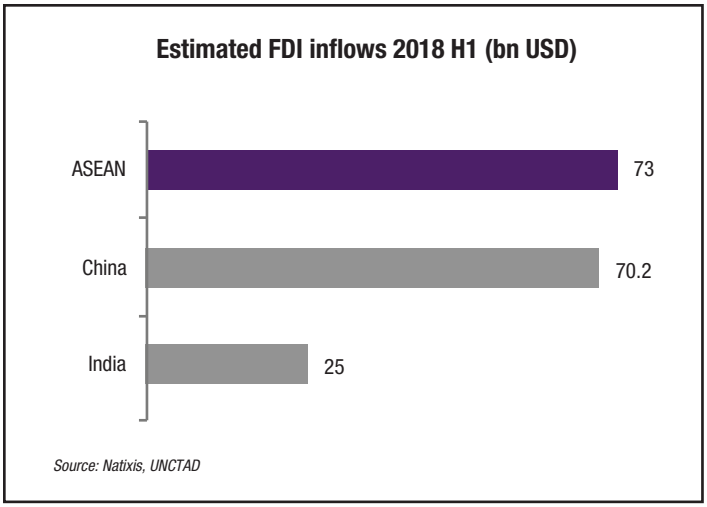

CHART 9

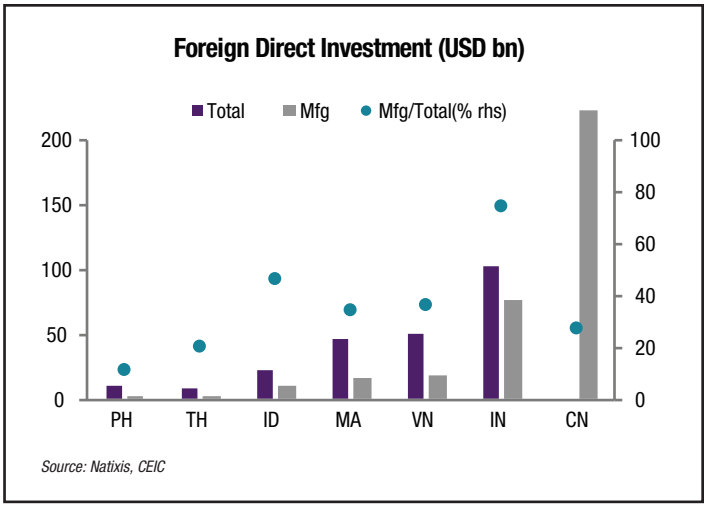

CHART 10

and hard infrastructure, and less on cost of inputs. Thailand comes first for high value-added manufacturing despite its worsening demographic trends thanks to the best in class general business environment and infrastructure.

To sum up, based on our analysis over demographic trends, input costs, infrastructure and manufacturing FDI as a share of total, emerging Asia could benefit from the offshoring of the value chain away from China, especially in Vietnam, for labor intensive products and Thailand for capital intensive ones. Vietnam and India will benefit most from the cost-arbitrage out of China's rising costs. Despite its favorable demographic trends, the Philippines will gain the least, due to relatively expensive electricity and a weak business infrastructure. In contrast, Thailand tops the rankings for higher value manufacturing thanks to both excellent hard and soft infrastructure, mitigating some of the negative impact of worsening demographics. All in all, given China's massive share of global manufacturing, most of Emerging Asia is to benefit from the expected transfer of that manufacturing to lower cost countries in the region. There is room for everybody.

In conclusion, the US-China trade war will inevitably create winners and losers in the near and medium term. Within China, some sectors will suffer more than others. In particular, the ICT will be hit the hardest, while the retail sector remains relatively shielded from the external headwinds, the more so the more China stimulates consumption to withstand economic slowdown. In the near term, developed Asia will be a loser, as the trade war is targeted towards the sectors North Asia exports. In particular, the Japanese automobile sector will be under most pressure, and the semiconductor industry is expected to suffer the most in Korea and Singapore. Another clear loser will be Hong Kong, whose separate trade status will be at stake as it is caught right at the center of the trade war between the US and China. In addition, ASEAN will also lose in the short term, as China's dominance in manufacturing and comparative advantage will constitute a barrier for substitution. However, in the medium run, ASEAN are also expected to capture the opportunity of manufacturing reshoring from China. In particular, Vietnam is expected to benefit most from the reshoring of labor-intensive manufacturing out of China, while Thailand seizes the most gains in capital-intensive manufacturing.

Country rank by Manufacturing Group

	Medium-tech capital-intensive	Labor-intensive
CN	3	7
ID	6	2
IN	5	3
ML	2	4
PH	7	6
TH	1	5
VN	4	1

Source: Natixis, UNCTAD, Jetro, UN Population Statistics, World Bank, Global Petrol

TABLE 1

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CHINA, JAPAN AND SOUTH KOREA: TIME TO REINFORCE, NOT BREAK, COMPLEMENTARITY

By Chong Hoon Park, Head of Korea Economic Research, Standard Chartered Bank Korea

On 2 August, Japan removed South Korea from its 'white list' of countries that enjoy preferential treatment in trade. According to a study by the Korea Economic Research Institute, Korea's GDP would fall an estimated 5.4% if Japan's export controls break the flow of intermediate goods between the two countries by 45%. The economic impact of this move will vary depending on the actual implementation of the move. While Japan has cited national security concerns for removing South Korea from its 'white list,' we think part of the reason could be retaliation for South Korea's Supreme Court decision on wartime compensation, which may put pressure on South Korea to re-consider its court ruling on the matter.

This is not the first time trade tensions between countries in East Asia have intensified for geopolitical reasons. Territorial disputes in the region have caused persistent political and economic tensions between involved countries in the past. Other than the Liancourt Rocks dispute between South Korea and Japan – also known as Dokdo – China and Japan have wrangled in the Senkaku/Diaoyu islands dispute. In 2010, a Chinese fishing vessel rammed a Japanese Coast Guard Vessel in the Senkaku/Diaoyu islands area. The captain of the Chinese vessel was arrested for invading Japanese territory and damaging property. The incident caused the Chinese public to protest, demanding that the Chinese sailor be released. China's government responded with trading sanctions on Japan, limiting exports of rare earth materials and boycotting Japanese products. This dispute led to a decline in trade and foreign direct investment (FDI) between China and Japan.

Notwithstanding the contentious history involving China, Japan and South Korea (CJK), we believe that the countries have benefited substantially from mutual exports and free trade, enjoying a high degree of complementarity. In the long run, free trade agreements among the three nations – initiated in 2016 even amid the global trade protectionism trend – should continue and reap benefits. Free trade, capital flows and vertical integration are likely to create further synergies through an exchange of ideas and technologies and increased competition. We do not expect any single country to claim technological leadership, but rather healthy competition among them due to increased trade will improve the quality of goods and services. This will be helped by the mutual transfer of innovation, new design and new technologies, which we expect will create jobs across the various stages of the trading process.

Given that China, Japan and Korea have been competing in largely the same product markets, they have been alert to each other's trade and foreign exchange policy. China expanded its exports to 13.2% of global exports in 2017 from just 1.2% in 1983. South Korean exports also grew to 3.3% of global export from 1.3% over the same period. At the same time, China became a major importer globally, growing its share of global imports to 10.5% in 2017 from 1.1%, while South Korea's share of global imports also doubled. Japan saw its share of global exports shrink to 4.1% from 8% in 1983, while its share of global imports decreased to 3.8% from 6.4%. Overall, South Korea and China are closing in on Japan's global trade dominance.

Trade complementarity among the three countries has helped them compete more successfully on the global platform. Despite their mutual competition, their products are vertically differentiated, with each monopolising a unique range of products. This has driven


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complementarity. For example, in semiconductors, Japan produces intermediate goods used to make semiconductors in Korea, while China uses semiconductors produced by Korea.

Due to their geographical proximity, trade among the three nations has played a major role in the past (see Figure 1). We highlight two trends: South Korea and Japan's trade dependency on the other two countries has risen steadily to almost 30% in terms of both exports and imports; and China's trade dependency on Korea and Japan has decreased to 10% and 20% for exports and imports, respectively, from 2002. We attribute the latter to China increasing its trade with other countries such as the US at a faster pace, rather than decreasing trade with Korea and Japan.

A careful look at the trade dependency of South Korea and Japan shows another trend in the region (see Figure 2). Both Korea and Japan's dependency on China has increased in all trade, while the relationship between Korea and Japan has slowly decreased.

Japan's trade dependency on China picked up to over 20% in 2018. As of 2018, Japan's top five export items to China were machines, instruments, transportation, metals and chemical products, while China's top five export items to Japan were machines, textiles, miscellaneous, metals and chemical products. The major sectors of trade were somewhat similar, with five of the top 10 'HS 2-digit' sectors being the same. On the export similarity index (ESI), where a reading closer to 1 shows a more similar export structure between two countries, the ESI reading for Japan and China in 2018 was 0.6, indicating high similarity (see Figure 3).

South Korea's trade dependency on China increased to almost 30% in 2018. As of 2018, Korea's top five export items to China were machines, chemical products, instruments, plastic and rubber, and metals. China's top five export items to Korea were machines, textiles, miscellaneous, metals and chemical products. The two countries' major sectors of trade were similar, with seven of the top 10 'HS 2-digit' sectors the same, and an ESI reading of 0.68 in 2018.

Trade dependency between South Korea and Japan has been high since the 21st century due to the structure of their bilateral trade. As of 2018, Korea's top five export items to Japan were machines, metals, mineral products, chemical products, and plastic and rubber. Japan's top five export items to Korea were machines, chemical products, instruments, metals, plastic and rubber. Their major sectors of trade were highly similar, with eight of the top 10 'HS 2-digit' sectors the same and an ESI reading of 0.7481 in 2018. This high level of intra-industry trade, or trade between countries in the same industries, shows an elevated level of vertical integration between Korea and Japan, and the two nations' high trade dependency.

We believe geopolitical tensions could grow and intensify in the near future given China's economic rise. China accounts for more than 25% of global GDP growth (market exchange rates in 2018) and is seeking to overtake the US. While Japan and South Korea have been and remain significant US allies, they may have no choice but to counter China's geopolitical expansion in Asia, perhaps to their own detriment. For example, South Korea recently suffered losses in its travel and entertainment industry due to retaliation from China over a dispute about Korea's US Terminal High Altitude Area Defense (THAAD) system deployment in 2016.

China's use of its economic might to address geopolitical differences has not always brought about its intended result. For instance, during the Senkaku/Diaoyu islands dispute, Japan's auto industry faced major headwinds, given China was Japan's single-largest source of imports and one of its biggest export destinations (even accounting for the decline in exports following the dispute). Japan's auto industry in particular accounted for 13% of the country's total exports, making it the biggest contributor to the economy. Japanese automobiles became a chief target of boycotts and destruction by the Chinese public after the islands dispute. Japan's top three automakers – Nissan (25% sales from China), Toyota (21%) and Honda (16%) – suffered substantial losses from 2012-13 and had to cut production by half as of October 2012.

However, the Chinese boycott of Japanese goods ultimately had a positive effect by forcing Japan's companies to seek trade with alternative markets, such as the US and Thailand, according to a study by Kilian Heilman, "Does political conflict hurt trade? Evidence from consumer boycotts," Journal of International Economics, 2016. The study showed that, from 2011-13, China's share of Japanese exports declined to 18.1% from 19.7%, while Thailand's share increased to 5.5% from 4.6%. During this period, Japanese FDI in China declined to USD 9.1bn in 2013 from USD 13.5bn in 2012, while Japanese FDI in Thailand and the US increased.

Despite the potential and existing geopolitical risks to trade among China, Japan and South Korea, we believe their trade complementarity is essential to support their own regional and global economic standing, as well as to maintain global trade efficiency, given that trade disruptions among the countries have the potential to impact the global production chain negatively.

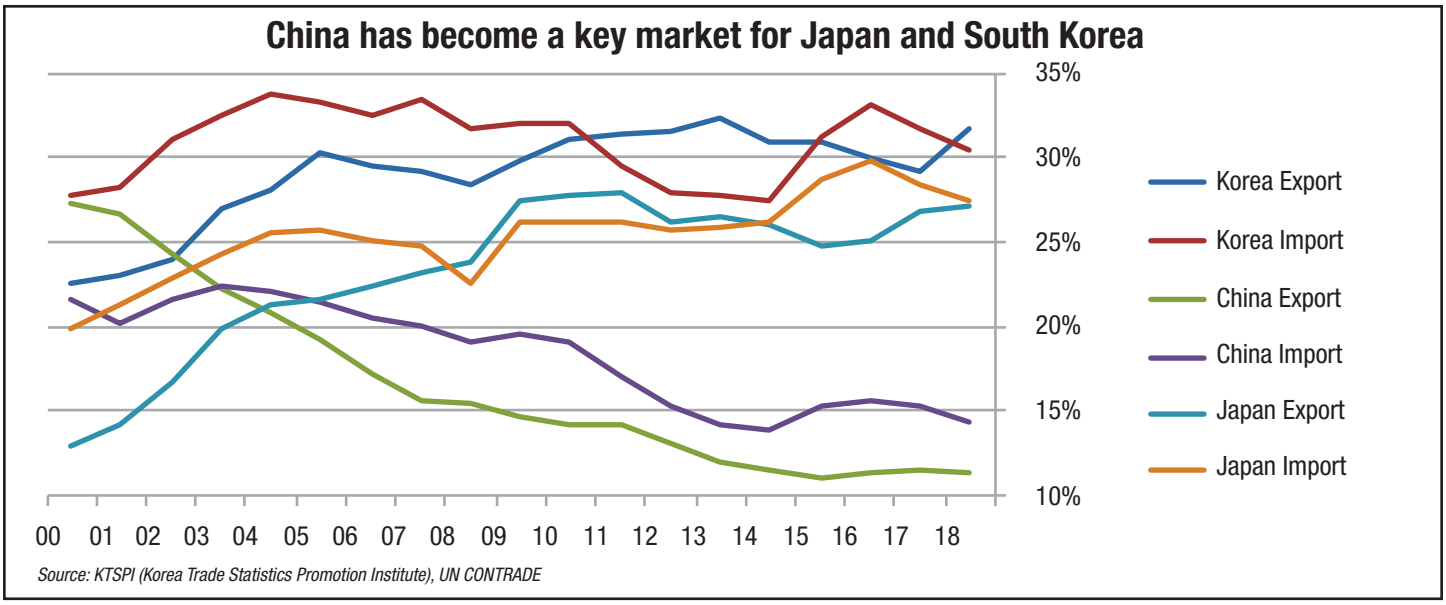

FIGURE 1

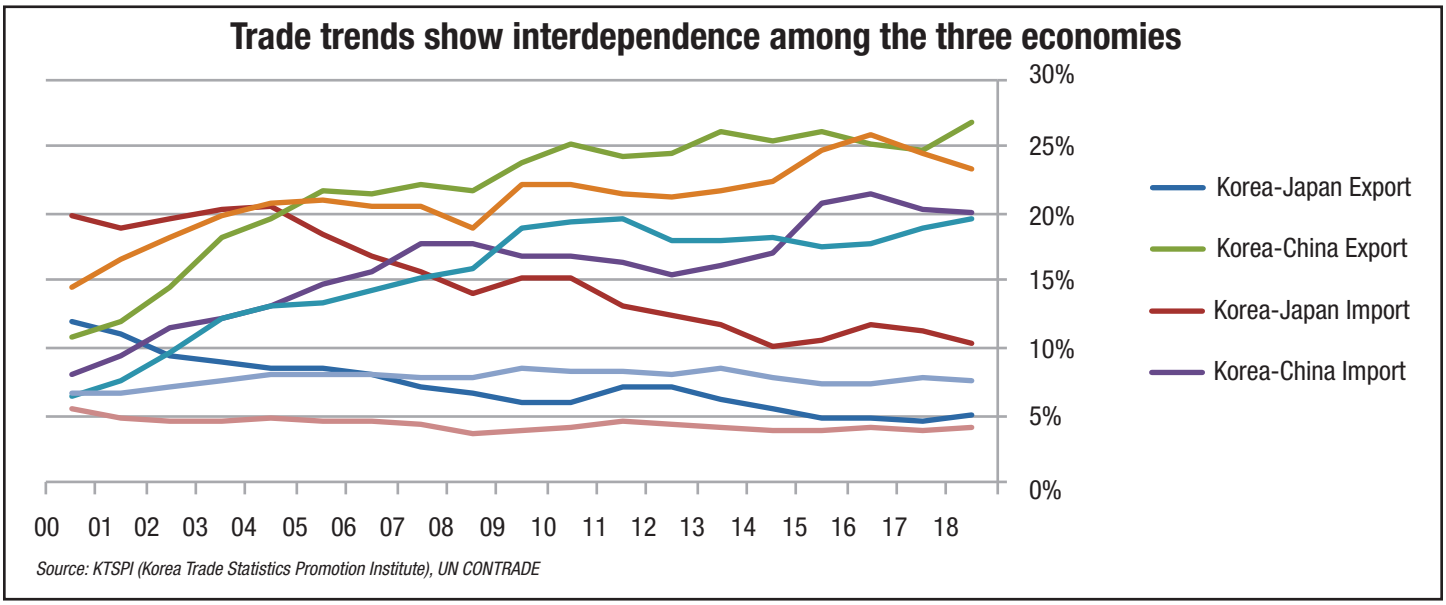

FIGURE 2

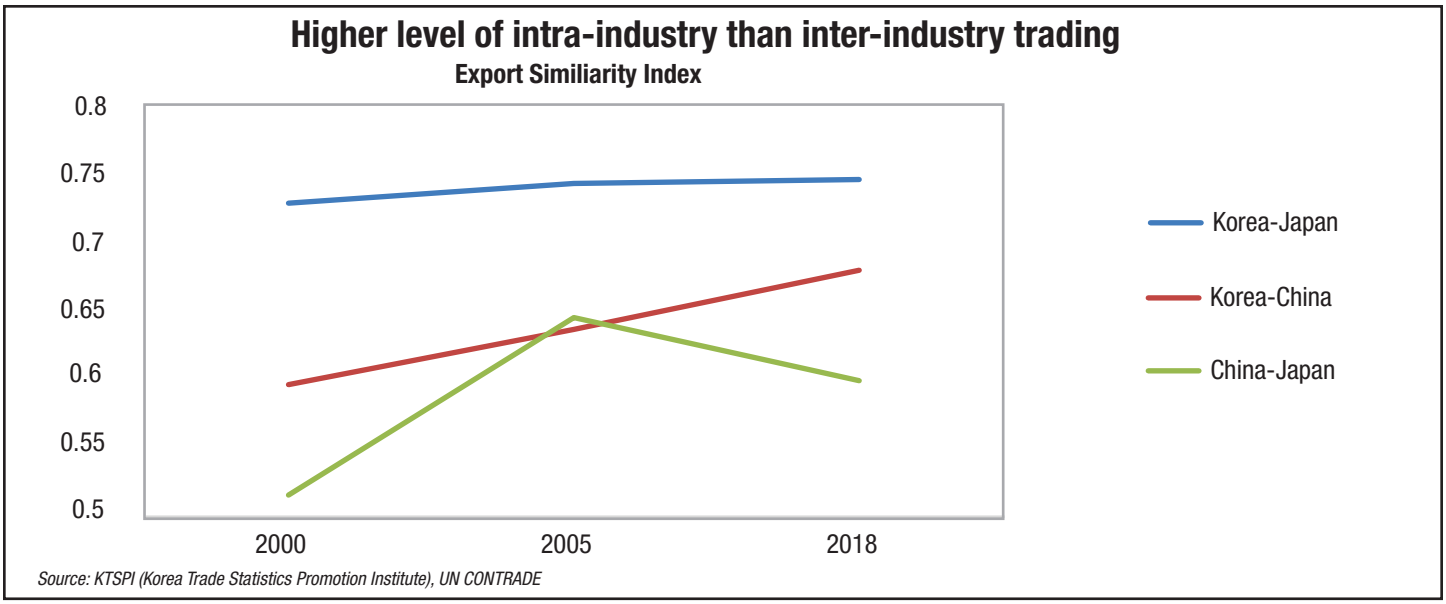

FIGURE 3

REDUCE, RE-USE, RECYCLE? CHINA'S NEXT ECONOMIC FOCUS CREATES NEW WINNERS AND LOSERS

By James Frew and David Jordan, Maritime Strategies International

Its economy has already re-shaped the shipping markets once; the next decade will see China again upset the status quo, write James Frew and David Jordan, Maritime Strategies International.

The last two decades of the shipping industry have been, more than anything else, shaped by the rise of China's economy. The impact on trade flows of the rise of the Middle Kingdom has been profound, but some players in the shipping industry seem to be taking the continuation of the status quo for granted. In fact, the continuing evolution of China's economy will redefine its trading profile and, with it, drive substantial change in the shipping industry.

China's development is following a well-trodden path, which has been marked out over the period between 1840 and 1980 by Britain, Germany, the US, the Soviet Union, Japan and, finally, South Korea and Taiwan; investment-driven industrialisation, followed by a transition (often rocky) to a consumer economy. China's progress on this trajectory will continue to shape the shipping markets, even supercharging certain sectors, but it would be naïve to think there will not be losers as well as winners from this transition.

Put simply, China is moving away from the model which saw imports of iron ore and coal drive its industrial progress, and its crude oil imports were principally for its domestic market, to one where an increasing proportion of its steel output will be sourced from recycled steel whilst its refining industry will be directed towards exports. Within China's energy sector, coal use is beginning to stagnate and projected to decline, whilst gas imports are booming to fuel both electricity generation and power the domestic gas grid.

From the perspective of the shipping industry, large bulk carriers have the most to lose from this transition. In 2018, 64% of Capesize and VLOC demand was derived from Chinese imports of iron ore and coal, equating to 168 Mn Dwt of vessel demand. By 2030, MSI predicts that this percentage will have fallen to 47% or 132 Mn of Dwt, even as the 120k+ Dwt fleet increases by approximately 20 Mn Dwt.

China's iron ore imports are expected to peak by 2021, driven by a concatenation of factors. Most fundamentally, China's economy is predicted to follow the same path as other industrial economies, where steel intensity as a proportion of GDP increases as the economy industrialises, but then plateaus and begins to fall. In 1990, China's steel intensity per unit of GDP stood at 75 tonnes of steel per $ Mn of GDP. It peaked in 2009 at just over 100 tonnes of steel per $ Mn of GDP before falling to 74 tonnes last year. By 2030, this ratio will have fallen even further to 34 tonnes.

This secular shift will be compounded by two factors. Firstly, China's iron ore imports have run ahead of steel production, driven by the closure of uncompetitive domestic iron ore mines. The proportion of Chinese iron ore consumption supplied by imports has risen from 16% in 1990 to 61% in 2013, and then on to around 80% in the last couple of years. This has coincided with domestic iron ore production falling from a peak of 521 Mn Tonnes in 2013 to 311 Mn Tonnes in 2018. However, this trend cannot continue.

Almost by definition, Chinese imports will not exceed 100% of iron ore consumption but, in reality, we believe that approximately 54 Mn Tonnes of Chinese iron ore production will not be shuttered either, because it remains internationally competitive or for domestic reasons (either the mine is attached to a furnace or is owned by a local government).

