



Global Maritime Weekly Digest

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10 October 2017

issue 91

*The **Global Maritime Weekly Digest**, based at **Southampton SOLENT University**, provides a regular flow of maritime news and analysis, of significance in a global context. Topics covered include shipping fleets and management, seaborne trade, ports, shipbuilding, ship recycling, maritime policy and regulations, and seafarers' labour.*

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Editorial comments

- The importance of a thorough **assessment of shipping risk** for investors, especially new equity investors is underlined in a new article (item 2), discussing commercial risk, operational risk, regulatory liabilities, legal risks and liabilities, and insurance aspects.
- A recently-published research paper looks at the **future for marine bunker fuels** (item 3). This analysis concludes that, as the lower 2020 limits on sulphur oxide (SOx) emissions approach, low-sulphur bunkers will become the fuel of choice, given the long lead times and capital-intensive nature of the main alternatives (fitting scrubbers or LNG powered engines).
- Additional **sales of tankers for scrapping** have emerged recently (item 1). Lower freight rates and secondhand prices, coupled with higher scrap values, provided incentives for recycling and there are some signs that substantial demolition sales will persist in the period ahead.
- Transactions are running at a record volume in the **market for secondhand ships**, where purchases are at an especially high level compared with those of new vessels (item 5).
- This month a new publication entitled **Understanding UK Shipping** has been published by the UK Chamber of Shipping (item 7). Written by the Chamber's policy team, the book is described as benefiting 'those entering the industry, those looking to update their knowledge of the regulatory framework, and those simply with an interest in how the shipping industry keeps the UK economy moving'.

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(1) Clarksons Research, 29 September 2017

A New Season For Tanker Recycling?

Since the start of 2015, demolition in the oil tanker sector has generally remained very limited. However, in August 2017, more than 2.5m dwt was sold for scrap, the highest monthly total for fourteen years. A number of factors have supported the recent uptick, and there appears to be potential for scrapping to remain a more visible feature of supply side dynamics in the tanker sector in the coming years.

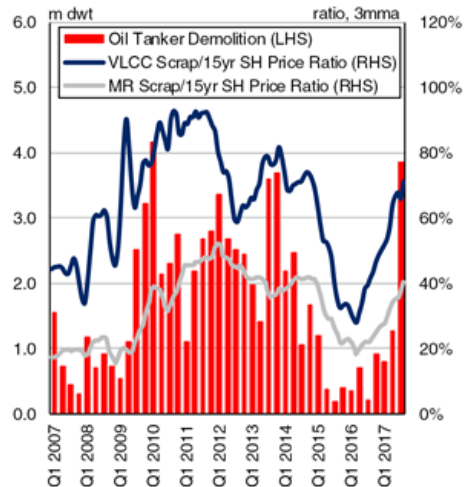
Soaking Up The Sun

Tanker demolition slowed to very subdued levels in 2015 and 2016, with just 2.1m dwt of oil tankers (10,000+ dwt) scrapped in each year, equivalent to less than 0.5% of the start year fleet in both cases. This compares to an average of 8.7m dwt p.a. and 2.7% of the start year fleet over the last 20 years. Limited scrapping in 2015-16 largely reflected the strong tanker market, with VLCC earnings averaging close to \$65,000/day in 2015. In addition, the phase out of single hull tankers in the early 1990s and 2000s led to an accelerated 'clear out' of older ships, leaving a relatively young fleet and a limited 'pool' of demolition candidates. At the start of 2016, just 4% of oil tanker fleet capacity was aged 20 years or over.

Graph of the Month

Springing Forward: Tanker Recycling Bounces Back

The bars show quarterly demolition of crude and products tankers 10,000+ dwt. Data for Q3 2017 basis July and August. The lines represent the 3-month moving average of the ratio of guideline 15 year old secondhand prices to the estimated scrap price each month for a VLCC and an MR products tanker. The VLCC price ratio is based on a single hull 15 year old ship prior to October 2011, and a double hull tanker thereafter. A range of tanker demolition, scrap price and secondhand tanker price timeseries are available on the *Shipping Intelligence Network*.



Source : Clarksons Research

Winter Chills

However, tanker recycling has begun to pick up this year. While tanker earnings have been under pressure since mid-2016, the duration of the downturn is starting to take its toll, and in August 2017, 18 tankers of 2.5m dwt were sold for scrap (including four VLCCs), bringing the year to date total to 50 tankers of 5.9m dwt.

Higher demolition sales have partly reflected shifts in tanker prices; the weaker earnings environment has depressed secondhand tanker prices, whilst improving steel price levels so far this year have supported scrap values. At the end of August, the estimated scrap value for a VLCC stood at \$16.9m (up from \$12.6m at the end of 2016), equivalent to 79% of the guideline 15 year old secondhand price of \$21.5m (down from \$24m at end 2016). This was the highest ratio since late 2013.

Turning Of The Season?

Looking ahead, the consensus appears to be for the crude tanker market at least to remain under pressure into 2018. Further demolition sales are likely if secondhand prices of elderly tankers remain close to scrap values, and while the oil tanker fleet aged over 20 years is still relatively limited, around 18% of fleet capacity is aged 15 years or above, indicating a potential increase in the number of scrap candidates in the coming years. New environmental regulations are also likely to play a role in driving increased demolition volumes, potentially at younger ages, in the future.

So, tanker recycling has recently picked up, and there seem to be supportive drivers of more elevated levels of recycling going forwards. Continued scrapping at August's pace would go far to offset expected oil tanker deliveries of 36m dwt this year, and 28m dwt in 2018. However, scrapping volumes are volatile, and demolition has already slowed in September. While a new season of tanker recycling may have started, it remains to be seen to what extent this might continue and help form a new tanker supply climate.

Source: Clarksons
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(2) Watson, Farley and Williams, 28 September 2017

Investment and Risk in Shipping: Finding your “Sea Legs”

Despite the turbulent and challenging conditions currently experienced by many in the sector, shipping continues to attract keen attention from investors new to the industry. Some inherent investment risks are common to all sectors, but many are peculiar to shipping.

This briefing, which may be of particular interest to those new to equity investment in shipping, highlights some of these risks, which can often be reduced (and sometimes avoided entirely) by carefully structuring a transaction before an investment decision is made.

Commercial risk

Many investors new to shipping feel quite comfortable assessing the commercial risks, as they may initially appear similar to those in other sectors. Unfortunately, this apparent familiarity can prove to be superficial and misleading as the nature of commercial risk in shipping can be decidedly different than in other sectors.

Shipping is particularly volatile and cyclical and, unusually for a global business, a small number of market participants can have a major impact on industry trends. The type of cargo and size of a vessel have a fundamental effect on profitability, liquidity and overall return. Shipping is both capital intensive and highly competitive, and new investors compete with existing players who have substantial experience as well as considerable financial and business resources on which to call.

Revenue streams are not always guaranteed, and receipt of charter income in particular is dependent on the performance of the charterer, which in turn may be reliant on the performance of its counterparties. There has been a general decline in the availability of third-party debt finance from the banks in recent years and, depending on the identity of the investor and its shipping partners, it can prove very difficult to bridge the funding gap and leverage returns.

Operational risk

Operational risks in shipping principally arise out of the environment in which vessels and their crews operate, as well as the international nature of their trade.

These include bad weather, mechanical breakdown, fire, collision, piracy, hostilities, terrorist activity and strike action. Any of these factors could result in environmental damage, injury, loss of life, property or revenue streams from the termination of charterparties, off-hire and demurrage, fines, penalties or restrictions on trading put in place by authorities, or increased insurance premiums.

Owners and operators must ensure they are compliant with all applicable sanctions and embargo laws and regulations, which can be difficult as the scope of these may be unclear and subject to change. Sanctions can be of particular concern to investors as owners can be subject to strict liability for a charterer's breach and effective sanctions compliance programmes in shipping are very different to those that are appropriate for investments in static assets such as real estate.