This will be compounded by the increased use of recycled steel within the Chinese economy. The life-cycle of steel products varies, from relatively short life spans of 10-20 years for consumer goods such as cars

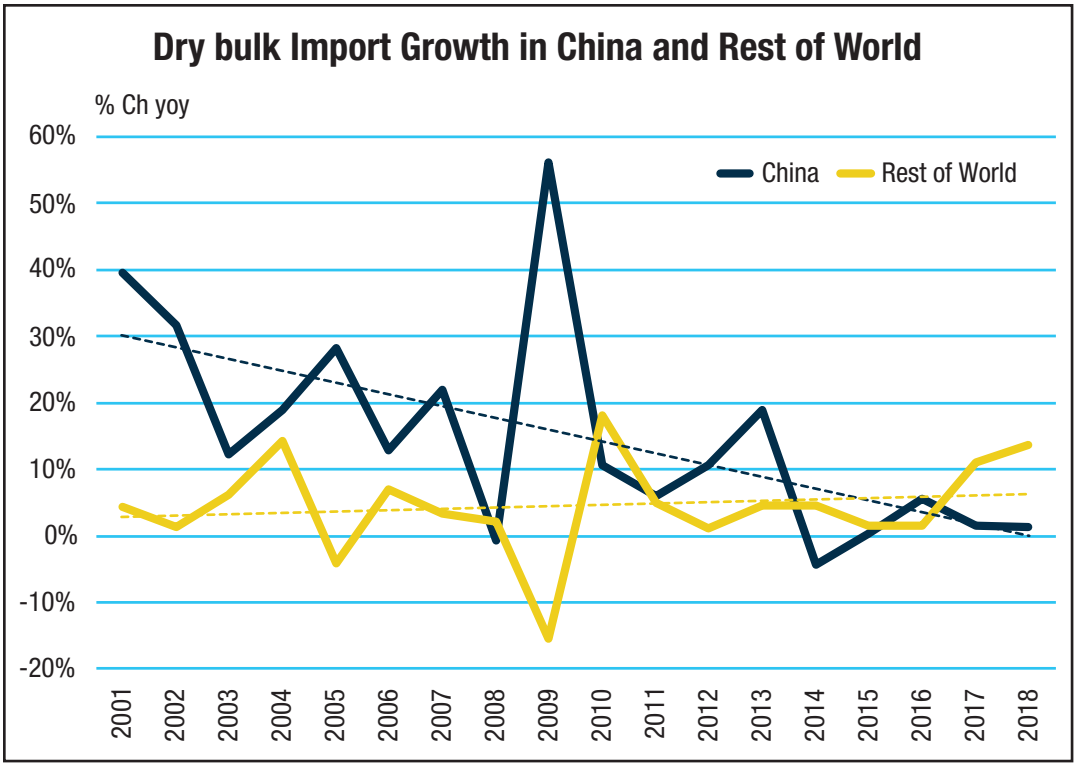

CHART 1

and home appliances, to 30+ years for industrial machinery, and even longer for infrastructure. MSI's market models make appropriate assumptions to account for this variation: the trajectory of China's economy implies that significant volumes of recycled steel will be entering the economy over the coming 10 years, given the rapid growth of Chinese durable goods purchases between 2000 and 2010, and accelerating thereafter. Historically, the perception was that this shift to recycled steel would be driven by an increased use of electric arc furnaces, as has been principally the case in Europe. However, in China, recycled steel has been processed through the use of a basic oxygen furnace.

In other words, exporters of iron ore face challenges not only imposed by environmental restrictions (militating increases in electric arc furnaces), but also cost (as iron ore and coal are substituted by recycled steel in basic oxygen furnaces.

Cumulatively, this implies that Chinese iron ore imports will peak in 2022 at 1,188 Mn Tonnes, up from 1,061 in 2018. However, by 2030, imports will have slipped to 961 Mn Tonnes.

MSI's energy model predicts something similar for coal. Much has been written in recent months about the Chinese government's support for its domestic coal industry limiting any upside on coal imports in the short-term. However, focus on this often obscures a more fundamental seismic shift within China's energy sector: namely, a move away from coal to more environmentally palatable sources of fuel. While the use of gas will continue to boom, Chinese consumption of coal for power generation is forecast to peak in 2023 at around 1,120 MnTOE before falling consistently thereafter.

The impact that this, in conjunction with the maturing of China's steel industry, will have on the shape of the seaborne coal market is hard to overstate. China is currently the largest seaborne importer of coal, accounting for 281 Mn Tonnes in 2018, equivalent to 20% of the global total. MSI's energy model predicts that this total will fall to around 150 Mn Tonnes by 2030 and, while there will be some replacement demand from a burgeoning Indian market over this period, it is likely to be just that – largely replacement rather than a new growth spurt.

Cumulatively, this has significant implications for the dry bulk market. The annual average growth rate of dry bulk imports into China has been decreasing, whilst dry bulk trade elsewhere has oscillated around a fairly constant average. Whilst new importers in regions such as South East Asia and the Indian Subcontinent will help pick up some of the slack, larger bulkers carrying coal and iron ore to China will likely see slower demand growth as this transition unfolds.

For tankers, the picture is more complicated. Chinese crude imports grew almost exponentially with the growth of the Chinese economy, rising from just 3 Mn Tonnes in 1990 to 68 Mn Tonnes in 2000 and 462 Mn Tonnes in 2018. However, for the vast majority of this period, China was insignificant within the Asian products exports market, with South Korea preeminent as the regional exporter of oil products. However, this has shifted rapidly in recent years, as colossal investments in Chinese refining capacity have driven growth in refined products exports.

Chinese exports of refined products have effectively doubled over the last five years, reaching 59 Mn Tonnes in 2018. MSI forecasts substantial further growth, with massive refinery expansion projects continuing in China. Over the period to 2030, we anticipate that Chinese products exports will grow at an average rate of 3.5%, which is remarkable given that the global growth rate is likely to be closer to 1-2% over the same period.

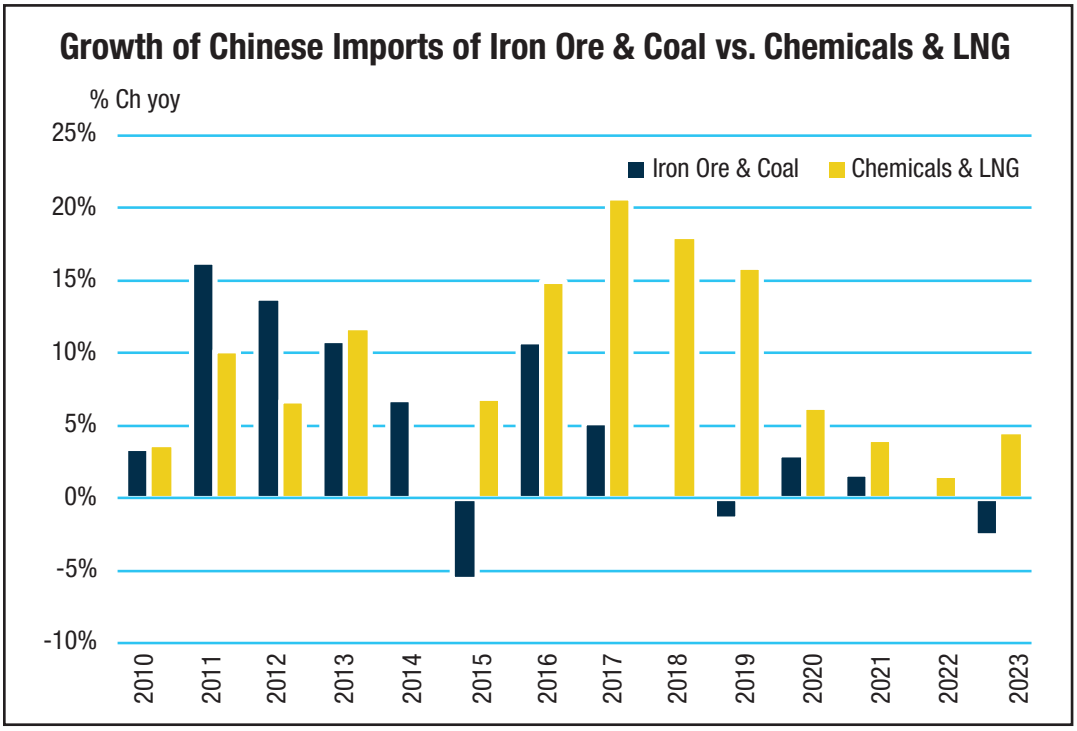

CHART 2

Put another way, Chinese exports will account for a substantially larger amount of global trade by the end of the next decade, up from 4.5% in 2018 to almost 6% by 2030. Whilst, of course, the long range product tankers will benefit, the greatest upside is likely to accrue to the MR market, given the significant requirement for smaller, flexible tankers to access niche refineries in China.

Aligned with the wider global shift to integrated petrochemical refineries, Chinese production of aromatic chemicals is also expected to go through the roof, with paraxylene (PX) taking centre stage. Hengli Petrochemical has led the charge, starting its 4.5 Mn Tonne PX facility in China, with Zhejiang Petrochemical bringing on another 4 Mn Tonnes of PX at the end of the year. The Chinese have also invested outside of China in relation to this commodity with the start-up of 1.5 Mn Tonnes of PX production in Brunei, a key project of China's Belt and Road Initiative. In aggregate, Chinese PX capacity is projected to expand by 18.9 Mn Tonnes by 2023, increasing to 32.5 Mn Tonnes from a relatively modest 13.6 Mn Tonnes of capacity in 2018.

This epic growth in aromatics production has, and will continue to have, an impact on the chemical tanker market. The likely impending oversupply in aromatics has driven petrochemical producers, from Sabic in Saudi Arabia to Reliance at Jamnagar, to reconsider their freight strategies, with competition on freight costs likely to prove almost as important as the competition for cheap naphtha is at present within the aromatics market.

Within the chemical tanker sector, this implies the likelihood of increasing parcel sizes, and a higher focus on freight costs as the Chinese PX market shifts away from being one principally supplied by Japan and South Korea, and towards one where Saudi Arabian and Indian refiners compete with South East Asian ones in Malaysia (RAPID), Vietnam (Nghi Son), Thailand (IRPC) and Brunei (Hengli).

Taken together, China's cargo will shift towards cleaner, post-processed cargoes such as LNG, chemicals and refined products, and away from coal. Chart 2 illustrates this, plotting the growth rate of combined Chinese LNG and chemicals imports against that for coal and iron ore through 2023. Whilst Chinese iron ore and coal imports obviously remain considerable in terms of absolute numbers, the graph plainly shows that they are on a very different trajectory to LNG and chemicals imports.

This shift also has implications for vessel supply and shipyards. LNG carriers have almost single-handedly propped up the South Korean shipbuilding industry in the last few years, and will remain important. Bulker orders recently have been heavily weighted towards larger ships although, in part, this is biased towards ordering of Valemaxes. Our suspicion is that ordering for bulkers (as well as incidentally for containerships) will represent a better cross-section of the fleet over the coming decade, as demand for smaller vessels outperforms demand for larger ones.

What is already clear is that the shipping industry is rapidly approaching an inflection point. Once again, these changes will be driven, in the main, by developments in China's economy and how these redefine its trading profile. The degree to which individual shipping markets will be impacted and exactly when, is open to some debate.

However, it is entirely likely that shipping markets towards the end of the next decade will look considerably different and more complex than they do today. In light of this, for any investor considering existing portfolios and future strategies, it would be sensible to assess the 'new normal' against the 'status quo' to make sure that we are on the right side of history.

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CHINESE LEASING HITTING OBSTACLES?

By Christoforos Bisbikos, Watson Farley & Williams LLP

2018 was another exciting year for Chinese Leasing. Its portion in the global ship finance space grew larger than ever before, representing over 20 percent of ship finance transactions. This development consolidated its upward trend since it became global in 2012. A reminder to all: Chinese leasing represented merely 2-3 percent of such transactions back in 2015.

In addition, the product evolved significantly since its infant years, becoming available to more types of shipowners. The days where Chinese leasing was solely available to the big liner companies seem long gone. We saw a record number of transactions with smaller players owning anything between 10-20 ships, in sectors where leasing was not active such as drybulk carriers and crude carriers. VLCCs, a "forbidden fruit" for financial lessors in the past, became a target for certain big state-owned Chinese financial institutions taking advantage of the clarity in the rules regarding oil pollution (2004 amendment to United States Oil Pollution Act of 1990) and the interesting insurance packages regarding financial lessors' liability deriving from environmental incidents and other risks incurred in the ordinary course of operating/trading of merchant vessels. Tier 2 shipowners finally entered the centre of attention of the Chinese leasing companies, which sparked strong interest from the side of the bulk of the ship-owning community and a frenzy of activity in the deal origination process.

We also saw a number of new players entering into the market (e.g Shanghai Pudong Development Bank Financial Leasing and others) and the increase in budgets in most others. Some, of course, stabilised their budgets given their recent aggressive approach.

Admittedly, most of the activity took place in the first half of the year. The second half, amidst discussions about a potential trade war between the US and China and speculation about China's economy, led to a number of people predicting that Chinese Leasing would finally ease off and eventually be proven as a means of finance that was never meant to stay. How well founded are such thoughts though?

SOURCE OF FUNDING?

One must always remember that PRC leasing houses these days source funds from international sources. A number of them have either gone (e.g. CDB Financial Leasing, CSSC (HK) Shipping Limited) or are planning to go public in the near future. The bank affiliated leasing houses and other State-owned credit rated entities tend to raise capital through bond issuing based on their holding entities' favourable rating. Traditional bank finance is also available to back fund financial leasing projects. In fact, we see more lenders entering into this space. International ECAs have shown their interest and supported Chinese leasing in newbuilding projects (2017 Marine Money Deal of the Year Winner: Citibank – KEXIM financing of five newbuilding container vessels financed by CMB Financial Leasing and chartered out to Seaspan).

Thus, it is evident that lack of funding is not apparent these days. In fact, the Chinese leasing houses seem to be spoilt for choice and so does not appear to be a deterring factor, since sovereign risk and the Chinese banking system look solid and do not concern the credit rating agencies.

POOR JUDGMENT – PROBLEMATIC PORTFOLIOS?

2017 and 2018 were all about diversification in terms of the main players' portfolios. New clients and different type of assets/credits became relevant, the product generally developed broadly and at an unbelievable pace. Of course, such rapid growth bears its risks, but it must be noted that the approach was relatively conservative and mature, particularly once you take into account the infancy of the financing institutions and the logical lack of experience. Ultimately, the stricken sector, after a volatile decade, never appeared to reach solidity and constant profitability — a factor that kept the value of the assets, on an average basis, at reasonable levels. In that sense, the main players got lucky because they seemed to have invested at the right time in most cases. In addition, Chinese leasing houses are picky when it comes to selecting partners and projects, as they are by nature risk averse.

A notable exception is the offshore sector. However, the crisis in the sector hasn't really affected the majority of the leasing houses, only a few which started their operations prior to 2015. Let's not forget that offshore was the flavour of the month during the first half of the decade. Even so, the same players have indeed diversified and they remain active these days. It's difficult not to draw comparisons with the traditional European banking lenders who have huge exposure in the sector and whose activities in shipping have been consequentially adversely affected as a whole.

To summarise, most portfolios look balanced and healthy, showing good growth and profits. There have been small restructurings here (with the exception of a couple of big restructurings in the offshore space) but the general picture looks positive.

REGULATIONS?

Regulation of Chinese leasing seems to be stable. There have not been any reported changes in the rules that would hamper operations and/or deal origination going forward. The introduction of IFRS 16 has certainly not had an impact on the deal flow. In fact, operating leases have now become, to a certain extent, popular amongst the Chinese leasing players because it allows them to classify their underlying debt in a favourable manner, leaving space in their balance sheets for more deals. From the lessee's perspective, favourable accounting treatment of operating leases prior to application of IFRS 16 was an attractive element when the terms generally offered by leasing houses were not competitive vis-a-vis traditional bank lending. Since the product evolved to offer terms that are on par, if not better in some cases, when compared to bank lending, accounting treatment became a non-issue.

Also, since these structures are not tax driven changes, they are to a certain extent less relevant here.

MARKET CONDITIONS?

This is a tricky one. Depending on the sector, of course, there is appetite — or maybe the doors are shut. This fluctuates depending on market conditions. It should be reported that the credit committees and relationship managers tend to react quickly, and they seem to be well informed in terms of choosing a sector.

It must be said that, so far in 2019, the types of projects they have been involved in are different from those of 2018. Projects are bigger, as there seems to be a bit less interest in the smaller projects. Maybe the second half of the year will be a different story, as most Chinese leasing houses will be aiming towards meeting their annual budgets.

One could also argue that there are fewer projects around. The author is certainly not a market analyst, but would assume that changes in regulations in 2020 and the uncertainties surrounding the current trade war have forced a number of potential target-clients to play the waiting game. There are fewer balloons to refinance too, as most financings of the period 2012-2014 have now been refinanced.

The fact of the matter is that the Chinese Leasing houses' budgets for this current year either remained at the same (high) levels of 2018 or have increased. There hasn't been any reported reduction in any main player's budget for this current year so the appetite is still there!

EVOLUTION

Chinese leasing has evolved significantly the past 10 years. The product has opened up as aforesaid, offering more structures with a broader range of terms to more people, and will no doubt continue to evolve. In 2019, it seems that lessors have become more selective and they seem to be streamlining with the traditional financiers when it comes to assessing a potential project. They now have the choice of repeat transactions with the same clients rather than constantly hunting down new names, since they have already built a respectable client base. They finally also seem to now be working together by "syndicating" or sharing transactions with their peers after a period of fierce competition amongst, after all, affiliated financiers.

Furthermore, we seem to now be entering the phase of building and maintaining a portfolio, whereas in the recent past it was all about building a portfolio. Numbers and projects have to be reviewed and maintained respectively by ultimately the same number of people, as the rate of growth in manpower is not proportionate to the rate of growth in the market. This could slow down the process and affect origination although, for the time being, the process seems to be under control. Some, of course, are better prepared than others with large shipping teams and well-manned credit committees.

But the signs generally show a pattern of standardisation. It seems that Chinese leasing has now become a mainstream form of finance supplementing the traditional sources of finance such as banking.

CONCLUSION

We have attempted to analyse the main factors which could determine whether Chinese Leasing's success is coming to a halt. It is the author's opinion that this is far from the truth. We certainly continue to document these transactions, and we have already been involved in discussions in terms of what to expect for 2020.

No doubt we will see more change; in fact, as already mentioned, "change" has been the name of the game in Chinese leasing. It seems to be adaptive and reactive to market conditions and other operational and regulatory requirements.

On the other side of the spectrum, the shipowning community seems to have embraced it and grown to accept it is a popular form of finance. Mortgage finance doesn't seem to get any better. Yes, we have seen an increase of bank financings involving blue chip owners, but the big picture looks grim in view of the introduction of Basel IV. Investors in the public markets remain conservative towards shipping. In other words, leasing has to succeed in order to keep a balance in the financing needs of the average shipowner.

So, let's brace ourselves for another exciting decade in the world of leasing.

POSEIDON PRINCIPLES AND RESPONSIBLE SHIP FINANCING

By Valentina Keys, CMS

On 18th June 2019, 11 banks with collectively over $100bn in assets and representing nearly 20% of the global ship finance signed a global framework agreement called the Poseidon Principles. These are directed towards meeting the Paris Agreement's target of below 2°C, and the International Maritime Organisation's ("IMO") target of cutting greenhouse gas emissions from global shipping by 50% by 2050 (compared to 2008 levels). The 11 Signatory banks will rely on the global Data Collection System for Fuel Oil Consumption by ships ("IMO DCS") (see link to our previous article[1]) when assessing the carbon intensity of their related ship finance, and will work together in promoting responsible ship finance. In this article, we provide a brief summary and workings of the Poseidon Principles.

GOVERNANCE

The Poseidon Principles Association is the governing body of the Poseidon Principles. It provides the management, administration and development of the Poseidon Principles. A secretariat maintains the day-to-day functions of the Association, and is the first point of contact for existing and prospective Signatories. The Secretariat is provided by the Global Maritime Forum through a service agreement. The technical expertise needed for the Principles is provided by Rocky Mountain Institute, University College London Energy Institute and Lloyd's Register (and may include other organizations in the future as and when needed).

SIGNATORIES

The 11 signatories are Citi Bank, Société Générale, DNB, ABN Amro, Amsterdam Trade Bank, Credit Agricole CIB, Danish Ship Finance, Danske Bank, DVB, ING, and Nordea. It may be that more banks will sign up to the Principles in the future.

On 18th June 2019, 11 banks with collectively over $100bn in assets and representing nearly 20% of the global ship finance signed a global framework agreement called the Poseidon Principles.

RESPONSIBLE SHIP FINANCING

Global shipping accounts for around 80% in volume, and 70% in value, of transport of all world-traded goods. IMO projections suggest that business-as-usual GHG emissions from maritime shipping will increase between 50% and 250% in coming decades. Clearly this does not align with the overall aims of the Paris Agreement, albeit shipping was not included in the Paris Agreement. In April 2018, the IMO took steps to persuade its members to agree to (a) reduce the total annual GHG emissions by at least 50% by 2050 compared to 2008 ("the IMO Absolute Target") and (b) to reduce CO2 emissions per transport work (grams of CO2 per tonne-nautical mile [gCO2/tnm]) by at least 40% by 2030, pursuing efforts towards 70% by 2050 (compared to 2008 levels, ("the IMO Intensity Targets")). It is against this global GHG emission reduction framework that the Principles are to be applied by the Signatories when measuring the carbon intensity of their related ship financings.

THE PRINCIPLES

There are four principles that make up the Poseidon Principles. These are "Assessment," "Accountability," "Enforcement," and "Transparency."

PRINCIPLE 1 – ASSESSMENT OF CLIMATE ALIGNMENT

Under Principle 1, Signatories commit to *"annually assess climate alignment in line with the Technical Guidance[2] for all Business Activities."* The Technical Guidance provides different methods on how assessment is to be made and what the term "Business Activities" entails. In order to measure the carbon intensity and climate alignment of a vessel, Signatories must rely solely on (a) the Carbon Intensity and the Climate Alignment Certificate issued by an IMO Recognised Organisation (e.g. independent verifiers authorised by Flag States) and (b) on the verified IMO DCS data (i.e. data for which a Statement of Compliance has been issued by the IMO to the vessel) (see link below[1]). This data is then measured against the standard decarbonization trajectories provided by the Poseidon Principles Secretariat. A decarbonization trajectory is a representation of how many grams of CO2 a single ship can emit to move one tonne of goods one nautical mile over a particular time horizon. The decarbonization trajectory must meet the IMO ambition of reducing total annual GHG emissions by at least 50% by 2050 (based on 2008 levels).

PRINCIPLE 2 – ACCOUNTABILITY

Under Principle 2, Signatories commit to rely solely on the independently verified and approved data as certified by virtue of (a) Carbon Intensity and Climate Alignment Certificates; and (b) the Statements of Compliance issued under IMO DCS. The first set of fuel consumption data from the first compliance period are to be reported to Flag States by the end of March 2020. These will be instrumental in informing the Signatory lenders about the carbon performance of their related shipping.