Regulatory liabilities

Vessels and their operation are significantly affected by a variety of laws and regulations, being subject to various international conventions, national, supranational, state and local laws and regulations in force in the countries where vessels may operate or are registered. Certain potentially significant liabilities arising from shipping operations are the subject of strict liability regimes for owners even if the vessel is operated by a third party under a charter (e.g. liability for pollution and environmental damage) and investors taking an equity stake in a vessel owning project should consider these risks and whether the available

insurance cover is adequate. In addition, there is an increasing level of environmental and quality concern among insurance underwriters, regulators and charterers, which is leading to greater inspection and safety requirements for all vessels.

Vessels are, as a result, subject to both scheduled and unscheduled inspections by a variety of governmental, quasi-governmental and private entities such as local port authorities, classification societies, flag state administrators and terminal operators. Failure to obtain and maintain any required permits, licences and certificates could lead to the detention of the affected vessel.

Legal risks and liabilities

Crew members, suppliers of goods and services to a vessel, shippers of cargo and other parties may be entitled to a so-called “maritime lien” against that vessel for unsatisfied debts, claims or damages. In many jurisdictions, the holder of a maritime lien may enforce his or her rights by arresting a vessel through foreclosure proceedings.

Where a claim is related to a particular vessel (as will usually be the case), it will probably fall within a wide category of so-called “maritime claims”, which give rise to liabilities both on the part of the shipowning company and the vessel itself. These include claims: for damage done by the vessel; for loss of life or personal injury; for loss or damage to goods carried on the vessel; under charterparties; in respect of salvage, towage or pilotage; by a master or crew; and in respect of vessel construction or repair.

A vessel’s liability is a feature of maritime law and simply means that the vessel in question or, in some cases, an associated vessel, can be arrested as security for the relevant maritime claim and, unless the claim is satisfied, subsequently sold to satisfy a judgment.

It is therefore crucial that equity investors undertake careful due diligence to fully explore the potential exposures to which they may be exposed, and that appropriate structural, contractual and practical safeguards are provided for in the project documentation and arrangements to prevent liabilities arising or to mitigate any consequences to the extent they are unavoidable.

Insurance

The value of losses arising from a vessel’s operation can range from modest amounts through to catastrophic liabilities where the value of the loss can be open-ended (for example, where a vessel is involved in an oil spill or emission of other environmentally hazardous agents). Coverage is determined by the types of insurance product available in the market (not all risks are insurable) and the cost that the owner/operator is prepared to pay, including the levels of deductibles.

Incidents may occur where the insurance coverage is not sufficient and some claims may not be covered. Even with cover in place, there is a risk that insurers will refuse to pay out on particular claims, especially where the cover is voidable through an act or omission of the insured.

Source: Watson Farley & Williams

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(3) Hellenic Shipping News, 2 October 2017/ Columbia Center on Global Energy Policy

Slow Steaming To 2020: Innovation And Inertia In Marine Transport And Fuels

Discussions of “peak oil demand” tend to focus on passenger vehicles, often from a US and European perspective, and they ignore other markets, such as marine transport, which collectively would also need to show a reduction in demand if oil consumption as a whole were to reach an inflection point. This report explores the outlook for marine bunkers, a niche market that accounts, depending on estimates, for up to 7 percent of the demand barrel. It focuses on the impact of new environmental restrictions that aim to drastically reduce sulfur oxide (SOx) emissions from ships as of January 2020, placing them against the background of past innovations that have been reshaping ships’ fuel consumption patterns and assessing their likely impact on future innovation in the sector.

Of the three main compliance options available to ship owners ahead of the new “global sulfur cap,” two—installing “scrubbers” to capture SOx emissions from shippers’ current fuel of choice, high-sulfur fuel oil (HSFO), and switching from oil-based bunker fuels to liquefied natural gas (LNG)—are more capital

intensive and require more advanced planning than the third, switching from HSFO to lower-sulfur products, such as low-sulfur fuel oil (LSFO) or marine gas oil (MGO). Analysts reckon that most shippers will opt to run low-sulfur fuels, but they fear that rising demand for these fuels will bump against refining capacity limits and cause price spikes that might spread to other markets, notably diesel and even crude oil. Some analysts have suggested that delays could help the industry better prepare for the new rules. This report challenges these findings.

Key takeaways include the following: – New restrictions on marine sulfur emissions are occurring against the background of sweeping changes in the shipping industry, the impact of which is poorly captured in statistics and underappreciated in most assessments of the rules' impact. Whereas forecasters assume steady growth in shipping fuel demand, oil consumption from the sector actually contracted in recent years and looks set to keep doing so—or, at least, grow more slowly than expected. Oil price swings and weak freight margins have served as catalysts of change, reducing the oil intensity of shipping through innovations in vessel design and fleet management and relentless industry consolidation. Digitalization holds the promise of further fuel savings, while LNG is making inroads in the sector.

Industry participants have taken a cautious approach to capital-intensive measures to comply with the global cap. As the 2020 deadline looms, and given long lead times for scrubbers and LNG engines, low-sulfur bunkers will become the industry's new de facto fuel of choice. This wait-and-see approach is no accident but, rather, a prudent response to the uncertain long-run costs and benefits of the various options. Potential feedback effects have exacerbated the inherent uncertainty of oil and gas markets, while regulatory uncertainty about future nitrate oxide (NOx) and greenhouse gas (GHG) restrictions further clouds the options' economics. Delaying the rules' implementation would not in and of itself change the industry's incentives.

Performance standards such as the global sulfur cap are normally seen as supportive of innovation, unlike technical standards that "pick a winner" among available technologies. By making low-sulfur fuel the default compliance option of industry, however, the global cap effectively entrenches oil's role in shipping for decades to come. A more integrated approach to marine emissions, one that would have regulated SOx, NOx, and GHG, would have accelerated the switch to LNG, and it would have been a good way to curb all emissions at once.

Shippers' choice of lower-sulfur fuels as their default compliance option shifts the burden of innovation onto the refining industry, but it will likely prove a lesser challenge for refiners than is commonly understood. Although some analysts have drawn parallels with the 2008 oil rally, when the desulfurization of road diesel helped cause imbalances in distillate markets and propelled oil prices to record highs, that is not an apt analogy. Unlike in the 2000s, diesel demand is far from booming. Furthermore, due in part to viscosity and lubrication requirements, the new bunkers will not be diesel look-alikes but new fuel hybrids, the production of which will entail as much blending as actual refining.

Noncompliance will further alleviate product market pressures. Given the lack of environmental police on the high seas, enforcement is a daunting challenge for the global cap's implementation. Efforts to beef up enforcement currently focus on tightening paperwork checks at ports, which is a cheaper but less effective approach than actual emission checks by flyover or satellite.

While the global sulfur cap will be less disruptive than feared, the loss of one of the last remaining market outlets for HSFO might be the death knell for some of the less competitive refineries with high HSFO yields. Falling HSFO prices will also adversely affect producers of high-sulfur crude oil, whose price is often indexed to that of HSFO, such as Mexico.

Source: Center On Global Energy Policy

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(4) Hellenic Shipping News, 4 October 2017/ Port Strategy

Added value, added risk

Ports around the world are extending their 'value added' propositions as they seek to make the most of assets and find ways of pinning down their customers. But ports and terminals must also beware of the pitfalls.

As broker Andrew Webster points out, if you soup up your car without telling your insurance company and then have an accident, the underwriter has the perfect right to avoid paying out on your policy. Equally, if you don't put on your winter tyres by the due date in Switzerland and then have an accident, you are unlikely to be covered.