PRINCIPLE 3 – ENFORCEMENT

Principle 3 seeks to provide an enforcement mechanism to ensure compliance by Signatories with the Poseidon Principles, and to ensure that the various disclosure and information requirements are met. Once IMO DCS data is submitted to the IMO, it is anonymised, and shipowners are not strictly obliged to share this information with any third parties, including their ship financers. This conceivably could cause the Signatories difficulties in assessing the climate alignment of their related shipping. To mitigate this difficulty, the Principles require Signatories to use 'best efforts' to include a 'standard covenant' in each of their new finance agreements, requiring shipowners to provide them with their fuel consumption and other relevant data. The wording of the standard covenant has been provided by the Secretariat. To view an example of a Poseidon Principles Standard Covenant Clause, see link below[3]. Of course, the clause may not be suitable for every scenario, in which case legal advice may be required.

Of course, many will want to see how the Principles work in practice, not only in terms of the relationship between banks and ship owners, but also with an eye to how useful the Principles will be in a world where carbon reporting appears to be generally on the increase.

PRINCIPLE 4 – TRANSPARENCY

The fourth Principle is Transparency. This commits lenders to publicly acknowledge, no later than 30 November each year, their status as a Signatory to the Poseidon Principles, to report the overall climate alignment of its related shipping portfolio and supporting information to the Secretariat, and to publish the overall climate alignment of its shipping portfolio in relevant institutional reports on a timeline appropriate for that Signatory. Climate alignment scores will be published on Poseidonprinciples.org by 31st December each year.

COMMENT

Whilst the Poseidon Principles are a voluntary initiative, the ultimate goal is to create a new standard that may be adopted by many more lenders and ultimately create more favourable rates for lower carbon vessels. Of course, many will want to see how the Principles work in practice, not only in terms of the relationship between banks and ship owners, but also with an eye to how useful the Principles will be in a world where carbon reporting appears to be generally on the increase.

Further details on the Poseidon Principles can be found at the link below[2].

Key contacts: Paul Sheridan (Partner) and Valentina Keys (Senior Associate)

[1] *https://www.cms-lawnow.com/ealerts/2019/03/shipping-and-carbon-eu-and-imo-systems-to-align?cc_lang=en*

[2] *https://www.poseidonprinciples.org/wp-content/uploads/2019/07/Poseidon_Principles.pdf*

[3] *https://www.poseidonprinciples.org/resources/*

GREEN FINANCE IN THE SHIPPING INDUSTRY

By Nicolas Parrot and Maria Dupuis, BNP Paribas

The shipping industry is essential to international trade. Although perceived as highly polluting due to the reliance on fossil fuel power generation, this sector remains the least harmful transportation mode for greenhouse gas emissions ("GHG") per ton of freight transported. Yet, shipping's share in the overall GHG emissions will increase if it does not improve its performance, all the more so as other industries such as road and rail are making environmental progress and reducing their environmental footprints.

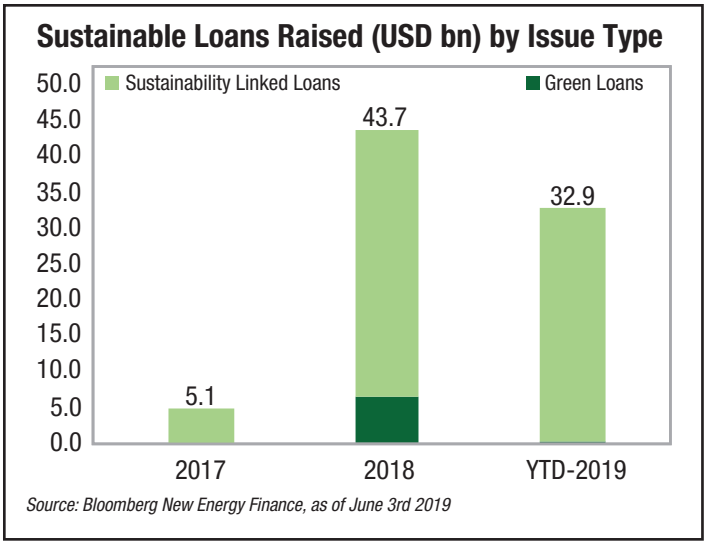
As seaborne trade continues to expand in response to heightened concerns on accelerated climate change, the shipping industry is now focusing on green initiatives through the tightening of governmental and industry-led regulations. From 2020, the shipping industry approaches the turning point of a new decade with an ever-growing emphasis in tackling climate change.

Industry players will embark on ambitious capex and/or opex programmes, which can represent a substantial upfront cost, to meet the requirements of the following regulations:

- IMO 2020 Sulphur Cap: On 1 January 2020, the shipping industry will enter new waters as the rules from the International Maritime Organization (IMO) to reduce sulphur oxide emissions to 0.5% come into effect. Shipping companies whose vessels still consume the current low grade 3.5% sulphur content bunker fuel have just a few months to meet the new IMO standards by either (i) switching to low sulphur oil, (ii) fitting scrubbers, or (iii) adopting liquefied natural gas (LNG) or methanol-fuelled engines (although these technologies are still at an early stage of deployment).
- Ballast Water Treatment ("BWT") Convention: Entered in force globally on September 2017, and with gradual implementation according to the vessel's delivery date and timing of the next survey, shipping companies must implement a BWT management plan that enables any international seagoing vessels to manage their ballast water and sediment discharge.
- GHG emissions: Finally, in April 2018, the member states of the IMO adopted an initial strategy on reduction of GHG emissions from shipping. The ambitious target is a reduction of the total annual GHG emissions by at least 50% in 2050 compared to 2008. In addition, the initial strategy specifically imposes a reduction of carbon intensity by at least 40% by 2030, pursuing efforts towards 70% reduction by 2050. Presently, there are very few ways to drastically reduce GHG and carbon intensity – current technological solutions can only partially reach IMO targets. Substantial R&D expenses will be required to develop low-carbon alternatives that comply with these targets.

The common thread in complying with these three regulations is the additional upfront expenses for shipping companies, and green financing has a key role to play. BNP Paribas believes that the recent growth of green financing means there is now a range of groundbreaking solutions to support the whole spectrum of the shipping industry (from shipyards to shipowners and even engine manufacturers) aiming to reduce their environmental footprint. As a reminder, the main products available include green loans and bonds, and sustainability-linked loans (SLLs). Within this mix, the range of expenditures that qualify for green financing has grown significantly in recent years, although there are differences among the options.

Both green loans and green bonds function very much like conventional loans, with the exception that the funds raised shall be allocated towards eligible green capital expenditure which provide environmental benefits – such as LNG engines to meet the IMO2020 requirements or BWT systems. Aside from steps to meeting the IMO sulphur cap and the BWT Convention, green financing is also available for other sustainability improvements, such as using a more fuel-efficient propeller, refitting to run on methanol, and supporting research and development costs for low-carbon or decarbonisation solutions. In line with the Green Loan Principles and the Green Bond Principles[1], the level of Environmental, Social and Governance ("ESG") performance of the borrower as well as the greenness of the project, are usually assessed and validated by independent certifiers via the issuance of a Second Party Opinion ("SPO"). An annual reporting on the use of the proceeds and the environmental impact is expected from the borrower or issuer as well. Of note, the pricing of Green Loans and Green Bonds are very much in line with conventional loans and bonds. As a result,



their main advantage is the access to a new class of products and investors rather than a lower cost.

Yet, even as the industry reduces its environmental impact, challenges remain – not least in the Asia Pacific region, where many smaller firms do not have sufficiently large green capex projects to allow them to access the green debt market. Here, SLLs, could play a vital role.

Created in 2017, SLLs have experienced a strong momentum from the start, and BNP Paribas believes they could open a new frontier for sustainable finance in the shipping industry. They are also governed by their own sets of guidelines, namely the SLL Principles[2].

In contrast to green loans and green bonds, SLLs provide a generic source of funding for corporate purposes without any specific requirement on the use of proceeds. They are often structured as working capital loans or Revolving Credit Facilities (RCF). They are based on specific sustainability performance targets ("SPT"), including industry- and company-relevant key performance indicators (KPIs), external ESG ratings – or a combination of both. SLLs can, therefore, assist shipping firms move towards a more sustainable operating model, be it smaller companies without sufficient eligible projects, or bigger companies with general funding requirements.

The sustainability element can be reviewed in one of three ways:

1) The borrower's ESG performance as independently assessed by an external agency on an annual basis
2) KPIs that reflect the sustainability goals of the borrower – for example, around the carbon-intensity of their business. This approach may be better suited to smaller shipping companies that may not have external ratings.
3) A combination of the ESG performance and sustainability goals

The incentive for the borrower under SLLs is simple and straightforward: an improvement in the ESG rating or KPI performance leads to a reduction in the interest on the loan. Conversely, the borrower pays more if its sustainability performance slides. A yearly disclosure by the borrower to the lenders on the sustainability element is therefore required for margin determination.

Even though green finance products diversify the funding options for shipping companies, issuances that fully comply with their respective guidelines (i.e. drafting of a framework summarising the compliance of the project with the four pillars and the preparation of a SPO by an independent certifier) have been limited so far. NYK Line issued the first shipping green bond in April 2018, whilst the first shipping green loan was to Star Bulk Carriers Corp. in October 2018. Since then, recipients of green loans and green bonds (with full compliance of the APLMA/LMA/LSTA guidelines) have mostly been Asian-based companies. Interestingly, whilst SLLs are the sole green finance product with a potential decrease in pricing annually, we have yet to witness a shipping company opting for it.

Shipping banks with a strong franchise in Sustainable Finance, such as BNP Paribas, are uniquely positioned to encourage such products within the industry. For instance, they can educate and guide shipping companies through the process to comply with the Green Bonds, Green Loans and SLL Principles. Although there is limited pricing differentiation in many cases, shipping companies should capitalize on these products as a clear communications tool. They can then demonstrate to their stakeholders that they have embarked on a journey towards tackling climate change and are committed to reducing their environmental footprint.

The IMO2020 sulphur emission limits, the BWT Convention, and the IMO 2050 targets are not the first environmental regulations that the word's most important transport sector has had to meet, and they are not expected to be the last either. As the industry continues to reduce its environmental impact, it will need greater access to new, efficient sources of finance as shipping firms chart their course in a greener world.

[1] *Standards issued by the APLMA/LMA/LSTA and based on four pillars to promote integrity in their respective markets through guidelines that recommend transparency, disclosure and reporting. The pillars are (i) use of proceeds; (ii) process for evaluation and selection; (iii) management of proceeds; and (iv) reporting. The Green Bond Principles were first issued in 2014, and last updated in June 2018. On the other hand, the Green Loan Principles were first issued in March 2018 and updated in January 2019.*

[2] *Standards issued by the APLMA/LMA and LSTA in March 2019. The four pillars of SLLs are (i) relationship to borrower's overall corporate social responsibility strategy; (ii) target settling – measuring he sustainability of the borrower; (iii) reporting; and (iv) review.*

DECARBONIZING SHIPPING: HOW CAN OWNERS & INVESTORS PROFIT?

By Kevin Humphreys, Wärtsilä North America Inc.

Shipping remains the most cost-effective, energy efficient, and sustainable means of transporting the world's goods. That's the good news. But in an environment of ever-increasing decarbonization regulation, can owners profit from new technology? Or are they faced with a no-win regulatory burden that displaces capital from its highest and best use? At Wärtsilä, we believe the same technologies that will drive decarbonization can and, in fact, already have decreased owner life-cycle costs, improved cash flow, reduced business risk, and enhanced asset values.

The International Maritime Organization (IMO), the specialized agency of the United Nations responsible for regulating shipping, has committed to reducing greenhouse gas emissions from the world's shipping fleet by at least 50 percent from 2008 levels by 2050. If left unchecked, the exhaust emissions from shipping are likely to triple during this same period. This is in line with the IMO's high growth forecast that anticipates a potential threefold increase to the world's fleet. The aim, under the agency's 'levels of ambition,' is to phase out shipping emissions entirely by the year 2100.

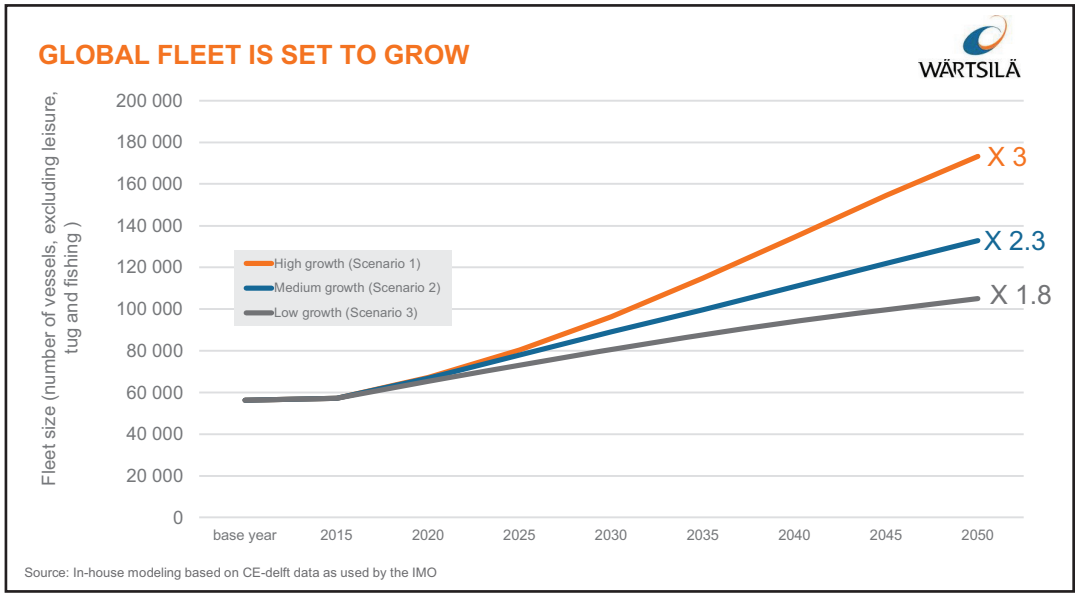
Wärtsilä has been quick to respond to the challenge of decarbonization while helping owners profit by deploying a new generation of vessels. In 2018, the company initiated its 'An Ocean Awakening' wake-up call to the maritime industry. Wärtsilä is urging the acceleration and adoption of environmentally sustainable technologies by all stakeholders including not only shipping companies and charterers, but also investors, banks, port authorities, terminal operators, agents and pilots. Wärtsilä believes that huge cost savings, far better environmental performance, and better returns for shipping investors can be achieved with a new philosophy of vessel equipment integration and big data analytics.

For container shipping alone, global fleet-wide 'waste' from inefficient fuel burning due to sub-optimal voyage planning and execution is estimated to cost approximately USD 16 billion annually. Some USD 245 million is wasted on other inefficiencies, such as crew deployment, maintenance, spares, oils, and facility issues. Active vessels spend an average of 35 percent of their time waiting for and dealing with port operations, and a further 6 percent of their time at anchorage. Unfortunately, most merchant vessels lack even basic technology for performance monitoring and optimization.

Eliminating these inefficiencies is central to Wärtsilä's Smart Marine Ecosystem vision, wherein the use of connectivity, real-time communication, and data analytics in voyage optimization, operations, and energy management are crucial elements in achieving sustainable shipping while improving profitability. The IMO's 2050 emissions target sets a rather high bar for transforming shipping into a new, efficient and carbon-free future, so innovations such as these are essential.

THE MILESTONES MARKING THE ROAD TO 2050

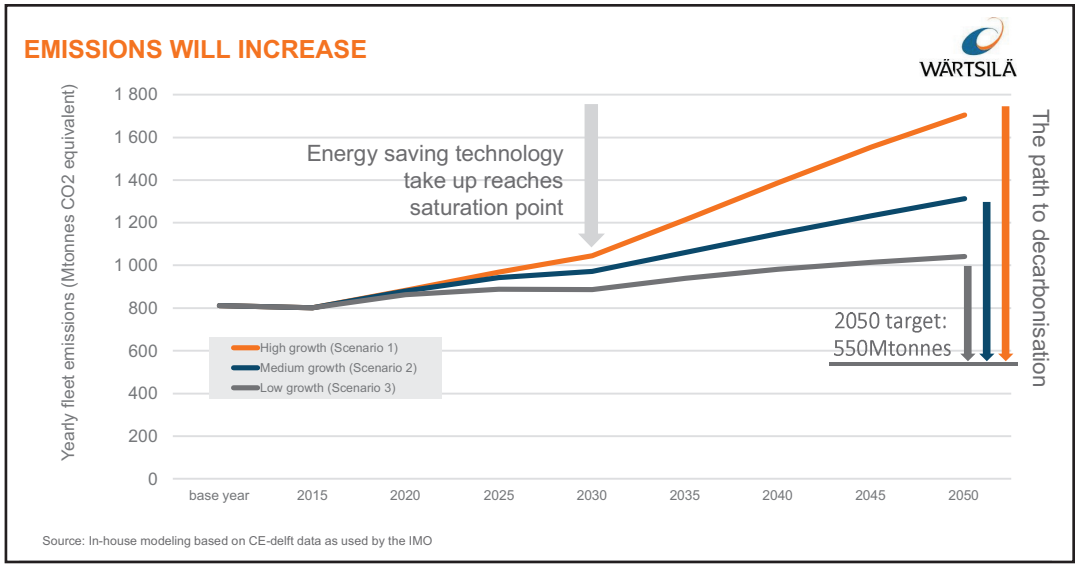
It was never going to be easy for a complex industry to make the changes needed to seriously



address the sustainability targets set by the IMO. Nevertheless, the targets are there, and the maritime industry is having to undergo the process to establish the most realistic and cost-effective means of meeting them.

Along the route to 2050 and beyond, there are milestones that require urgent decisions to comply. The first of these milestones comes into effect on January 1st, 2020, just a few months away, when the sulphur content of marine fuels is to be reduced from the current and easy to comply with 3.5 percent, to the much tougher 0.5 percent. Then, by 2030, greenhouse gas emissions from individual ships – primarily CO2 emissions – must be cut by an average of 40 percent compared to 2008 levels. This applies to all vessels, new and existing.

As noted earlier, based on the predicted demand for cargo transportation between now and 2050, the number of vessels will certainly grow. To enable a 50 percent fleet level cut in emissions, i.e. the combined emissions from all ships in the global fleet, individual vessel level emission cuts will need to be in the region of 70 percent. Whichever kind of economic growth scenario is assumed to be realistic, one thing is certain: more ships sailing the seas of the world will mean more exhaust emissions to be dealt with. For this, the industry has a relatively short amount of time to make the necessary corrections because vessels built today may well still be operating in 2050.



The immediate concern for owners and operators is compliance with the 2020 sulphur content regulations. The technological pathways to compliance are relatively clear and are being addressed with three alternative options — only one of which also reduces CO2.

2020 INVESTMENT OPTION 1

The easiest compliance comes from switching to low sulphur content fuel. The challenges, however, are cost, availability, and CO2 reduction.

Ship engines can run on a variety of fuel oils, so little or no engine modifications are needed to switch to Very Low Sulphur Fuel Oil (VLSFO). However, even if there are no equipment costs, the fuel is more expensive. One estimate is that IMO 2020 compliance will increase the industry's fuel costs by USD 60 billion.

A potentially bigger problem is bunkering availability. Most larger ships operate on HFO. If these HFO users switch to distillate VLSFO, it will require a quadrupling of the currently available distillate fuel, which cannot be achieved merely by further refining of the residual fuels. Only a small percentage of the required fuel demand could be produced in this way. The remaining demand would need to be met by competing with other onshore distillate users or by increased refining of crude oil resulting in increased cost. Another downside to 2020 compliance via switching to VLSFO is little or no reduction in CO2 emissions.

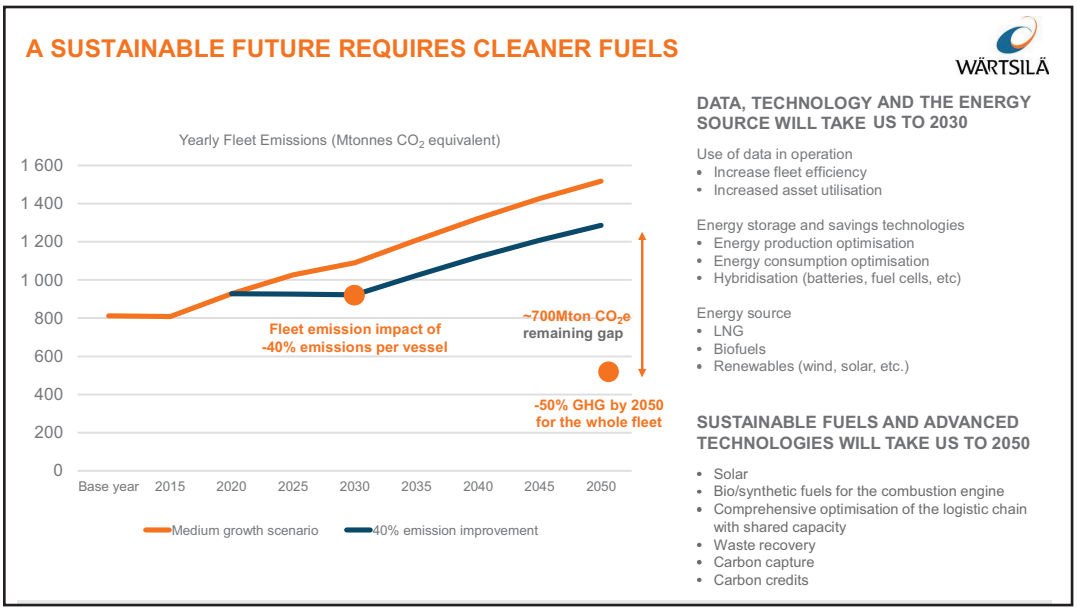
VLSFO is a relatively easy option to implement, but it is likely to have a significant impact on operating costs, be challenged by bunkering availability, and does not reduce CO2 emissions.

2020 INVESTMENT OPTION 2

An alternative compliance option is to have the vessel fitted with an engine that can run on an ultra-low sulphur fuel, such as liquefied natural gas (LNG).

The use of LNG fuel is increasing globally: it has virtually no sulphur content, no particulates, and has the added advantage of reducing nitrogen oxide (NOx) and CO2 emissions. Plus, there is nothing that the internal combustion engine does with HFO that cannot be done with LNG. Dual-fuel engines running on both regular fuel oil and LNG were introduced to the maritime sector some 30 years ago by Wärtsilä, so the technology is well-established and proven.

The LNG delivery infrastructure is being developed rather quickly. This is in response to the increasing popularity of LNG among shipping companies – particularly in the near-coastal and liner trades. The downside of LNG as a marine fuel is high Capex for equipment and still limited global distribution. The upside of LNG is an approximately 25% reduction in CO2 emissions. Despite these challenges, we foresee demand for LNG as a marine fuel increasing.



2020 INVESTMENT OPTION 3

This option allows the operator to continue using the same fuel as before, but with an exhaust gas cleaning system, or scrubber, fitted. The key component is the reactor in the exhaust system that cleans the gases before they enter the atmosphere. It is a practical solution, but not an altogether inexpensive one. The cost of retrofitting a scrubber system can run between USD 2 and 4 million.

Nevertheless, if the fuel price delta widens significantly between high and low sulphur fuel, it will give owners a significant advantage in Opex over vessels without scrubbers. Making many owners come Jan 1, 2020, in effect, fuel hedge players. By January 1, 2020, approximately 11% of the global fleet, representing approximately 16% of total fuel consumption, will be fitted with scrubbers. The long-term downside to scrubbers is while they remove sulphur and particulates, they do little to remove CO2. New technologies will be needed to enable CO2 scrubbing to meet 2030 and 2050 goals.

2030 AND BEYOND

After passing the first milestone – sulphur compliance – the going gets tougher. None of the solutions for 2020 compliance can alone get the CO2 levels down to the IMO's 2050 target. It will require a combination of different solutions to make the needed headway.

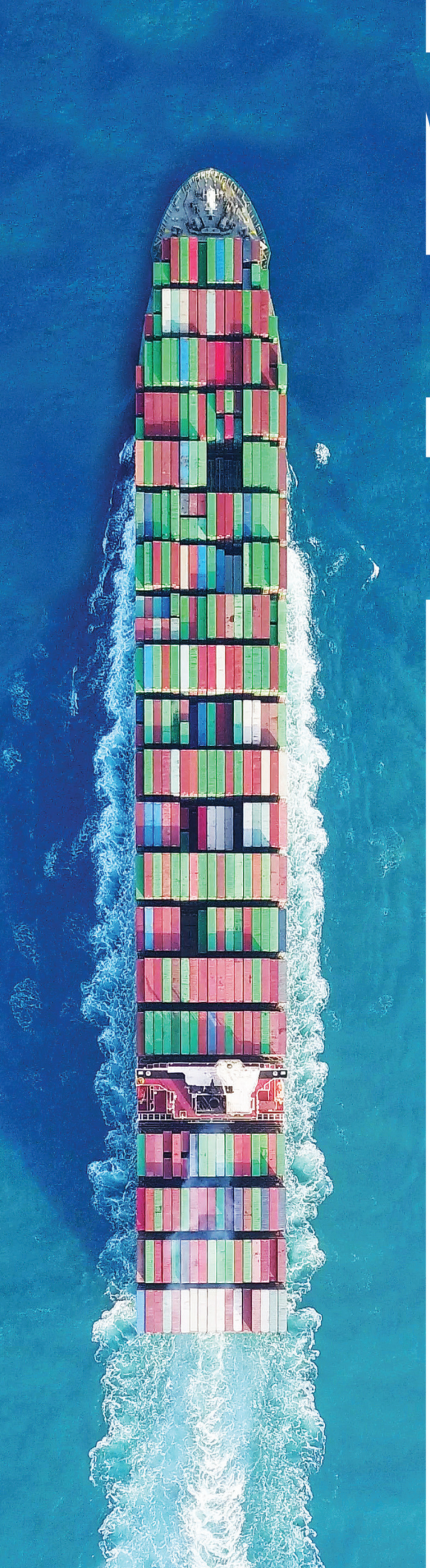
Wärtsilä is taking a number of approaches, including testing battery hybrid power in merchant vessels. Although limited for long range sailing power, hybrid can reduce genset size and operating hours, tap into more efficient energy production of the main engines via a Power Take Off (PTO), and be charged by solar panels installed on hatches. Fuel cells may one day emerge as being technically and economically viable, but Wärtsilä believes that they still need to be coupled with internal combustion engines which will remain at the center of propulsion solutions.

Future clean-burning fuels, such as bio-LNG and synthetic LNG, ammonia and hydrogen fuel cells, will gradually emerge, but considerable obstacles remain before their widespread use can be expected. Thus, in the run-up to 2030 and beyond, Wärtsilä believes the most viable and reliable solution for new ships being built is to have combustion engines running on LNG, supported by the latest digital technology. Combustion engines have the flexibility to accept future renewable liquid and gaseous fuels when they become compliant, market-ready and widely available.

BIG DATA, BIG DATA, BIG DATA

"Smart" vessels with technology for big data performance analytics will play an important role in IMO 2030/50 compliance. Unfortunately, most commodity vessels have limited technology for shore-based monitoring and analysis of fleet performance. In the past, the market deemed this type of technology a waste of Capex with no commensurate Opex savings. Decarbonization will demand the use of data analytics to improve performance. Wärtsilä has shown on a basic liner run that intense data analysis for performance optimization results in a 12 percent improvement in efficiency. This reduces both Opex and CO2 footprint at the same time: a win-win for owners and the environment. In the bulk trade, the inherent inefficiencies give even more room for improvement. Data streams from vessels can be used to manage safety risk, logistics and repair costs. In addition, performance backed by scientific data pushes a vessel to the high end of the used asset valuations, which maximizes owner return and reduces risk for investors and lenders.

Wärtsilä is creating a connected Smart Marine Ecosystem for a sustainable future



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DOES IMO 2020 MASK A FUNDAMENTAL NEED FOR A COMPLETELY NEW ENVIRONMENTALLY LED NEW DIRECTION?

By Richard Fulford-Smith, Affinity (Shipping) LLP

As many readers will know, I left Clarksons in 2008, leaving many friends behind, but found no shortage of fully qualified mates to join me in a new ship brokerage company. Over the next five years, we built up Platou London where we were particularly successful in the short-lived offshore boom and in building the investment banking model, together with our friends in Oslo.

After successfully participating in the sale of Platou to Clarksons (consummated in early 2015), the proceeds were used to set up Affinity (Shipping). We have now been running for four years plus, but this adventure started many years before.

Since 2009, my friend and colleague, WK Ki, and I have debated how shipbuilding could adjust to the collapse of the marketplace following the financial crisis of 2008. Together we witnessed a large build-up of interest around the LNG sector, beginning with the first Korean export order – a deal concluded with our dear friend, Nicolas Saverys back in 1999.

Soon we both realised that, with technological developments, LNG could become a key source of energy for power in the transport industry. For an industry bound to face severe social and governmental pressure to be more environmentally responsible, we hoped that shipping would quickly grasp our message…

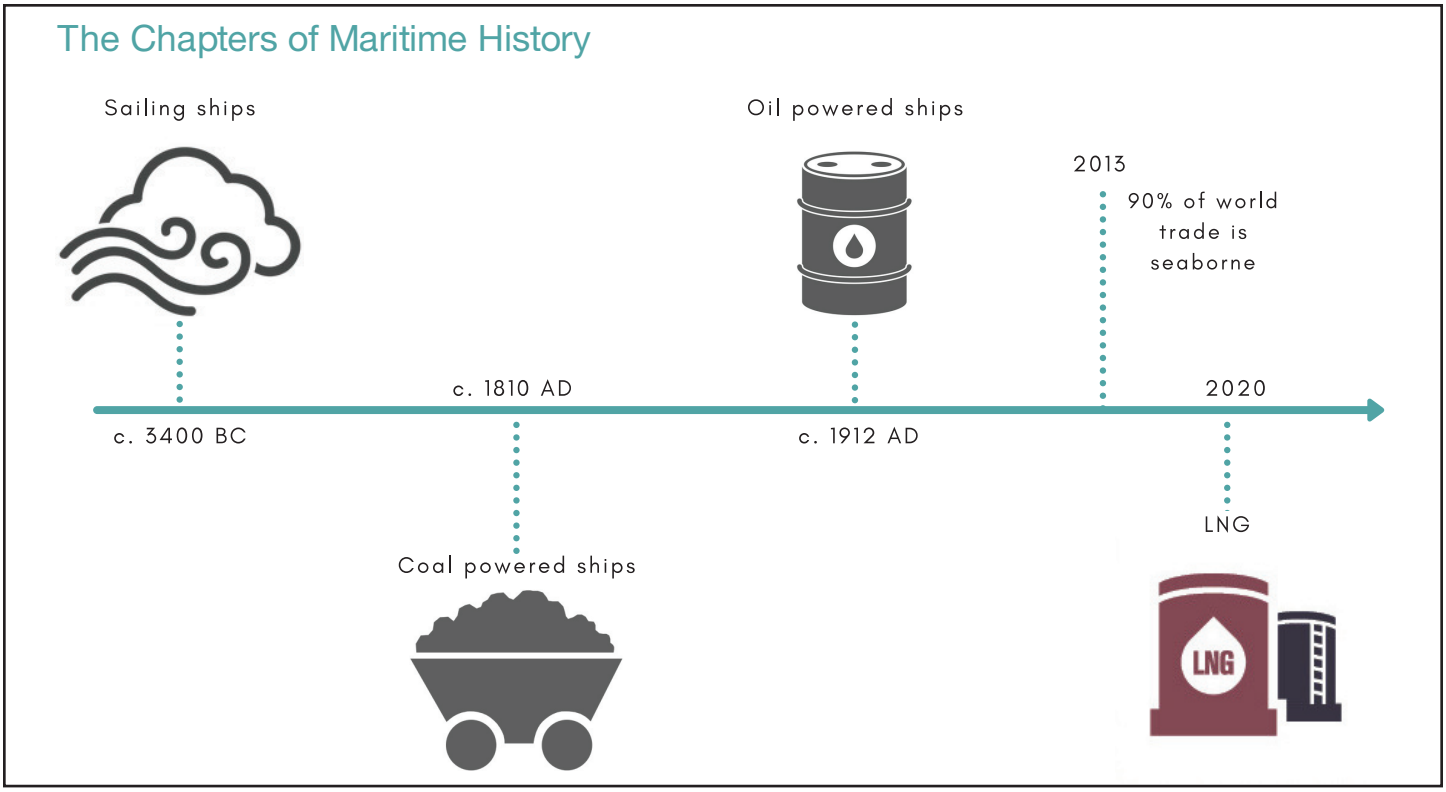
Ten years on, however, with IMO 2020 just around the corner and further legislation looming large on the horizon, our message is only now gaining traction. Since the price decoupling of oil and gas early last year, it has become economically viable to adopt LNG as a marine fuel. Even some of our most ardent detractors have, albeit reluctantly, begun to reconsider their positions. We now witness newbuilding orders for tankers and bulk carriers with LNG fueling – just behind the first of the containerships, starting with CMA and now EPS / Hapag Lloyd with more bound to come under customer pressure.

The build-up of LNG infrastructure to handle bunkering further reassures the enlightened participants of the viability of this solution. The industry is now beginning to recognise that our solution can lead shipping in its first steps towards a cleaner future.

THE DECLINE OF OIL AND COAL

For over a hundred years, the energy source most heavily relied upon for all forms of transport has been oil. During that period, oil has also been responsible for a particularly ugly and recognisable environmental decline. As such, carbon heavy industries have recently faced urgent calls for reform. Diesel engines for road vehicles (until recently championed by governments) are being penalised and, in some instances, banned in major cities. Electric vehicles, despite all the problems surrounding batteries, are increasingly evident on our roads.

International recognition of climate change, and country level action plans, have combined with the ever-decreasing cost of power from renewable energy. Increasingly, companies and industries are adapting their positions to the low carbon economy. Shipping needed to participate with a practical solution to meet demands, now rightly coming from the IMO, to meet longer term objectives as quickly as possible. Despite being a fossil fuel, the liquefied form of natural gas is the best available solution for big ships.



Core to this solution is the number of natural gas fueled power stations commissioned globally. The global macro-infrastructure has been established and shipping has benefitted from a surge in LNG production and exports. With investors backing more FIDs in liquefaction capacity and pipelines, more product is projected to enter the market, month on month, despite the continued softness in an over-supplied market.

It is this over-supply that has driven the collapse in natural gas pricing relative to crude oil and its refined products. With the exploration and production cost of LNG at one-fifth the cost of crude oil, with coal falling out of favour in the West and coal demand peaking in Asia, the shipping industry is beginning to wake up to the opportunity of using cheap and scalable LNG as the primary marine fuel.

The opportunity corresponds with the trend evident in land-based power and transportation sectors. As environmentally superior fuels become affordable, traditional energy sources are quickly replaced. We now find ourselves in this position - LNG is economically competitive and environmentally superior to oil-based fuels.

The view to adopt LNG over oil-based fuels is further driven by public health concerns and the need to address our changing climate. Particulate matter, SOx and NOx emissions all are extremely hazardous to human health. Our industry is also the sixth largest emitter of greenhouse gases, averaging a billion tonnes per year (See graphic on following page). If shipping were a country, it would emit more CO2 annually than the whole of Germany (despite their continuing devotion to using coal fired power stations).

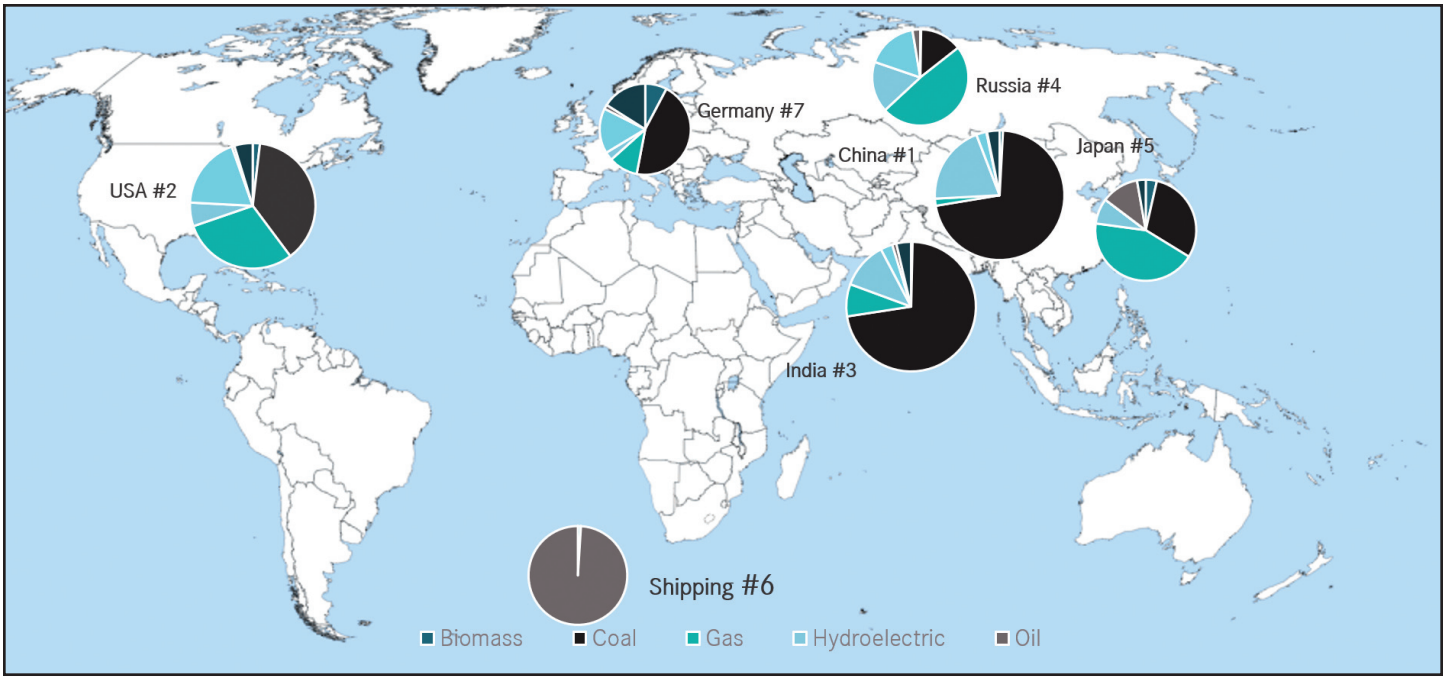
TEMPORARY SOLUTIONS

Upcoming IMO regulation, coming into effect over the next few decades serves to address the issues facing our environment. IMO 2020, coming into effect in January next year, is the most pressing piece of legislation, and leaves four options available to ship owners wishing to remain reliant on oil.

1. The first option is to adopt scrubbers and continue burning heavy fuel oil. This is a logical step for owners of large modern ships with relatively efficient engines (post-2014 is a watershed on relative efficiencies). However, the open loop system will face extensive restrictions on coastal runs and within ECA zones. The closed loop system will also be extremely difficult to handle, regardless of finding places to accept huge quantities of dried sulphur sludge.

2. The second option is to clean up fuel tanks to burn marginally cleaner LSFO or MGO. This route is logical for small and medium sized ships (around 80k dead-weight and below). With in-coming legislation to eliminate all SOx, NOx and particulate matter emissions, these ships face an uncertain future.

3. The third option is to retrofit existing ships. Ships will not be "LNG ready", if requiring under-deck tanks,



unless they are installed during construction. To retrofit under deck tanks is too convoluted, extremely time-consuming and costly.

4. The last option is simply inaction. That is, to do nothing and chance your arm to see how long it is before sending the ship to scrap.

This final category of owners will probably be the last to sympathize with our attitude towards green scrapping — the humane manner in which to break ships on a beach. Much work is now being done to name and shame the appalling beach scrap yards on the Indian sub-Continent that flaunt the most basic rules of health, safety and human decency by endangering their fellow mortals. I shall leave this discussion, however, for another time.

All four of the above solutions here are stop gaps. What's more, these temporary solutions are the subjects of significant debate about relative costs, the fuel cost spreads and the question of who will ultimately have to foot the bill. Lack of leadership means that ship owners mostly argue the toss to avoid having to make decisions/spend money. As usual, shipping is fiddling around the edges of legislation announced a long time ago.

LNG AND GREENER ENERGY SOURCES

The clean-up sought now sees even the most committed users of oil-based fuels realising that the time has come for change. LNG delivers immediate benefits in terms of both greenhouse gas reduction and near total elimination of local air pollution. LNG-fueled ships will be compliant with all up-coming regulation concerning toxic local pollutants and, with improved technological and efficiency measures, comply with both IMO 2030 and 2050.

Until recently, however, the conditions did not suit a fundamental shift from oil to gas in the shipping industry. Inertia in the shipyards with limited technical development dampened the prospects of newbuildings and the tumbling price of crude oil after the shale-gas innovations narrowed the price margin between gas and oil.

Today's investment landscape, however, is very different. A confluence of technical, operational and economic factors, previously non-existent, has opened a promising window of opportunity. These key factors are underwritten by the push of imminent (and up-coming) environmental legislation, the finance community's Poseidon Principals, and a new palette of consumer preference that is overwhelmingly in favour of more sustainable practice.

Since the introduction of fracking, the extraction of gas commonly only costs one-fifth the cost of oil to exploit. Of course, the up-front cost for switching to LNG must be carefully considered. However, once the investment hurdle has been breached, the financial opportunities presented by the attractive price margin between oil and gas are extensive. Moreover, the infrastructure necessary for widespread LNG adoption is largely in place – bunkering opportunities are available around the globe and are especially prevalent across common trade routes.

CHALLENGES

Those in the bulk trades, who deal with less consumer pressure to adopt sustainable practices and compete with tighter margins, might not believe that adopting LNG would be bene-

ficial. However, the ship owners' aversion to investing in LNG-fueled vessels is often based on historic pricing which does not reflect today's spread between gas and oil. The significant discount now available, in favour of LNG, more than makes up for the capital investment – let alone the increased running costs that accompany scrubbers.

Of course, by supporting the adoption of LNG, we could have backed the wrong horse – it is conceivable (though highly improbably) that zero emission alternative fuels are developed within the next twenty years. Ammonia is often touted as a possible option for the future; however, infrastructure costs associated for widespread adoption in our industry are an estimated $6 trillion. Hydrogen fuel cell technology is decades away from being suitable for deep sea shipping. Batteries, although very useful for intermittent power balancing, will never be suitable for anything other than short voyages and coastal sailing.

Renewable gases, however, such as bio or synthetic LNG (the former created through upgrading biogas; the latter, via the Sabatier process), are entirely carbon neutral and would be able to use the existing gas infrastructure without any costly modification. These options are similarly a way off scalable production, but adoption of LNG today allows us to preserve optionality for the future.

If a miracle fuel were to become available within the next 10-15 years, however, what's the worst that would happen to ship owners who had adopted LNG? Ship owners would simply begin to replace their oldest, dirtiest oil ships – the ships which are the most damaging environmental culprits. In the meantime, LNG-fuelled ships would bring us immediate environmental, economic and social benefits – isn't that what business is all about?

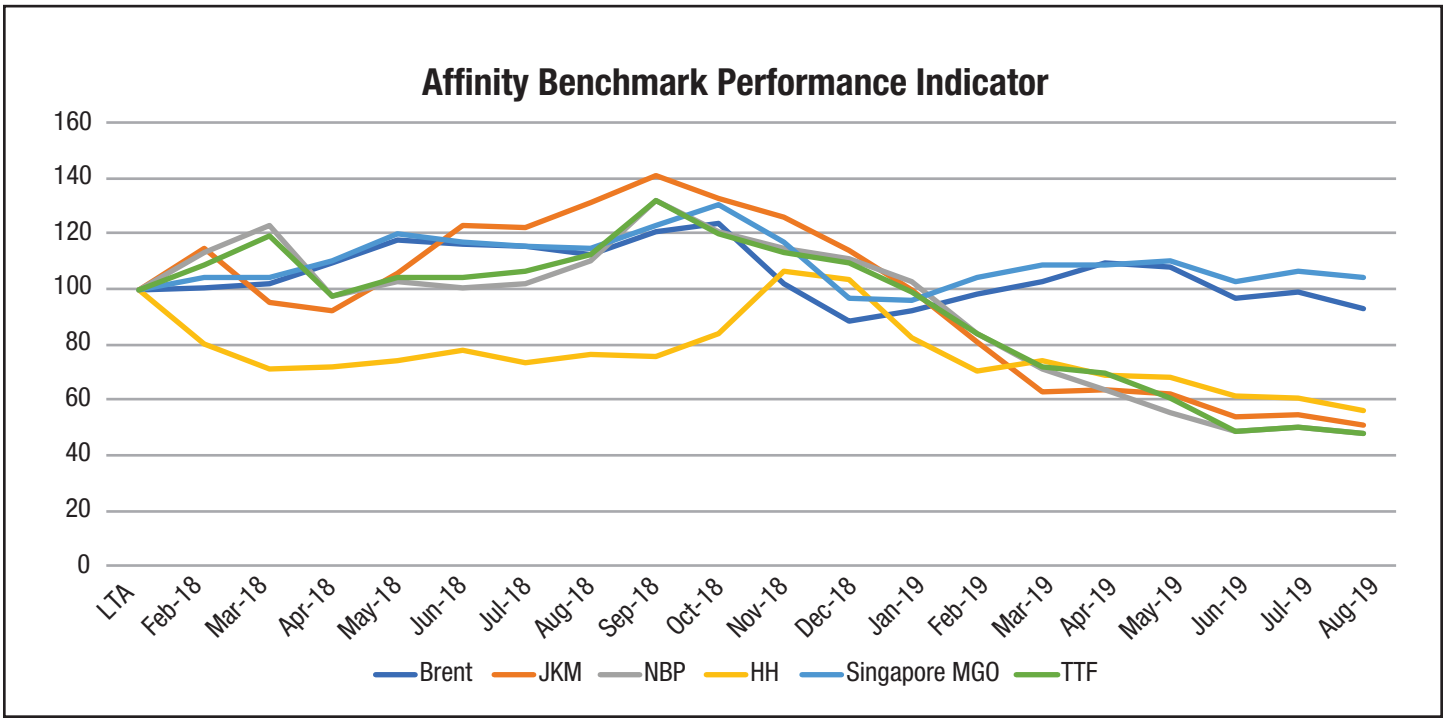
CONCLUSION

Assuming that owners can clear the necessary investment hurdle, the opportunities presented by LNG are significant, immediate and three-fold. Firstly, LNG answers our industry's short-to-medium term emissions troubles (both in terms of greenhouse gases and air pollution) in a way that compliant fuels and scrubbers do not. Secondly, the price spread that currently exists between oil and gas presents clear economic incentives. Finally, the widespread adoption of LNG paints an attractive new business landscape in keeping with social and economic trends. Our new chapter of maritime history will require new industry players with new techniques and structures.

Since the advent of the 21st century, we have been replete with examples of growth and displacement in all sectors and all regions — Amazon in retail (not deforestation), Apple in phones, the growth of institutional aircraft leasing and, at the highest level, China displacing the mercantile manufacturing base. These market disruptions have resulted in the loss of market share (and existence) for some — but *huge* opportunities for others.

The widespread adoption of LNG as a marine fuel will be equally as momentous for our industry. Change is coming and hugely profitable opportunities will soon present themselves. Can the traditional ship owning community adapt and rise to the challenge?

Amen.



LNG MARKET AND THE ROLE OF ECAs

By Sung-Hwan Choi, Hill Dickinson LLP

INTRODUCTION

At the 70th Marine Environment Protection Committee meeting in 2016, the International Maritime Organisation (IMO) decided that steps needed to be taken to reduce the sulphur content of the fuel oil used by ships to, among other reasons, mitigate climate change. In that regard, it was announced that from 1 January 2020, the MARPOL Annex VI would be revised, and that the global limit for sulphur content of marine fuels would be drastically reduced from 3.50% to 0.50%. This is now known as IMO 2020. There are a few possible options which shipowners have to comply with IMO 2020. These options include (i) installing scrubber systems on ships; (ii) purchasing IMO 2020 compliant fuels at a higher cost; or (iii) using liquefied natural gas ("**LNG**") as fuel.

Additionally, there has been strong demand in Asia, particularly in China, in recent years in relation to the import of LNG.

This article discusses the impact of how Asian demand and IMO 2020 have affected the LNG market, and the financing role of export credit agencies ("**ECA**") (with further remarks on Korean ECAs) in relation to LNG orders.

ASIAN DEMAND OF LNG GAS

In recent years, there has been an increase in demand for LNG gas in Asia, particularly in China. The reasons for such an increase are due to the requirement of more energy as the population grows (it is expected that the world will likely require 50% more energy in 2070 as compared to today), and the increasing need to burn cleaner fuels to improve the quality of air and to mitigate adverse climate change. According to Shell's latest annual LNG Outlook[1] , the global LNG trade volume increased by 27 million tonnes to 319 million tonnes in 2018. This was mainly driven by LNG imports from China and Korea, the world's second and third largest LNG importers, respectively. Together, China and Korea represented about 80% of the increase in net trade and a combined growth of 22.2MT in 2018[2]. Shell's LNG Outlook forecasts the trade volume to reach about 354 million tonnes in 2019, and 384 million tonnes by 2020.

Since 2017, China began switching many households and industrial facilities from coal to gas as part of its strategy to reduce pollution, which triggered China's surge in demand of overseas imports of natural gas from suppliers such as Australia, Malaysia and Qatar.

As part of its continuing effort to switch from coal towards cleaner fuels such as LNG, it is understood that China is planning to increase its demand in LNG by 14 percent in 2019 (in the region of 30 to 40 billion cubic meters)[3]. This has led to China becoming the world's largest natural gas importer in 2019, overtaking Japan.

ANTICIPATION OF HIGHER PRICES

Due to the potential increase in demand for LNG as discussed above, the market is already showing signs of anticipation of higher prices for LNG. Recently in Spain, it was reported that Spanish terminals were refusing delivery slots owing to the lack of capacity in the storage tanks[4]. Rather than using the terminal's storage tanks to regasify the LNG and distributing it into the transmission network, which would typically involve a short turn-around time, it is suggested that, in anticipation of higher prices for LNG, traders and operators are using the storage tanks to store LNG until their prices increase in the future. This has resulted in a block in the supply chain.

This trend appears to be reflected by the Australian Competition & Consumer Commission ("ACCC") netback price series[5], which estimates the LNG netback prices (i.e. the export parity price that a gas supplier can expect to receive for LNG exports) against the Asian LNG spot prices. As per ACCC's netback price series, the LNG netback price is currently expected to follow an ascending trend which will peak at the start of 2020.

IMO 2020 AND THE LNG MARKET

The requirements of IMO 2020 have prompted shipowners to consider the possibility of switching to LNG fuel. However, there are huge costs involved in retrofitting existing ships with LNG storage tanks or modifying the ship's engines to burn LNG fuel.

Additionally, the LNG bunkering infrastructure is presently considered to be at a very underdeveloped stage and is less established when compared to the infrastructure for more conventional fuels[6]. While countries such as Singapore and Japan have expressed interest in developing LNG bunkering infrastructure, there is little sign that it will be developed to a scale that will enable a significant rise in global demand by 2020.

As with the typical development of any industry, there first needs to be increased demand in LNG in order for LNG supply and, therefore, the incentive to develop the LNG bunkering infrastructure, to increase. That being said, it is equally true that the LNG bunkering infrastructure should be developed first prior to attracting the necessary demand for LNG.

As discussed above, the demand for LNG appears to be gaining traction given the anticipated increase in LNG prices. It appears that market players are eager to meet this anticipated increase in demand by producing the corresponding supply, with LNG carrier orders surging in the last two to three years. The Korean shipyards have been the main beneficiary of such LNG carrier orders, with major shipbuilders Hyundai Heavy Industries Co., Ltd. (**"HHI"**), Daewoo Shipbuilding & Marine Engineering Co., Ltd. (**"DSME"**) and Samsung Heavy Industries Co., Ltd. (**"Samsung"**) receiving 66 out of 70 LNG carrier orders placed worldwide in 2018.

ECAs

Over the past two decades, ECAs actively embraced their role at the forefront of bringing complex and innovative financing solutions to the LNG market. Following in the aftermath of the 2008 financial crisis the increased regulation of the commercial bank market, in particular, and the implementation of Basel III and Basel IV accords, meant that international commercial banks became subject to stricter requirements to maintain reserve capital and retain liquidity. The importance of this sector has continued to grow as ECAs were once seen as insurers of last resort and were largely confined to support high risk financings in emerging markets, with much ECA insurance having been counter-cyclical. Whilst the perception remains that ECA support increases in importance as traditional financiers become more reluctant to lend (and so provides a bridge where the required debt finance exceeds the available bank liquidity) they will now just as often be found providing specialised products not available elsewhere — for example, political risk insurance.

In this context, ECAs are governmental agencies that seek to facilitate the financing of a LNG vessel and/or the financing of the LNG project in order to further the commercial interests of their country in line with its government policies. Whilst the approach and detailed policy for each ECA differ, the key terms and conditions are to some extent harmonised through the application of Organisation for Economic Cooperation and Development (**"OECD"**) guidelines. The majority of ECAs adhere to the rules of OECD consensus (the **"Arrangement"**) although there are notable exceptions, such as the Chinese ECA and policy banks. The Arrangement is a gentleman's agreement (rather than a legally binding agreement) and one of its functions is to regulate the terms on which ECAs may provide financial support. In addition, internal procedures and processes of any individual ECA will always need to be kept in mind.

Over the past two decades, ECAs actively embraced their role at the forefront of bringing complex and innovative financing solutions to the LNG market.

Support from an ECA may be tied to a particular contract for goods or services supplied by a contractor from the country in which such ECA is established (tied lending) such as the construction and sale of LNG vessels by the big three Korean shipyards HHI/Hyundai Samho Heavy Industries Co., Ltd. (together, **"Hyundai"**), DSME and Samsung.

LEGAL DOCUMENTATION

At the outset, there is a wide range of ECA supported transactions, not to mention that each ECA will have its own bespoke coverage requirements as well. Different ECAs have different issues around certain key topics such as the ability to waive defaults or enforce security, subrogation, whether break costs are covered, and what consent is required to transfer the loan.

Where ECAs provide insurance or guarantee protection to commercial lenders, they will generally retain the right either to vote or to direct the voting entitlements of those commercial lenders covered by this protection on the basis that the ECAs are carrying the ultimate exposure in a default scenario. This is clear where comprehensive cover is provided, but can result in a split of voting control where a partial risk guarantee is given only in relation to political risks.

For many years, the ECAs have observed strict environmental guidelines and policies. The significance of this area in terms

of legal and reputational impact has grown exponentially in recent years, and it is no longer sufficient simply to comply with domestic legislation of the country in which the LNG project is located.

The political risk does feature as an important consideration in a number of LNG projects, and they have historically been fertile ground for the development of structures in which ECAs take the major share of this exposure. This is commonly seen in two principal ways: (i) an ECA provides partial risk guarantees to commercial lenders under which debt service of the commercial lenders will be funded by the relevant ECA in the event that the borrower defaults due to the occurrence of a specified political risk and; (ii) where completion support is given by the sponsors as described above, the sponsor is excused liability if the reason for the completion delay or borrower's inability to service debt was attributable to a political risk event. In a structure that combines both of the above, it is clearly important to harmonise the terms of the political risk protection in both cases in order to avoid commercial lenders being subject to a gap in coverage.

Also, in any event, most ECAs do not agree to take documentary risks, and so the supported lenders will need to be comfortable that the ECA's requirement have been satisfied. It is important to always keep in mind that documentation risk in an ECA supported transaction is a lenders risk.

KOREAN ECAs

The shipyards in Korea (as mentioned above) and, to a lesser extent, Japan will continue to supply the bulk of new LNG carriers.

Korea remains the powerhouse in LNG carrier construction. DSME accounts for roughly one-third of all announced orders till 2022, and Samsung and Hyundai account for another one-third. LNG is well placed to compensate for falling orders for conventional tankers, dry bulk carriers and container ships.

If provided the opportunity, Korean ECAs — namely, The Export-Import Bank of Korea (KEXIM)[7] and Korea Trade Insurance Corporation (K-SURE)[8]) — would (as in past cases, e.g., Golar's US$1.125 billion financing for a clutch of floating storage and regasification units) actively fund the construction of LNG vessels. Shipping lenders who have looked to long term charter-based cash flow volumes before residual value have suffered lower losses than asset-based lenders and will be wary of supporting riskier LNG carrier deals. That said, Korean ECAs which have supported Korean yards focusing on LNG, may have to consider financing vessels either without charters or with much shorter-term charters than has been common.

However, the reality is that ECA financings for LNG vessels have been so rare that only half of the operators with more than three vessels on order till 2022 have utilised ECA debt in the past. However, the demand for LNG carriers is more diverse and less concentrated than the supply, and might point to greater variety in financing types. With these operators having a diverse risk profile, and serving an increasingly diverse mix of customers, newer sources of financings are likely to emerge.

Although LNG carrier ECA financings are infrequent, Korean ECA involvement is surely likely as long as these agencies have resources to support Korean yards, and Korean yards continue to win new orders (as seen the past year).

In summary, the prospect for ECA related/covered financings clearly serves to send a message that, notwithstanding the aftermath of a financial crisis and the ensuing liquidity crunch, a low commodity price environment or a sovereign downgrade for a host government, ECAs remains open for business and at the forefront of participating in well-structured financing deals. The ECAs (in particular the Korean ECAs) have played a part and will be a bigger part, and been major facilitators of LNG vessel orders and LNG projects over the years, and this is likely to remain a key factor going forward.

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1 *https://www.shell.com/promos/overview-shell-lng-2019/_jcr_content.stream/1551087443922/1f9dc66cfc0e3083b3fe3d07864b2d0703a25fc4/lng-outlook-feb25.pdf*

2 *https://www.igu.org/sites/default/files/node-news_item-field_file/IGU%20Annual%20Report%202019_23%20loresfinal.pdf*

3 *https://oilprice.com/Latest-Energy-News/World-News/Asian-LNG-Glut-Stronger-Than-Chinas-Robust-Demand-Growth.html*

4 *https://sg.finance.yahoo.com/news/global-lng-glut-spain-curbs-123031067.html?soc_src=community&soc_trk=wa*

5 *https://www.accc.gov.au/regulated-infrastructure/energy/gas-inquiry-2017-2020/lng-netback-price-series*

6 *http://www.seatrade-maritime.com/images/PDFs/SOMWME-whitepaper_Sulphur-p2.pdf*

7 *KEXIM was established pursuant to the Export-Import Bank of Korea Act and is 100% owned by the Korean government. Its president is appointed by the President of Korea on the recommendation of the Minster of Strategy and Finance. If KEXIM incurs a net annual deficit and has insufficient funds to make any payment under any of its obligations, the Korean government is legally obliged to provide funds to cover such deficits/insufficiency.*

8 *K-SURE is 100% owned by the Korean government. Its president and auditor are appointed by the relevant Korean ministries. The Korean government supplies funds to K-SURE through the Trade Insurance Fund, which is managed separately from the annual expenditures and revenue of the Korean government (Article 5 of the National Finance Act).*

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A LOOK AT DEMAND & SUPPLY BALANCE ACROSS CRUDE TANKERS, BULKERS, LNG AND LPG

By Charlie Hockless, VesselsValue

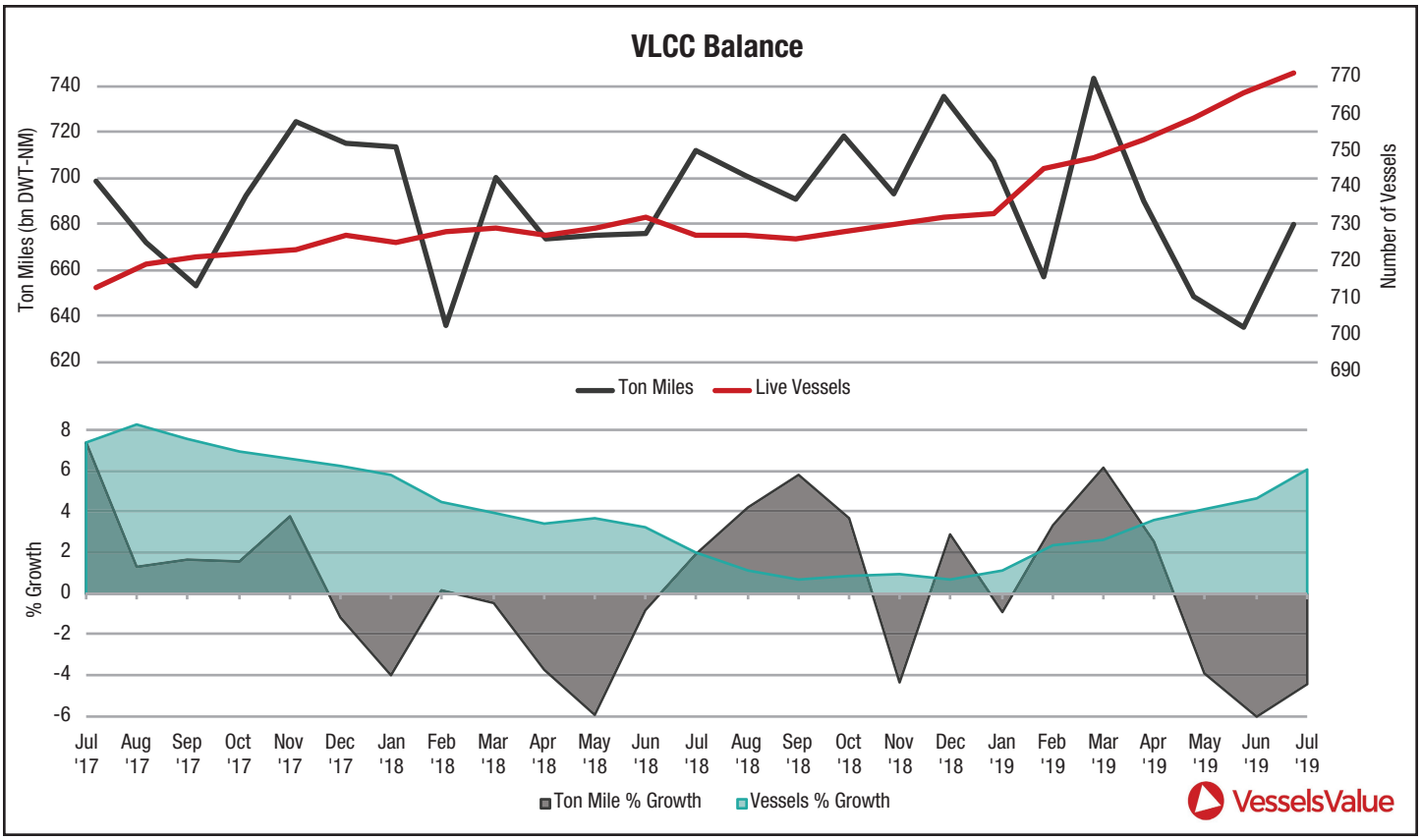
It is a well-known fact that the fortunes of the shipping markets are determined by the interaction of the demand for and supply of vessels. Therefore, understanding what is happening with the growth in demand and supply of vessels across different vessel types is critical. This article will look at the current and recent historical supply and demand relationships and percentage changes across different major sectors, specifically: crude tankers (VLCC, Suezmax, Aframax), bulkers (Capesize, Panamax, Ultramax, Supramax, Handymax), LNG (large LNG) and LPG (VLGC).

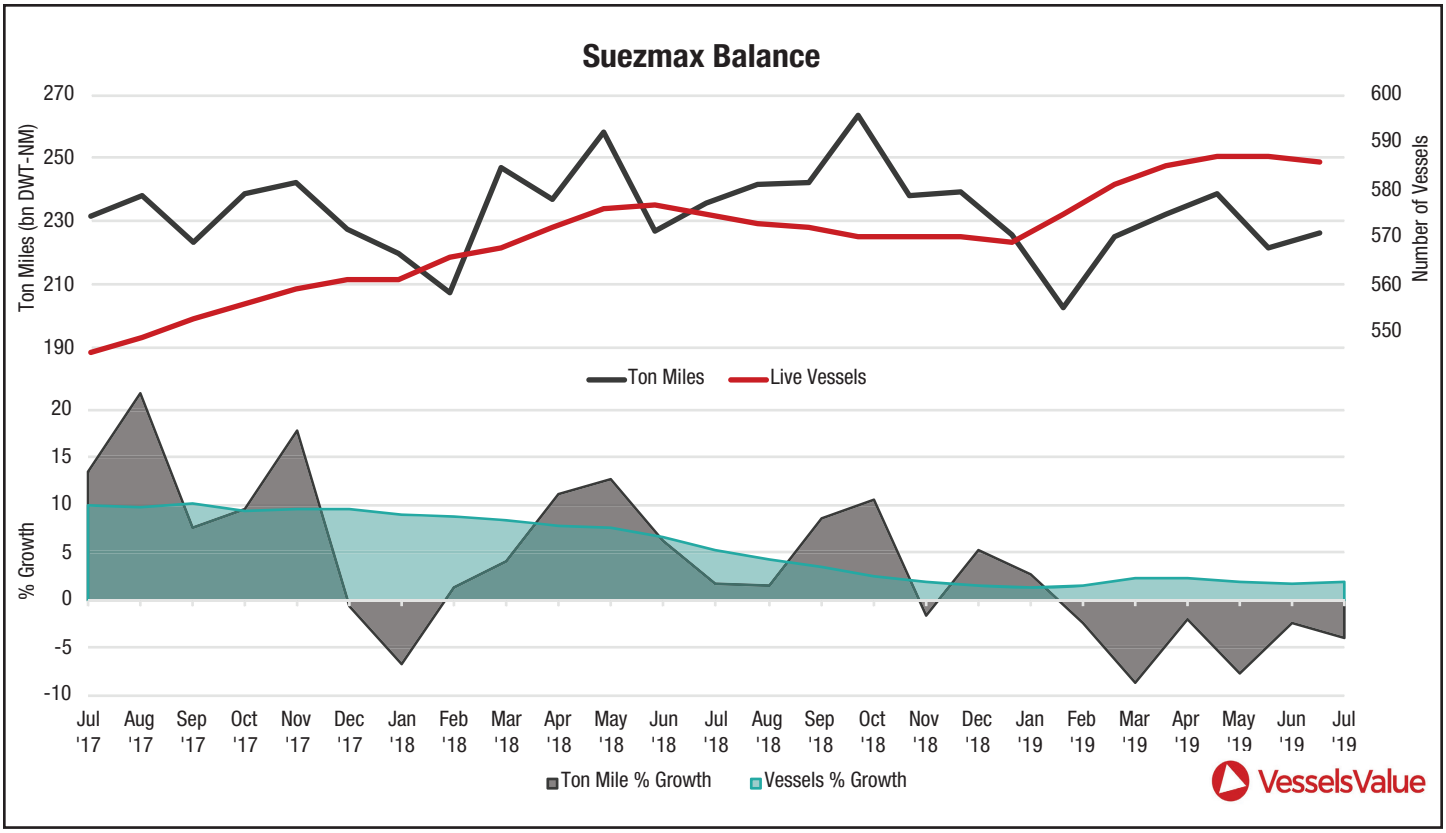
Before we move onto this analysis, a few words on our methodology for measuring supply and demand.

METHODOLOGY

Current and historical vessel supply is relatively easy to measure. At any time, it is the number of vessels or total cargo carrying capacity available globally. Future vessel supply estimation requires a fair number of assumptions, specifically concerning potential future ordering, shipyard capacity, and expected vessel demolition. Therefore, for the purposes of this article, focus will be on current and recent historical vessel supply, and not assumed future supply.

Measuring current and historical demand for vessels is more complex. The best measure for demand is cargo miles (i.e. ton miles for tanker and bulker, CBM miles for gas) as this covers both the cargo volumes and the route distances. We





measure cargo miles by identifying in real time when each vessel is loading cargo, is on a laden journey, is discharging cargo, and is on a ballast journey, as well as other vessel activity such as waiting, idling, storage, and bunkering. This data is derived from 15-minute updated vessel locations via satellite and terrestrial AIS combined with extensive geographic information (GIS) and proprietary algorithms, supported by a specialised trade team of over 30 data scientists across the UK and Asia. This allows for the cargo miles of each vessel to be measured in real time. This can then be aggregated up to any level required for analysis, for example by vessel type, company fleet, geographic trades, and much more.

The analysis below will look at the changes in growth rates between vessel supply and cargo mile demand, giving an insight into the prospects of the different sectors and the industry as a whole.

CRUDE TANKERS

VLCC

The charts show the demand and supply relationship for VLCCs from July 2017 until the end of July 2019. The top chart shows the absolute ton mile demand, illustrated by a grey line, in billions of DWT miles on the left axis compared with the number of vessels on the water, illustrated by a green line, on the right axis.

The bottom chart shows the year on year percentage change on a rolled monthly basis of both the supply, shown by the green area, and ton mile demand, shown by the grey area. The simple message from this second chart is that when the grey area is above the green, demand is growing faster than supply, which should indicate potential improvement in the market if this trend is sustained, and vice versa.

This data effectively shows that, over the last two years, growth in supply has, on average, exceeded the growth in demand, except over two periods: July to October 2018 and February to March 2019. In recent months, cargo miles have fallen quite significantly, possibly due to political tensions in the Middle East Gulf and Venezuela which have reduced cargo volumes out of these locations. This can clearly be seen in the drop in absolute cargo miles on the top graph starting in March 2019. However, the good news is that cargo miles appear to be rising since June 2019.

Suezmax

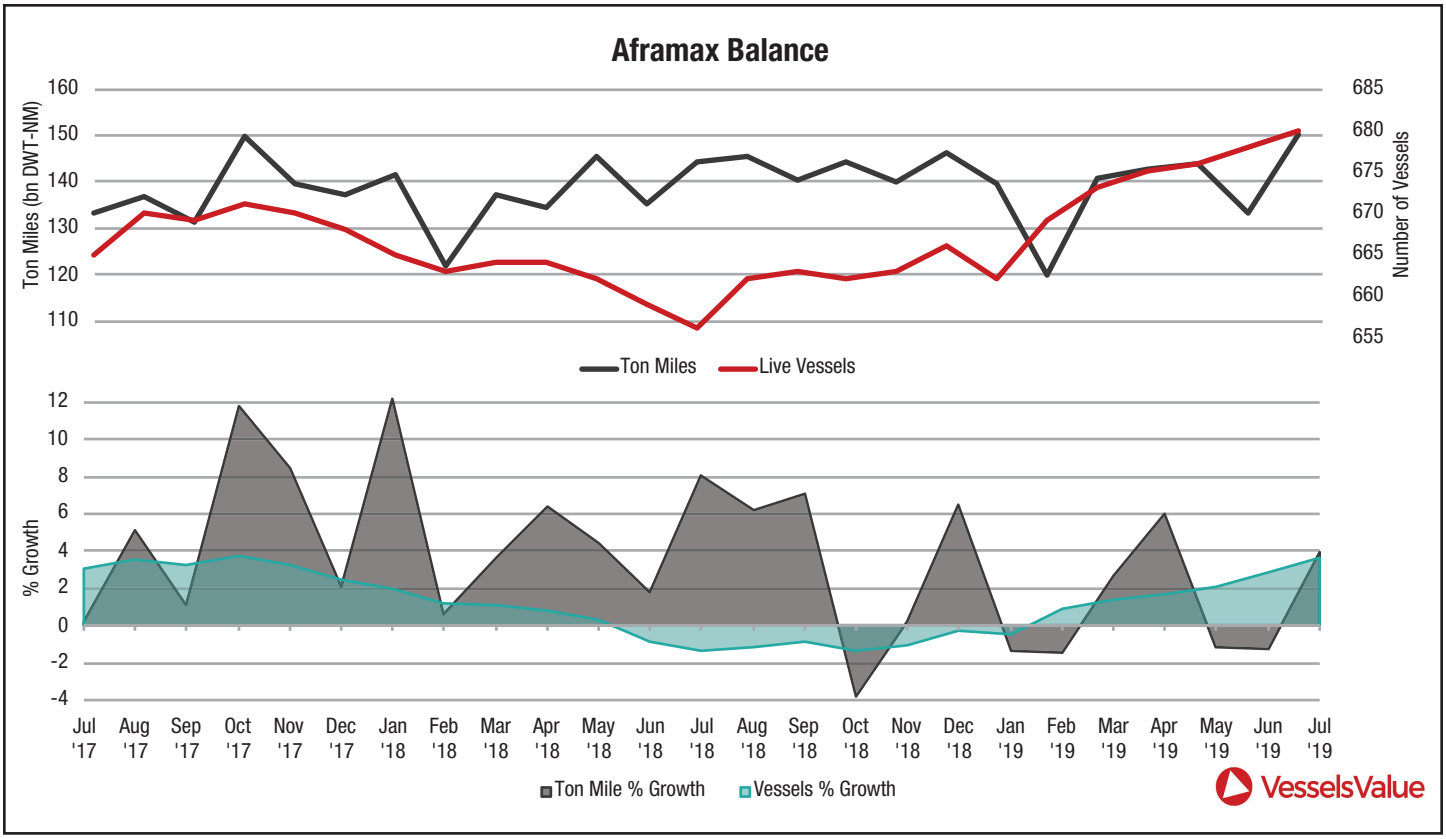
Data shows that cargo mile demand has been falling on average since the end of last year, with 2019 levels below those of 2018. Vessel supply has grown at a very minor rate but has still exceeded the growth (or lack thereof) in cargo mile demand.

Aframax

This chart clearly shows that, over the last two years, growth in demand has significantly exceeded supply. However, since May 2019, this trend has reversed, with a fall in demand, coupled with increasing vessel supply.

Crude tankers combined

Combining the data for VLCC, Suezmax, and Aframax tankers

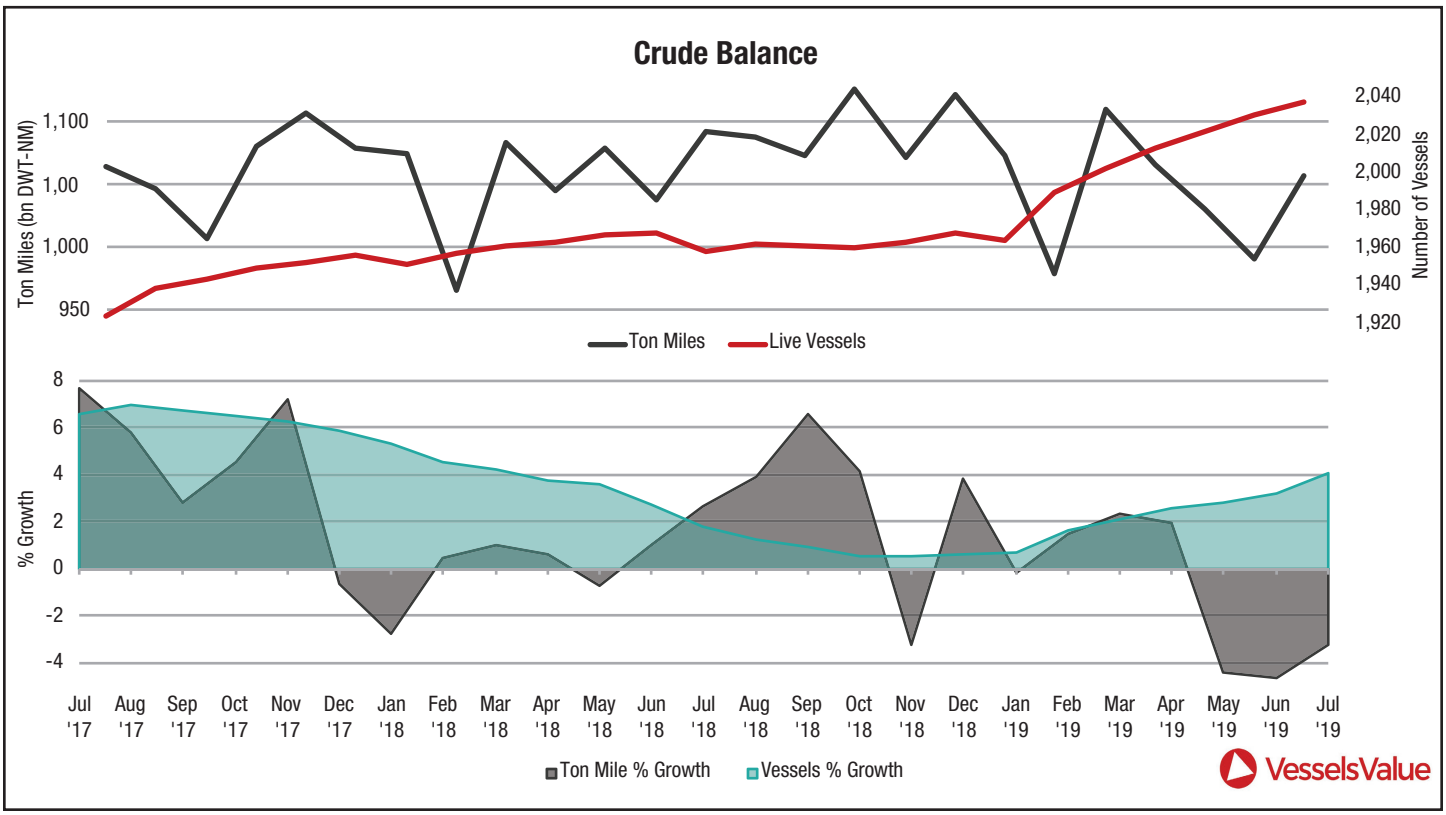


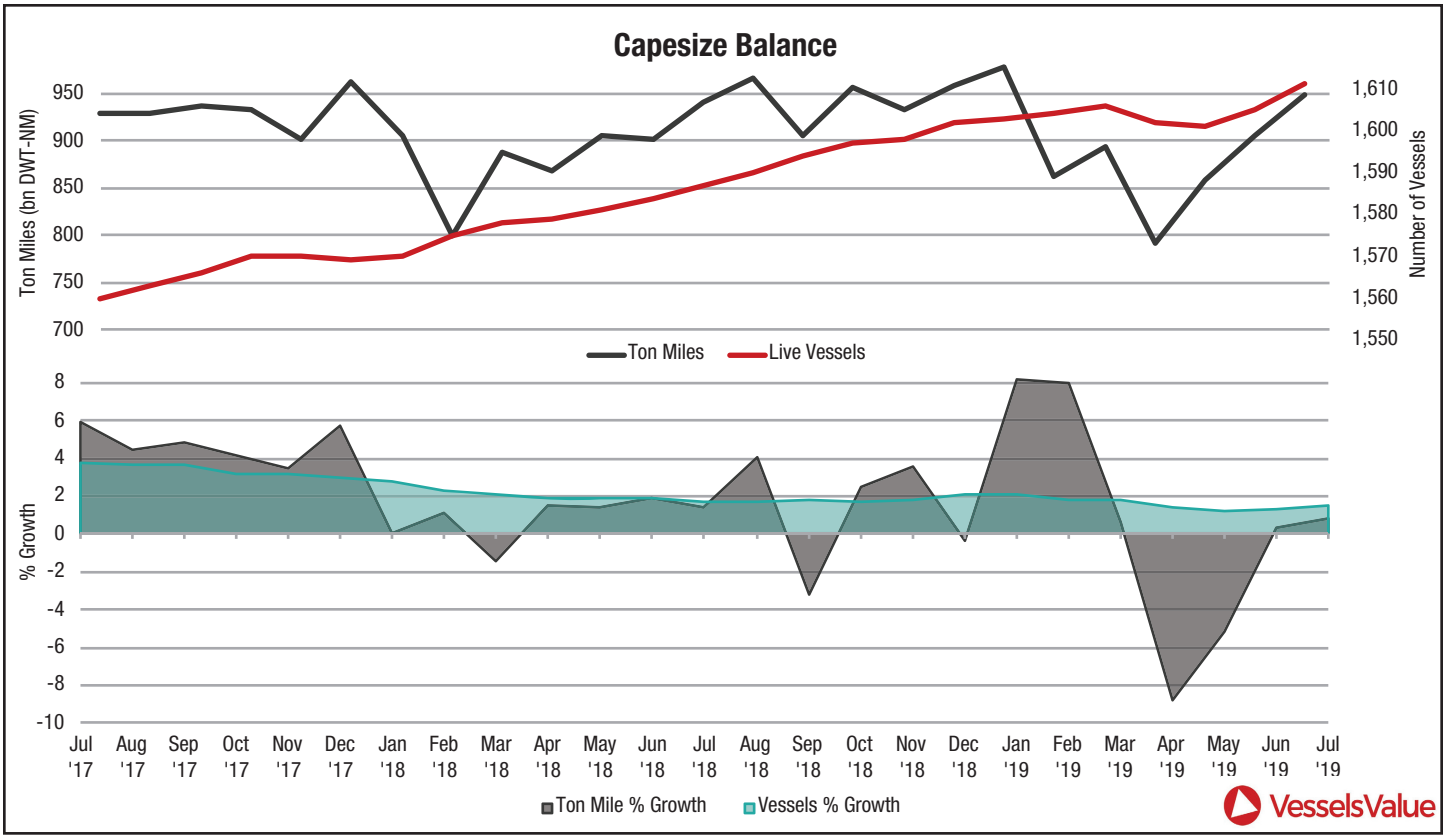
clearly shows the impact of the recent fall in cargos and related cargo miles since March 2019 due to political issues in the Middle East and Venezuela. Combining this with increasing growth in vessel supply paints a somewhat concerning picture for the short- to medium-term fortunes of the crude tanker markets.

BULKERS

Capesize

Cargos for Capesize vessels fell significantly in early 2019, due to the Brazil port closures following the dam collapse. This, unsurprisingly, caused a reduction in ton miles between

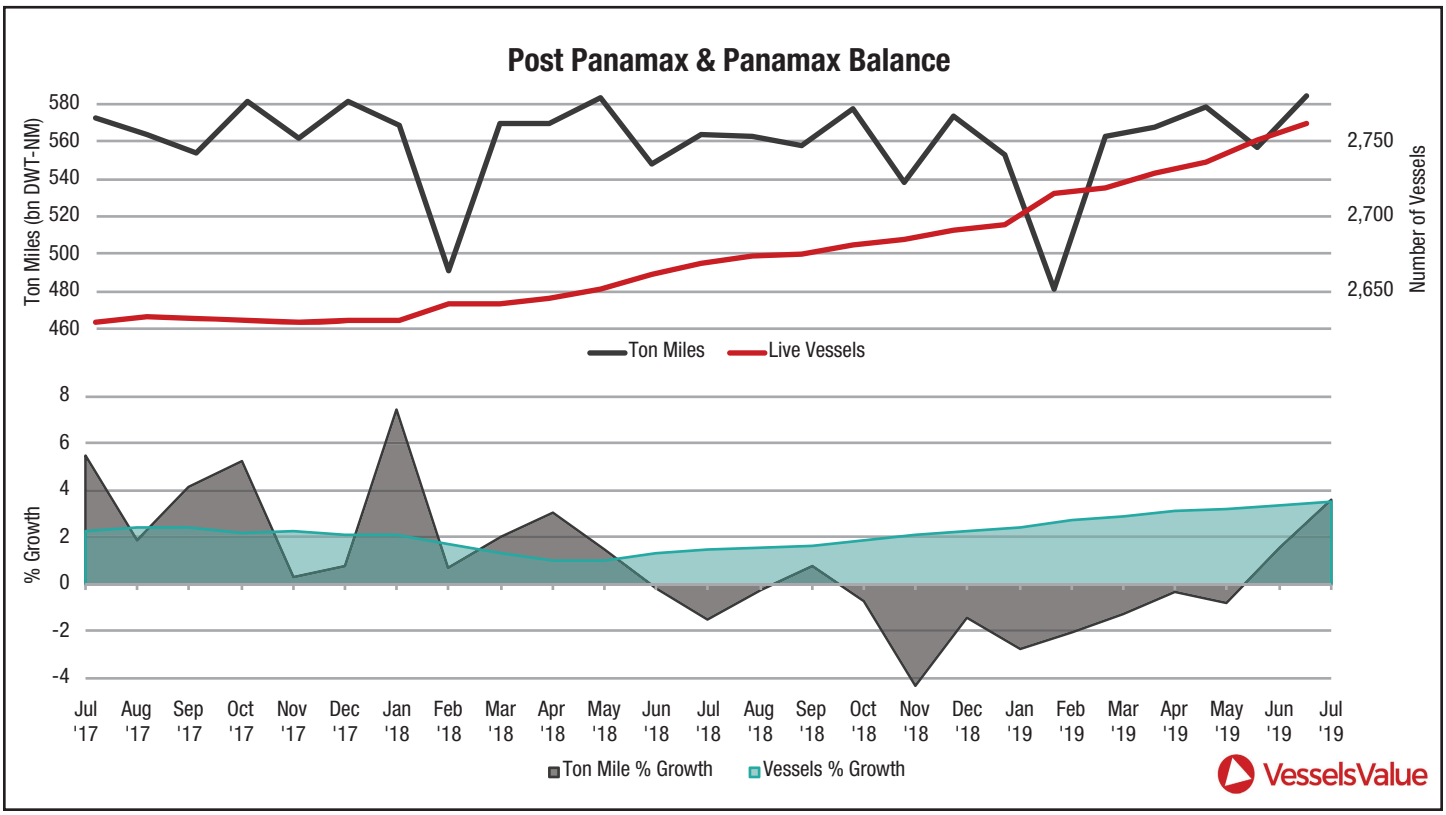


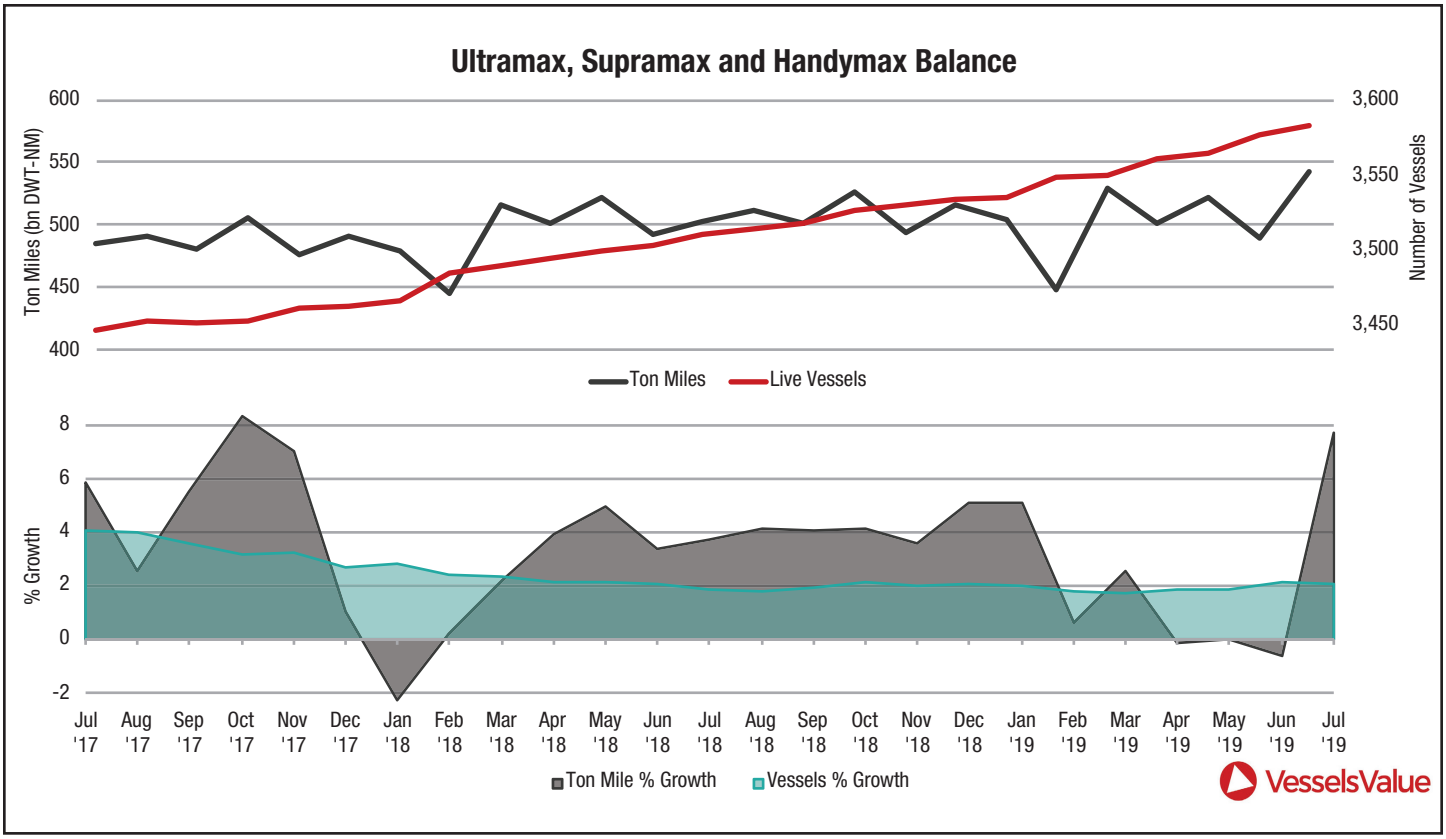


March and June 2019, resulting in supply growth exceeding demand. Thankfully, cargos and demand have now returned, and the data shows that, in the last month, demand growth has exceeded supply growth, explaining the healthy Capesize earnings that are currently being experienced.

Panamax and Post-Panamax

Demand growth for Panamax and Post-Panamax was less affected by the issues in Brazil. However, data shows that, since May 2018, vessel supply has generally exceeded vessel demand, with this trend only inverting in the last month where we have seen quite a

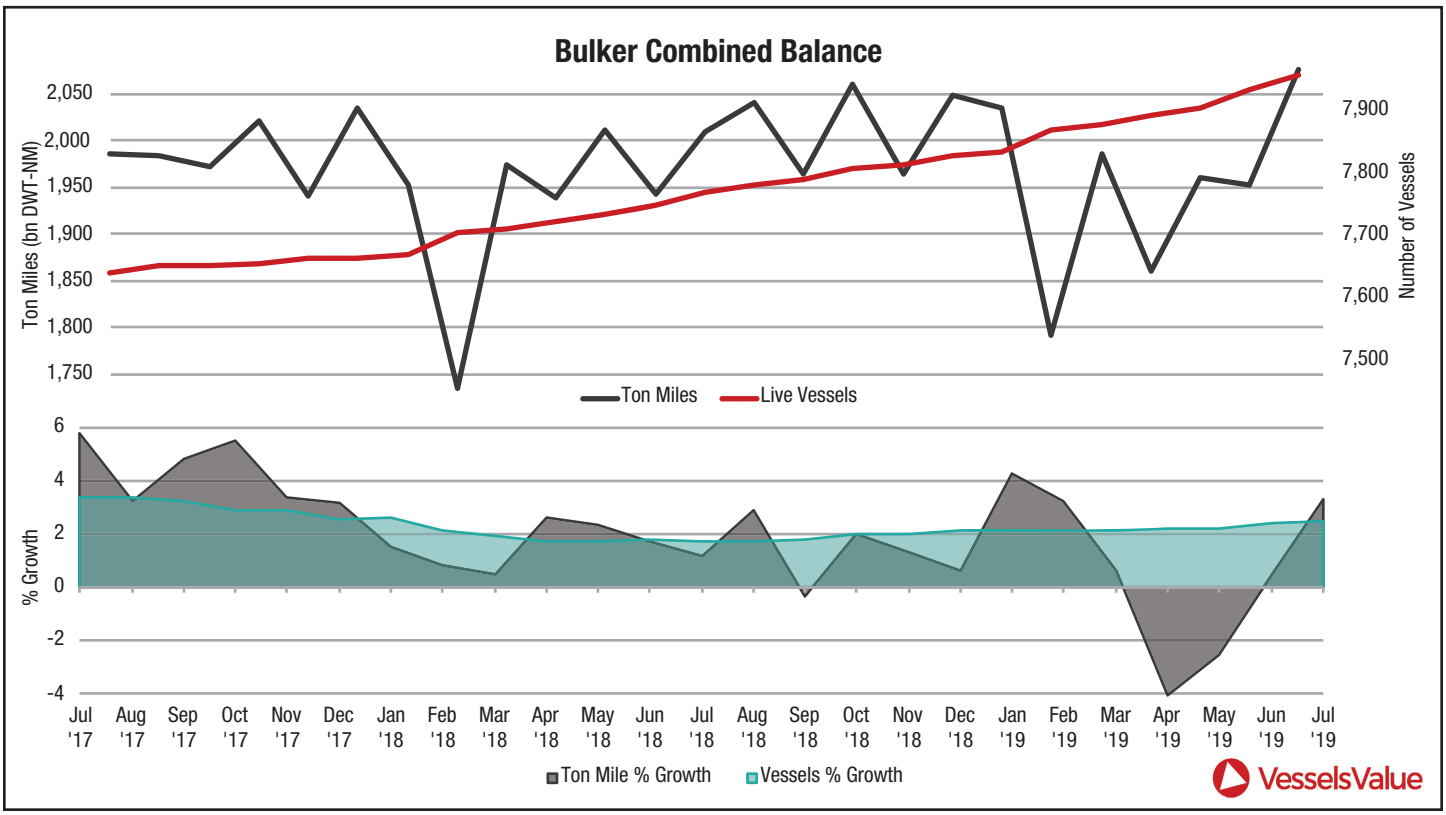




significant increase in demand growth, taking it to just over the supply growth figure observed.

Ultramax, Supramax, and Handymax

From March 2018 to February 2019, cargo mile demand for Ultramax, Supramax, and Handymax bulkers grew at a much faster rate than vessel supply. However, demand fell significantly from February 2019, and has only recovered since June 2019 where it has shown massive gains. This recent increase in demand is a good signal for these smaller bulker types.



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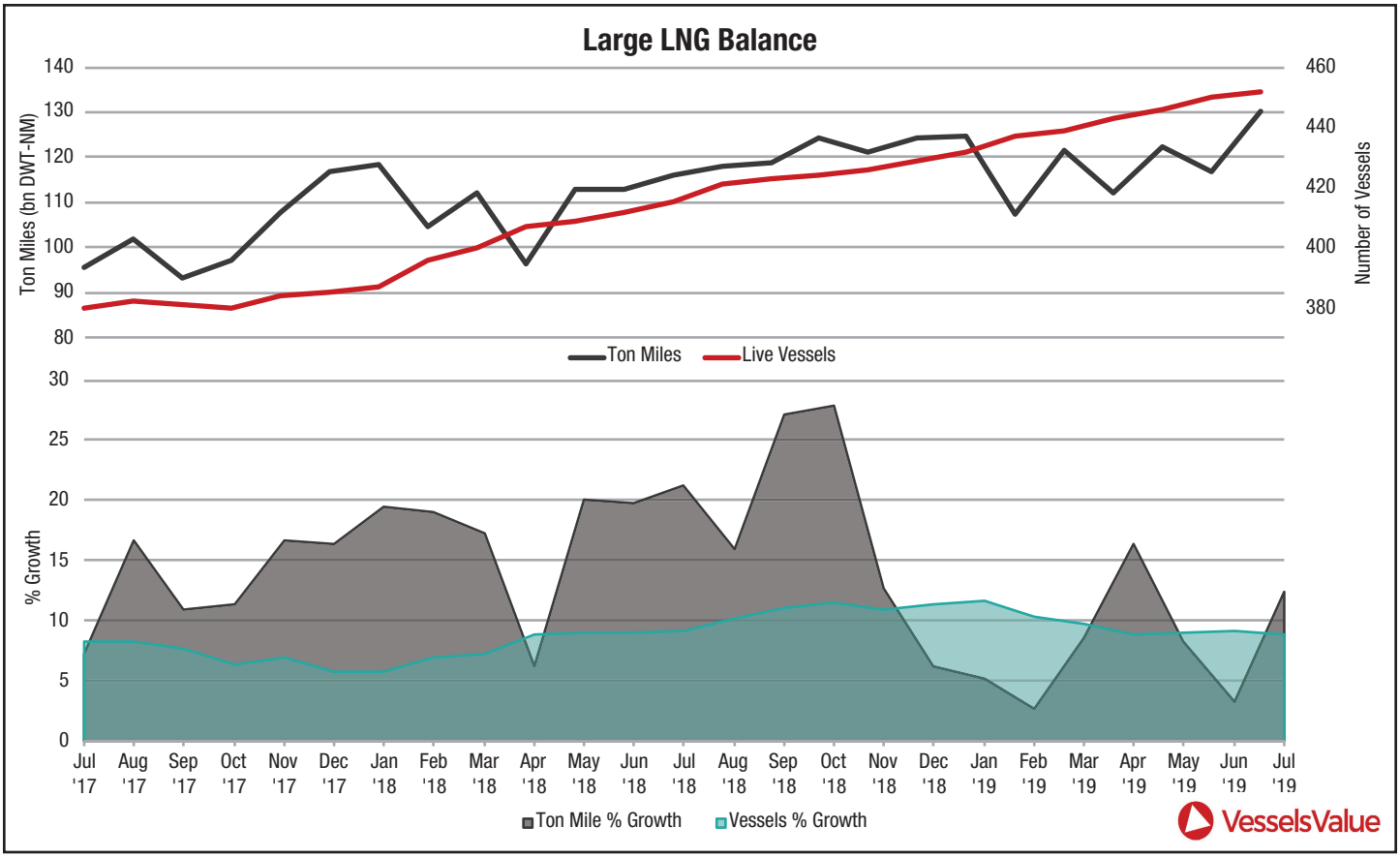
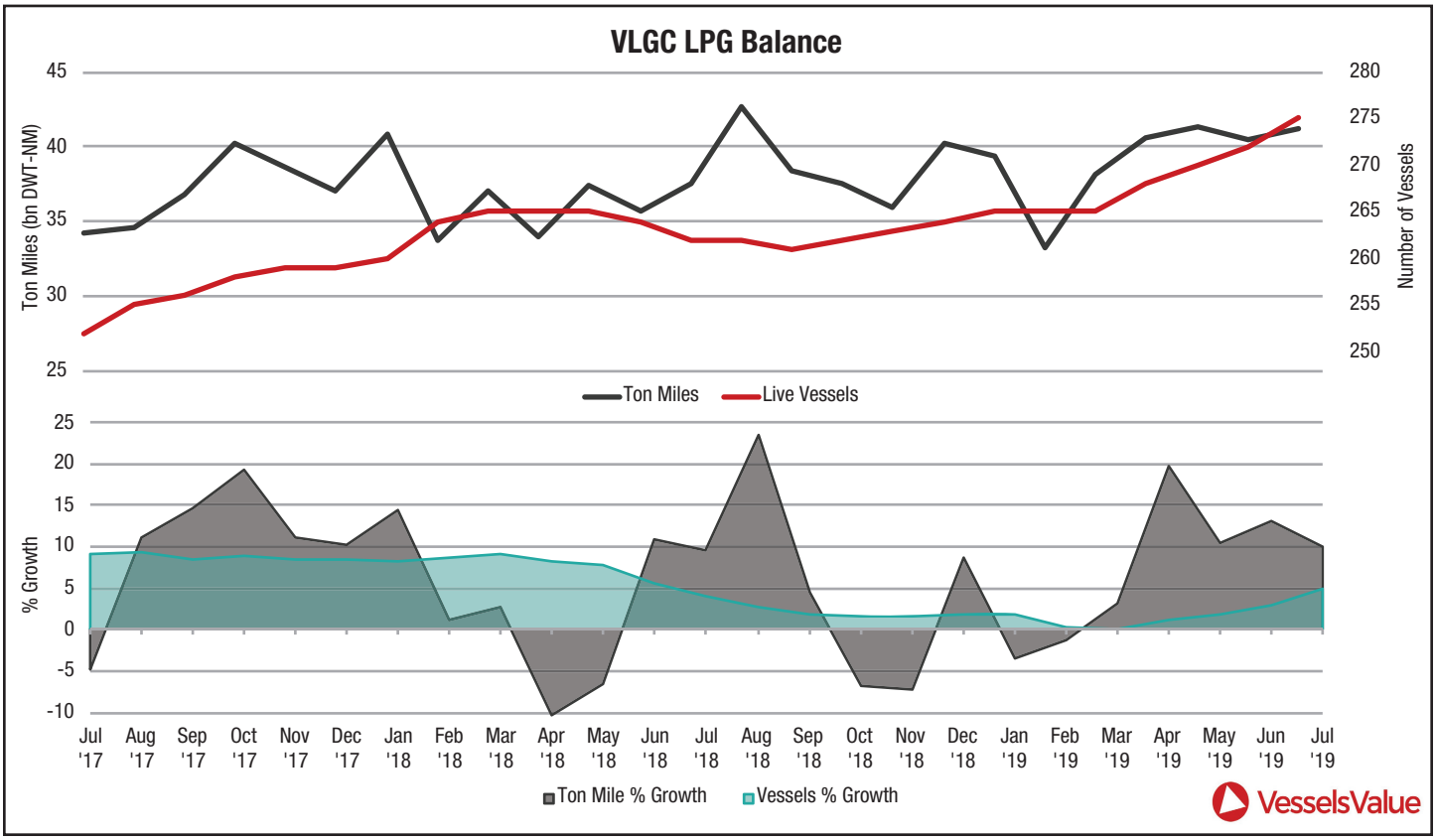


Bulkers combined

Combining Capesize, Panamax, Post-Panamax, Ultramax, Supramax and Handymax clearly shows the significant effect of the incident in Brazil in early 2019. The net effect has been to reduce ton miles across the bulker fleet from January to June 2019, with demand recovering significantly in the last month. In summary, after



several worrying months at the start of the year, demand has recovered since June 2019. This potentially signals improving market conditions across dry bulk in the short to medium term.

GAS

Large LNG

Large LNG demand has picked up over the last month after falling below supply growth between November 2018 and June 2019. Vessel supply growth remains quite high, so any prolonged fall in demand could be problematic for the markets going forward.

VLGC LPG

VLGC demand has been skyrocketing since March 2019, and now far exceeds supply growth. This explain the very strong VLGC earnings market being experienced and provides much reason to be happy for VLGC owners over the short to medium term. The prospects for this sector are looking very positive.

SUMMARY

From a recent purely demand and supply point of view, we can make the following conclusions:

a. The crude tanker sector is concerning, with supply growth generally exceeding demand growth over the last few months. If this trend continues, expect to see lower earnings. We would be cautious in this sector.

b. The bulker sector suffered at the start of the year, but demand has recovered spectacularly in the last two months. This points to potential continued improvements in the sector. However, as this trend is so recent, it is risky to assume it will continue. We would be cautiously optimistic.

c. The Large LNG had a great end to 2018, but recent falls in cargo mile demand growth, coupled with a large number of vessels being delivered onto the water causes some concern. However, the long term demand story for LNG is very positive. We are cautious in the short term and positive in the long term.

d. The VLGC market is currently booming due to the large increases in cargo mile demand. We are optimistic in the short to medium term but, as always, are concerned about potential future ordering and deliveries of vessels.

Please keep in mind that demand and supply analysis is critical in assessing the future fortunes of the shipping markets. However, there are also other key signals that must be looked at to see the whole picture. These include value trends, position in the long term cycle, macro economic factors and regulation, all of which are covered on the VesselsValue online portal.

LOAN TO VALUE – A MISGUIDED RISK METRIC

By Markus Wenker, Hellenic Bank

The LTV is probably the most popular metric to determine the debt capacity and loan size in ship finance. Whilst widely accepted, the use of the LTV approach in ship finance is not only paradoxical – at least from a traditional lender's perspective, not the sale of a vessel, but the cash flow from operations is the primary source to service a loan – but has significant weaknesses as shown by taking a closer look into the underlying principles of the LTV approach as well as a look back in history.

THE MAIN PITFALLS OF THE LTV APPROACH

1) An obvious, but often forgotten aspect is that the LTV is static. On paper, LTV invariably suggests the same risk, irrespective of the market conditions and the point in the shipping market cycle – boom, recession, depression and recovery. However, an LTV of, for instance, 60% for a 5-year old Aframax tanker translated into a loan of USD 40m or higher during the boom-phase, but only USD 20m during the depression. Whilst the level of the LTV has not changed, which implies that the risk is the same, the difference in the loan amount can be significant, and the actual downside-risk of the 60%-loan advanced at a high point in the cycle is immensely higher than the 60%-loan advanced at a lower point.

2) Applying the market comparable method on the basis of 'last done' deals, the commonly used method to value standard tonnage, the market value, as denominator to calculate the LTV, is determined by prices paid in the S&P market. Unlike the freight market that reflects the actual demand for seaborne transportation and the supply of vessels, the S&P market, like the stock market, is driven by factors that may not necessarily reflect the underlying market fundamentals, but the expectations of the market participants, the market sentiment, and the market liquidity, amongst others. Hence, there might be speculative market dynamics, driving prices and valuations up on the back of the investors' future expectation of rising freight rates that may or may not materialise, leading to disconnections between the S&P market and the freight market. As prices may not reflect the true future earnings potential and value of the vessels anymore, but are inflated by expectations, there is not only an inherent risk that the S&P market corrects if the freight market does not follow suit, but lenders, following the LTV approach, (unconsciously) take significant market risk by also financing the element of market expectations priced in the S&P market.

An obvious, but often forgotten aspect is that the LTV is static. On paper, LTV invariably suggests the same risk, irrespective of the market conditions and the point in the shipping market cycle – boom, recession, depression and recovery.

3) The LTV, as a covenant, is an important protection for lenders in the downturn, when S&P markets are declining, as a result of either a market correction when previously anticipated improvements in freight rates priced in the S&P market do not materialise, or as a result of an actual softening of the freight markets. However, ship finance is not margin lending and a 'margin call,' the demand for additional collateral or (partial) prepayment of a loan, often remains unresponded to in ship finance, whilst enforcement depends heavily on the recourse and its economic value. Exiting via a forced sale of the vessel is only a last resort and, unlike stocks in margin lending, vessels are not sold within a day or two. In practice, forced

sales of vessels take months, and involve significant legal and economic risks for the lender. Moreover, vessels are not fungible, despite some popular standard vessel designs. The price achievable depends on various factors, such as the shipyard, specifications and actual condition of a vessel, but also technological changes, shifts in the demand for vessel sizes and the introduction of new vessel types, and a lender might find itself in a situation where a vessel has become 'out of fashion' or depreciated faster than anticipated, and the realisable price is significantly discounted and below the previously indicated value.

A LOOK BACK IN HISTORY

Reflecting on the historical performance of some popular vessel types during the last 10 years, the deficiencies of the LTV approach become even more obvious:

- When a 5-year old MR1 tanker was acquired in Q3/2013 for USD 23m, which approximately is the average second hand price of the last 10 years, and debt-financed at 60% of its price, the earnings of the vessel fell below the B/E-rate of c.USD 13,800 per day on average in 18 of 24 quarters to date, accumulating a deficit of c.USD 3m. For a 5-year old MR1 tanker acquired and 60% debt financed at the lowest price recorded during the last 10 years of USD 19m in Q4/2016, charter rates were below the B/E-rate in 10 out of 11 quarters to date, accumulating a deficit of c.USD 2.9m. The picture for newbuilds gets even grimmer, with fewer positive quarters and higher accumulated deficits in both scenarios (average and lowest resale prices).

- For a 5-year old Supramax-bulker acquired in Q2/2013 for USD 21m, which is equal to the average second hand price of the last 10 years, and debt-financed at 60% of its price, the earnings of the vessel fell below the B/E-rate of c.USD 11,650 per day on average in 19 of 25 quarters to date, accumulating a deficit of c.USD 4m. Acquired at the lowest price during the last 10 years of USD 12m in Q1/2016 and 60% debt financed, charter rates fell below the B/E-rate in 6 of 14 quarters to date, with a slightly negative accumulated cash flow.

Whilst the vessels types were randomly selected, the examples are fairly representative for the overall market, and reflect the significant market risk involved in such financings. The vessels in both examples were assumed to trade spot with no fixed rate period charters that provide secure cash flow, and operating expenses including management fees and provisions for dry dockings. The financing assumptions included a 15-years linear amortisation profile to zero and interest of L+400 bps.

CAN CORPORATE-RECOURSE BE A SOLUTION?

As it is generally not a comfortable situation for a lender to be dependent on the financial assistance of an owner to subsidise a project, it is not a comfortable situation for an owner either to be dependent on a lender to defer principal amortisation when there is no secure cash flow, markets are not supportive, and a project is on the verge of collapsing, often losing money for all involved.

In response, recourse has gained increased attention, and more lenders require corporate structures and corporate recourse to mitigate risks. Corporate recourse can indeed be a risk enhancement and provide stability when B/E-rates at fleet level are low; there are secure cash flows through contracted revenue or the corporate has liquidity reserves to weather storms. However, a corporate structure might also add another layer of risk when such protections do not exist and there is significant spot-exposure. In this case, the problems might just grow bigger, bearing in mind that corporates in shipping usually are ship-holdings, i.e. an aggregation of vessels, with no activities other than owning and chartering vessels. Hence, a corporate structure and corporate recourse are not always a risk enhancement and a solution to the weaknesses of the LTV approach per se, but need to be assessed carefully in conjunction with the vessel portfolio, the fleet and employment strategy, and the financing structure of the corporate.

Hence, a corporate structure and corporate recourse are not always a risk enhancement and a solution to the weaknesses of the LTV approach per se, but need to be assessed carefully in conjunction with the vessel portfolio, the fleet and employment strategy, and the financing structure of the corporate.

THE TRAP OF FORECASTING CHARTER RATES

In the assessment of the ability of a borrower to service a loan, lenders usually take a 'top-down' perspective of forecasting charter rates to run cash flow projections and validate the size of a loan. The overwhelming challenge with forecasting charter rates (and market values) is, however, that the industry model of shipping

is too complex, and forecasts often turned out to be incorrect in the past. There are too many external factors (known unknowns and unknown unknowns) that are difficult to predict, not only including black swan events and disruptions in the production and logistics chain that have a short- to medium-term adverse impacts on the markets (the collapse of a dam and closures of mines in Brazil, floods in Australia, tensions in the Strait of Hormuz and trade tariffs, just to mention a few recent events), but also factors that have a longer-term impact, such as the contracting of new vessels, changes in trade patterns and, again, technological changes, shifts in the demand for vessel sizes, and the introduction of new vessel types. Coupled with the increased volatility observed during the last decade, charter rate (and market value) forecasting has become increasingly difficult and inaccurate leading to a reduced confidence level.

Irrespective of whether the charter rate forecasts materialise, a lender carries market risk when the ability of a borrower to service a loan depends on an increase in the charter rates. However, a lender is usually not compensated for taking market risk (this might be different with alternative capital providers who consciously take higher risks for higher returns) and, whilst a speculation on the market or just a straight asset play might work out for an owner who has the flexibility to sell a vessel at any time, a lender's only benefit of increasing markets is an improvement of the risk profile of a loan. But a lender does not usually participate in the upside otherwise. On the flip side, the downside remains with the lender, as the lender remains committed until loan maturity with very limited flexibility to exit in the meantime, absent a liquid secondary loan market for shipping loans.

B/E-RATE AND NORMALISED EARNINGS

Whilst it is tremendously difficult to accurately predict charter rates, especially in times of uncertainty and increased volatility, budgeting of operating expenses and capital expenditures provides more certainty, at least with experienced owners. Combined with the debt service, that is a function of the financing terms and future interest rates and which is the only variable, the B/E-rate can be computed with a high degree of accuracy and certainty for a single financing project or even a whole fleet.

This 'bottom-up' B/E-rate approach sets the floor for what a vessel needs to earn to be able to service a loan in the short-, medium- and long-term and throughout the cycle. Combined with an analysis of the underlying market fundamentals and the 'normalised' earnings of a vessel, i.e. the normal earnings needed to keep supply and demand in balance, this approach helps a lender to 1) spot dislocations between S&P and freight markets; 2) reality check the ability of a borrower to service a loan (*"How realistic is it for rates to continuously exceed the B/E-rates when the annual growth in ton-mile demand is, say, 3%, the average fleet age is, say, 7 years and the orderbook stands at, say, 11% with deliveries spread over the next 2 years?"*); 3) determine its individual risk appetite (*"What do we consider to be the normalised earnings of the vessel in a market of almost perfect competition, and what B/E-rate do we feel comfortable with?"*); and 4) decide to either consciously take market risk or, ideally, focus on taking credit risk whereby a 10% or 15% decline in freight rates does not put the solvency of a borrower and the loan at risk.

More than 10 years after the boom of the early 2000s came to an end, shipping has not yet returned to sustainable profitability, but high leverage seems to have developed into a chronic disease.

CONCLUSION

More than 10 years after the boom of the early 2000s came to an end, shipping has not yet returned to sustainable profitability, but high leverage seems to have developed into a chronic disease. The way debt capacity analysis is approached has played a major role, and the LTV approach combined with the forecasting of charter rates has proven to be unsuitable and perilous in ship finance.

Corporate structures have been one way for lenders to address the challenges, but corporate structures do not solve the basic problem of the LTV approach that favours speculative market dynamics, leading to distorted markets and increased vulnerability.

Whilst banking regulators have adopted an increasingly critical stance towards shipping amid soaring losses suffered by many banks, a paradigm shift towards a B/E-rate focussed 'bottom-up' approach in the debt capacity analysis in ship finance, combined with a realistic look at the earnings potential of vessels has become more important than ever before in order to restore market discipline and help the industry to recover, reducing vulnerability, and eventually benefitting all involved by conciliating regulators and safeguarding access to a source of cost-efficient financing.

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TOPOLOGY OF BANK SYNDICATION NETWORKS

By Capt. Kaizad Doctor, PhD and Alex Hurel

MARITIME BANK SYNDICATIONS

The shipping and offshore markets have traditionally been reliant on bank funding to service their capital requirements. There has, however, been a significant focus on bank capacity retrenchment in recent years especially relating to the changes in bank regulations (IFRS 9 and 16). Additional factors that are attributable to the capacity retrenchment are an increase in un-provisioned losses, (internal) strategic initiatives, regulatory scrutiny and enhanced risk measures. While shipping is and will remain a capital-intensive industry, capacity retrenchment is increasingly becoming a valid concern to shipowners. Most journal articles focus on evaluating the absolute capacity retrenchment by banks through time, however, we attempt to highlight retrenchment in syndication capacity and present some interesting network dynamics. We also attempt to quantify the importance of key players (lead bank) in the network and the vulnerability of the aggregate capacity of the *"clique"* if the key players decide to exit.

This is done using network analysis (graph theory) on a dataset provided by Marine Money. (Jan. 1998 to Apr. 2019). Graph theory is a mathematical representation of relationships between objects and generally consists of vertices (also known as nodes and in our case represented by banks) and edges (links or relationships where two banks have participated in a syndicated transaction). Graph notations and metrics allow us to visualize and quantify the nature of the complex syndication markets.

NETWORK DENSITY AND RETRENCHMENT

The analysis is split across two recent periods to evaluate whether there is capacity retrenchment in the network alongside bank capacity. Banks are also ranked based on their importance within the network and it is interesting to note the change in the rankings over time. The periods are selected arbitrarily and the database is split into [Period A: 2011-2014] and [Period B: 2015-2019]. The level of activity and deal sizes are represented in the two graphs Figure 1 & 2.

There is a significant reduction in the frequency and the size of the deals being syndicated in the second period.

Besides the reduction in the frequency and the size of the transactions there is also a reduction in the (average) number of syndication partners over time.

Before proceeding with the more complex network analysis, some basic definitions are useful in order to identify patterns in the graphs produced in the later parts of the study.

i) **Nodes/Edges:** Each edge is a participation of two (or more) banks in a syndicated transaction. In network analytics, a node (bank) radiates edges (connections) to other nodes. These edges are simply participations in a syndication by the banks.

ii) **Triadic convergence *(friend of a friend):*** the concept of triadic conver-

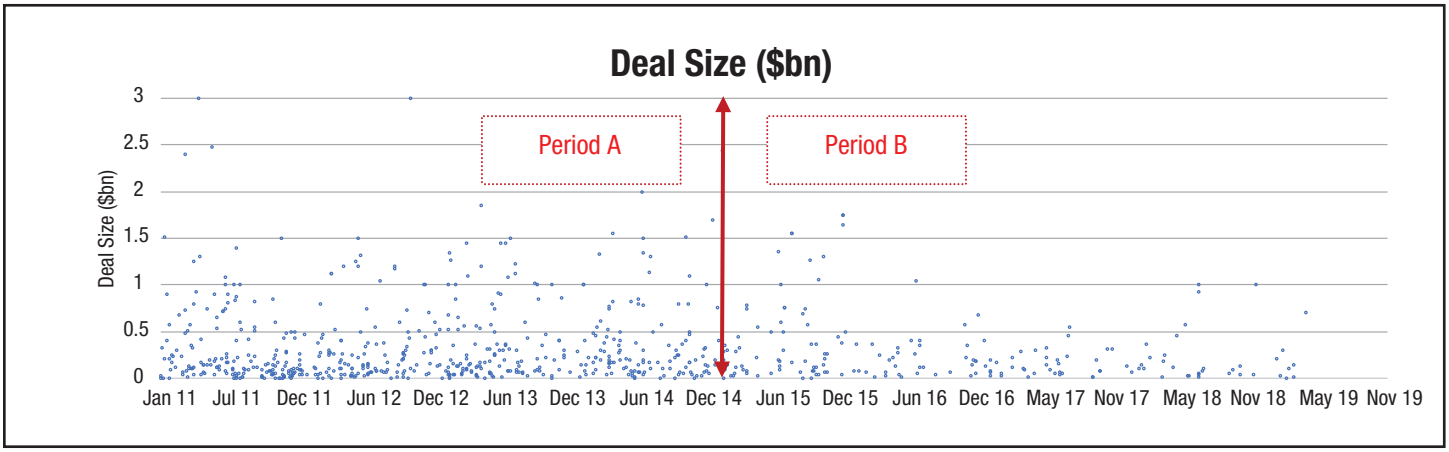

FIGURE 1

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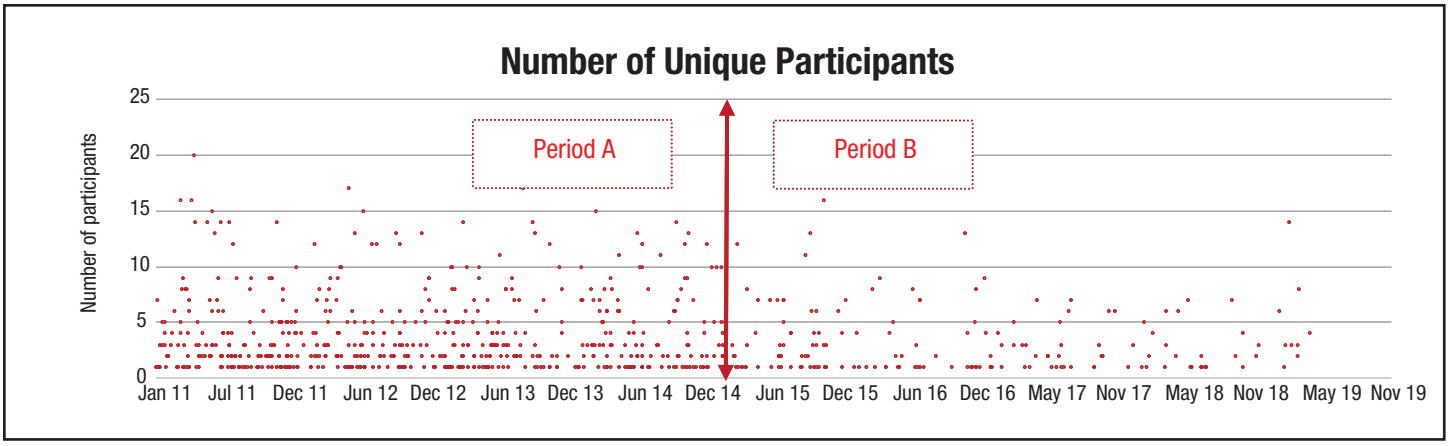

FIGURE 2

gence[1] is graphically illustrated in Figure 3. If Bank 1 and Bank 2 have been part of a syndication and also Bank 1 and Bank 3 have also been part of a separate syndication then there are more chances of Bank 2 and 3 to be part of a syndication in the future.

iii) **Modularity or cliques:** each connecting line color in the network graphs in Figures 5 & 6, represents the cliques that the banks belong to or create. The illustration (Figure 4) defines the nodes (banks) and edges (connections, if they are part of the same syndication deal) along with the cliques (banks that prefer dealing with each other) that form over time as relationships strengthen. The lead bank's position within the syndicate illustrates vulnerability for the clique as a whole, as the capacity of the clique may disappear without the lead bank's origination network, sector expertise or its risk management capabilities.

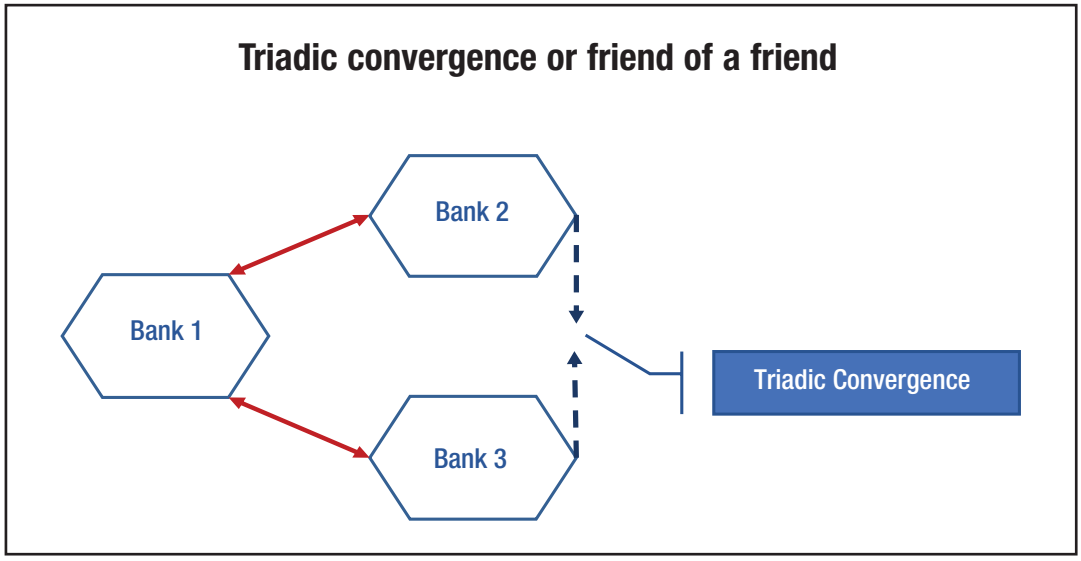

FIGURE 3

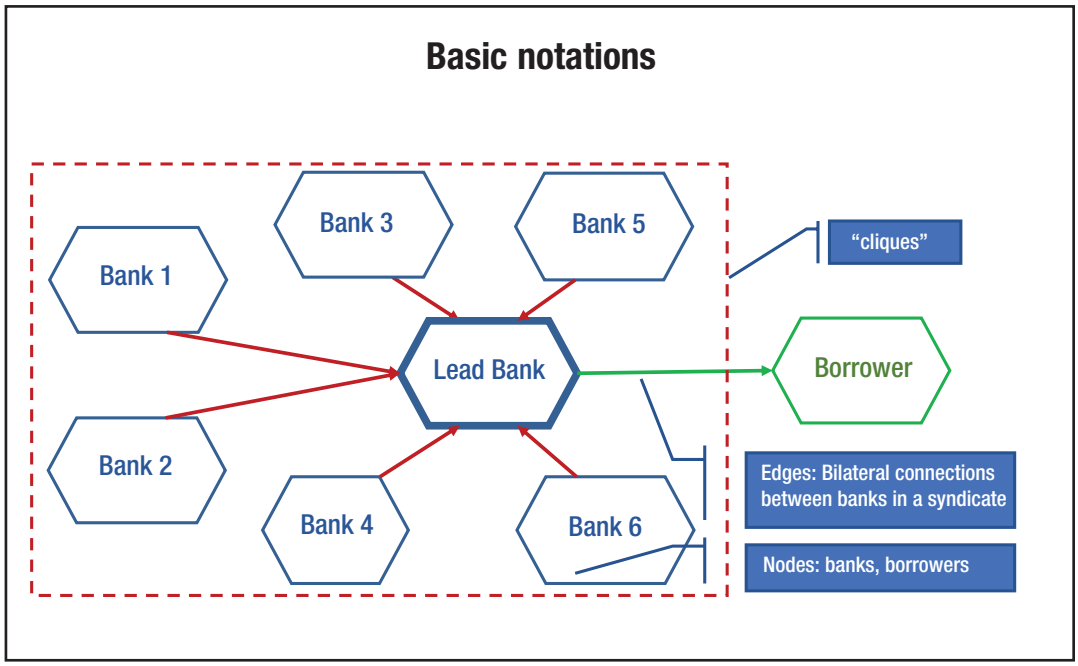

FIGURE 4

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Bank syndication topology [2011-2014]

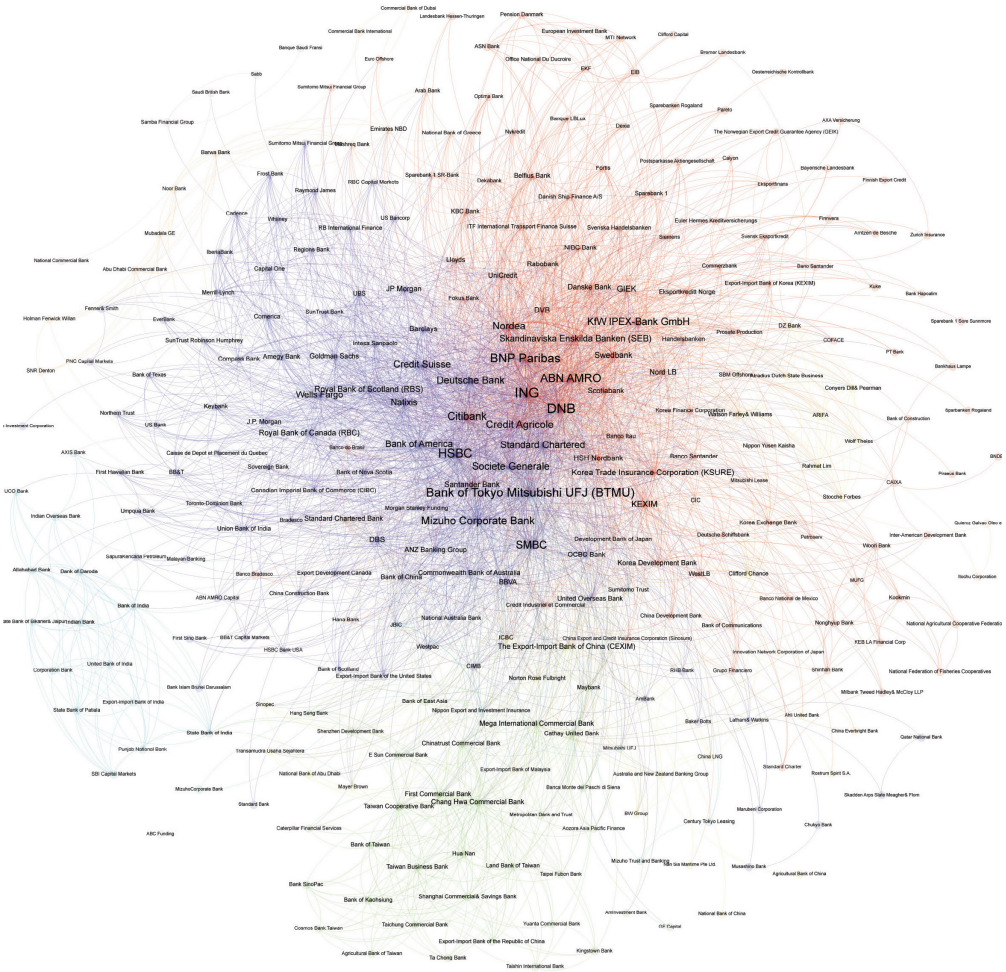

FIGURE 5

iv) **Network centrality:** the more a bank participates in syndications the more central it becomes to the network, in this case highlighted by the lead bank in the graph. This metric attempts to quantify importance, based on how many times a bank has interacted with others as well as the quality of the network. The capacity retrenchment from a key bank would have a higher impact than equivalent retrenchment from a peripheral bank. The importance of the bank or centrality in the network is calculated using the seminal

pagerank or a banks relative importance in the network

Rank	*pagerank* (2011-2014)	*pagerank* (2015-2019)
1	DNB	ING
2	ING	DNB
3	Bank of Tokyo Mitsubishi UFJ (BTMU)	BNP Paribas
4	BNP Paribas	Citibank
5	HSBC	HSBC
6	ABN AMRO	ABN AMRO
7	SMBC	Credit Agricole
8	Mizuho Corporate Bank	Societe Generale
9	KfW IPEX-Bank GmbH	KfW IPEX-Bank GmbH
10	Societe Generale	SMBC
11	Citibank	Skandinaviska Enskilda Banken (SEB)
12	Credit Agricole	OCBC Bank
13	Nordea	Nordea
14	Deutsche Bank	DVB
15	Standard Chartered	Mizuho Corporate Bank

TABLE 1

Bank syndication topology [2015-2019]

FIGURE 6

algorithm known as pagerank developed by the founders of Google, Brin and Page (1998) to rank webpages.

The top 15 banks, in each time period are presented in Table 1. The most notable omission from the 2015-2019 pagerank top 10 is the absence of Japanese banks. In 2011-2014 both BTMU and Mizuho Corporate Bank were apparent, in the period 2015-2019 Mizuho Corporate Bank had dropped to 15th and BTMU had dropped out of the top 15 altogether, with it and its associated clique more isolated.

The change in the graph densities through time highlights the overall reduction in syndicated activity (Figures 5 & 6). There are formal methods for quantifying graph densities which support this argument. There is also a marked reduction in the number and variety of participants and deal sizes across the two periods. We also find some volatility in the rankings of the banks over the two periods due in part to some banks re-considering their shipping and offshore lending strategies.

In the 2015-2019 depiction there is an increased number of smaller, more isolated cliques that are also likely to be more vulnerable if key banks that are servicing the risk decide to pull back or exit the markets. The analysis suggests that where a lead lender retrenches, the loss to the market overall is not just in that lost capacity, but also of the secondary capacity from banks that typically take part in syndicated deals. This ultimately does not bode well for the borrowers and the market in general because not only does this result in a visibly large retrenchment in (network) capital but coupled with it a loss of industry knowledge and expertise that inevitably follows such a withdrawal. A future article will consider 'what happens next' in this scenario and the extent to which borrowers will be obliged to seek new, potentially more opaque sources of finance from alternative lenders.

[1] *Networks over time do not just form randomly. A key property is triadic convergence where two people who have common connections are more likely to connect themselves.*

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FINANCE REALITY CHECK - AND SHIPPING IS THE BETTER FOR IT

By Kevin Oates

Financing Greek maritime has changed significantly over the past decade, and it looks as though the new trend will continue. Gone are the days when Greek owners had a couple of house banks and new loans involved a lunch at the Marine Club or a call to London or Hamburg or Rotterdam. Now all owners are having to shop around for the most appropriate funding matching age profiles, corporate profiles and pricing considerations. Not only that, but interest rates look likely to stay very low over the coming years, and this has caused new finance sources often backed by credit funds to enter the maritime market where asset backed lending can attract decent returns.

That is not to say that the strongest owners are no longer financed by traditional shipping banks. Far from it. But the players have changed, their capacity has reduced, and their appetite for pure lending versus cross selling has matured.

According to the Petrofin Bank Research study, the biggest lender to Greek shipping in 2018 was Credit Suisse, essentially a private bank requiring private banking business before it will offer shipping finance. This is a far cry from years gone by when RBS and HSH were purely interested in Greek shipping business and had multi-billion dollar portfolios. The study also shows that, in the top 30 lenders to Greek shipping, six are Asian and Middle Eastern — and their influence is growing.

This tallies with Marine Money's data for global shipping showing 10 Chinese lease companies and six far eastern lenders/ECA providers in the leading lenders to the industry.

LNG: THE NEED FOR FINANCE

In the past two years, the intensity of major Greek owners to order LNG vessels has rocketed. This is a smart move for Greek shipping, and demonstrates forward-thinking owners taking note of the global demand for an environmental consciousness. That LNG will become a more dominant force in the energy maze in the future is, without doubt. Indeed, much of the Greek fleet may even become fueled by LNG in the decades to come. The immediate challenge is getting finance for those vessels. At northwards of $175 million per ship, the 40-plus ships on order by Greek owners will cost about $7.5 billion. Assuming about 30% equity, that means debt of over $5 billion will be required. The question is where that debt will come from and, with fewer players in the market able to provide such vast sums, does it mean that owners will be financed on a "first come, first served" basis?

The traditional shipping banks are reducing in numbers, being much more demanding in their lending practices and having much less capacity to lend. This is partly because of poor loan performance harming shareholder confidence, but largely due to regulators taking a stricter view of shipping finance and forcing banks to put more capital aside for existing loans, leaving less available for new loans. Since the Greek LNG orders are placed by strong shipping groups, and with many of them on longish (say 5 years) charters with quality counter parties, some of the LNG finance may come as bi-lateral loans from the traditional banks, but not enough for all. The Chinese leasing houses will undoubtedly be approached and will most likely be willing to finance a number of the vessels and, likewise, the Korean ECA financiers will be approached and will be willing to finance. It is the case after all, that most (if not all) of the LNG vessels on order are from Korean yards. However, both the Chinese lease houses and the Korean ECA banks require international banks in order to consummate their lending. The Chinese normally fund first and then refinance their exposure with foreign lenders. The Korean ECAs will structure a finance with an element of Korean funding, but largely with international money. And herein lies the potential problem. With many of the international banks out of the market or reducing lending capacity, how can any of the global lending models work smoothly and sustainably as we have seen them work in years gone by?

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example; there are many more projects for new builds and second-hand vessels requiring finance. It may well be a case of global lenders — whether in Europe, China or Korea — serving the early requests for finance first, and then having to say: "Sorry, our books are full." So perhaps a word of advice to the Greek companies growing their LNG fleets: get on the plane quickly to Asia and Europe, and don't wait to arrange your finance.

FINANCE DEMAND FOR SMALLER DEALS

The biggest ascent has been the smaller banks and credit fund backed lenders. They are many, and they are busy. Typical leverage is 45% to 60%, and pricing can be Libor plus 4 to 7. What is amazing to this author, who was a shipping banker for much of his career, is how busy these lenders are. Owners — solid quality owners — are paying this pricing and accepting this leverage, and they are knocking on doors for finance. What does this tell us about the crazy fine pricing and terms of days gone by? Basically, that the banks were taken for a ride. Competition from the banks and plentiful money meant that shipping appeared attractive compared to other industries who were borrowing at even less. What was not noted was the cyclicality of the business that could not sustain 10-year money at 1% over.

We are at a new reality now, and it is probably a healthier horizon of financiers. It means most deals can get done. It means all owners big and small can shop around for best terms. It hopefully means that most lenders will not lose money. And it should prevent wild speculation from owners who are risking 50% of their own money rather than taking a punt on 90% debt.

CONCLUSION

It may be contrary to conventional wisdom but, in terms of choice of finance, it is arguably the case today that the smaller owner looking for modest leverage and a $20 million loan has better options than the bigger owner looking for higher leverage and a $200 million. It is unlikely that the Greek LNG vessels seeking $5 billion of debt over the next two years will not be financed. These are smart owners with a gilded ability to be courageous and entrepreneurial in finding finance solutions, but the traditional banks, leasing houses and ECA financiers may not be able to cater for all and other solutions may be required. Be sure that there are equity interests eagerly waiting to partner with Greece's leading groups, especially for projects that will get the nod from shareholders in the effort to make the industry and the world a greener place.

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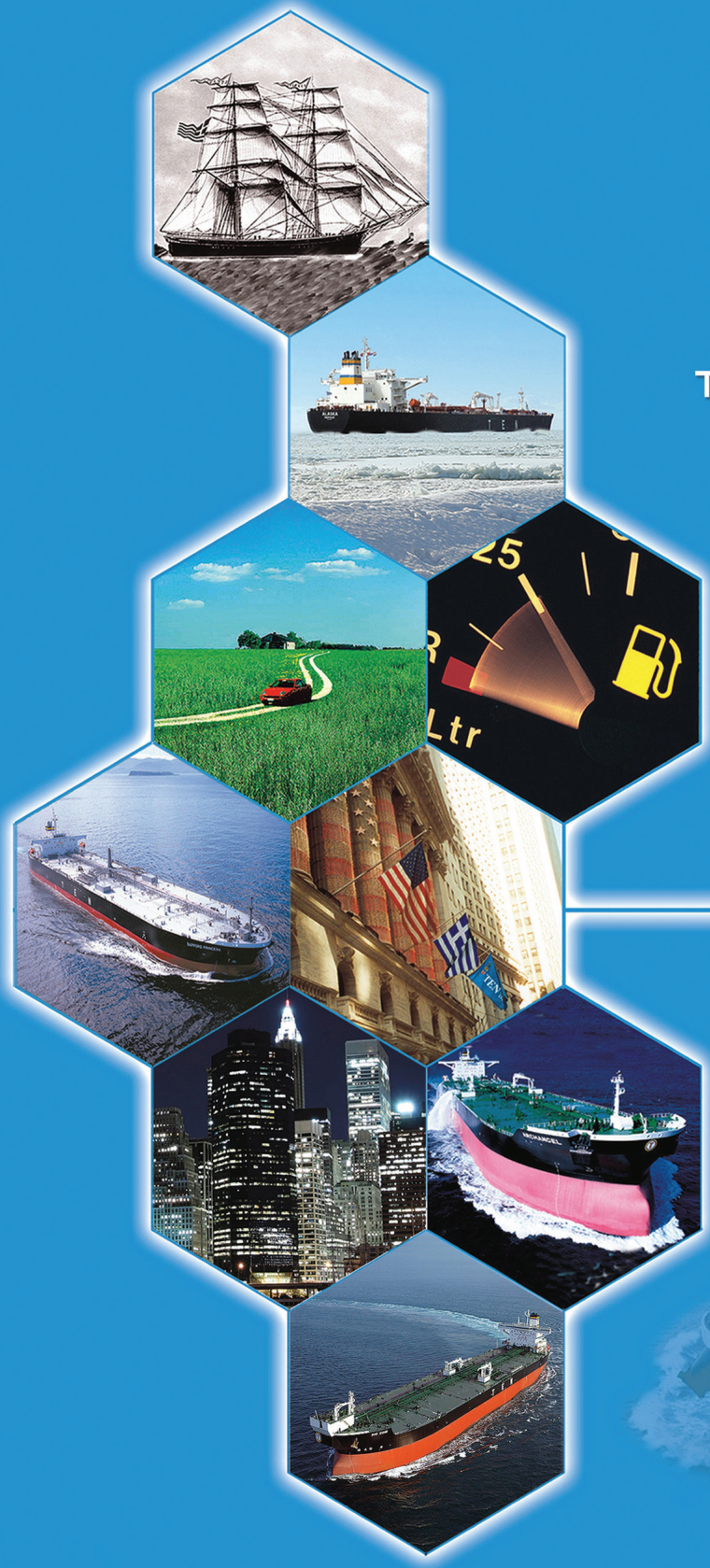

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