Of course, underwriters already cover a hugely mixed bag of activities for their port clients and there is little that can really surprise them. But for ports considering 'modifications', the advice is clear.

"Understand, be aware and, if you don't know – ask," says Mr Webster, partner in JLT Specialty's marine division.

"We are seeing ports marketing their services more widely than just providing services to load and unload the ship and putting things in the warehouse. Now they are getting involved in building partnerships with customers and other interested parties, and looking at things like Port Community Systems, so they can bind their clients to them more closely.

"Shipping lines are very footloose – they can go where they like and do what they want. This is the ports' reaction to the global alliances, saying – you are busy binding your customers to you, we are going to do the same thing and find customers for you, so you have to call at our ports."

Of course, the port-centric approach is nothing new, he says, but ports are intensifying the focus. "They are trying to find the best way of delivering added value and are perhaps investing in services that in the past they would have subcontracted out or left to others to provide. This includes warehousing, local collection and delivery, container stuffing and stripping, repacking. It is about control – having more of a slice of what the customers want. Ports are waking up to the fact that they need widen and develop their customer base in the face of competition."

Contracts and risk

The insurance market is well able to cope with that and has been providing such cover 'for ever', he says. But ports should pay attention to two key points. The first is contractual, the second risk management.

"We have to make sure that all the contracts they are operating under are correct and in line with the services they are providing. The underwriters have to understand correctly what their clients are doing – a lot of it has to do with contractual situations, which also depend on local law. Ports also have to be aware of their risk management/loss prevention management strategies so they are providing least risk to their customers."

If a client wants to provide a service but doesn't have the correct contractual framework in place, the underwriters have difficulty in providing the correct cover at the right place, says Mr Webster.

"Always make sure the contractual framework is properly articulated – ignore it at your peril."

While there's the risk of not being covered if the underwriter hasn't been informed, there is no obligation to have everything insured and nor do the underwriters have to provide a service, he points out.

"Sometimes you get to a point where the client says they are doing this service and makes their own decisions and contracts but there are some elements that will not be covered."

The background to all of this is the need to keep talking. "This is an industry which relies on people asking each other questions and having a reasonably civil relationship that allows you to ask questions. As intermediary, we see a lot of ports and terminals businesses and a lot of people doing different things – therefore we can use the benefit of our expertise to go back to someone who doesn't know, and pass on the benefit of experience spread around the industry. Equally, underwriters can also give their view and be very helpful."

New angles

Miller Insurance highlighted some of the issues in an article recently, pointing out that ports' diversification stretches as far as providing marinas, hotels, tourist attractions, and even retail and entertainment facilities.

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“Often the risk and insurance implications of diversification are considered towards the end of the process, when it may be too late to take action to reduce liability,” it warned. “If the risk implications are not fully considered, ports may find that they end up with exposures that they were unaware of, and that may not be covered under their existing policy.”

Even the most innocuous of activities can bring big responsibilities and a wide range of liabilities, it warned. For example, opening a café or shop, even when contracted out to a third party, could give rise to substantial public liabilities, as could staging events such as sporting events, fun days, music festivals or fireworks displays.

“Any activity that creates liability can result in a significant change in risk profile, and will need to be brought to the attention of insurers.” In short, if an underwriter is unaware of a material activity or exposure, depending on the circumstances, it could refuse to pay out all or part of a claim.

Peregrine Storrs-Fox, risk management director at the TT Club, agrees that ports are looking to extend their range of activities. “Because we insure across the supply chain, ports getting involved in other risks is bread-and-butter to us,” he says.

“The basic message is, any port looking to extend the services they are providing should talk to us, or another. The nature of ports is hugely variable depending on type of traffic and location – from the landlord port looking after conservancy and navigation, to those providing stevedoring and terminal services, to those providing warehousing, logistics, freight forwarding, trucking and even marina services.

“As long as they have thought through the different activities and responsibilities they have put in place and have good contractual terms appropriate for the type of activity they are doing, then there is no reason why they shouldn’t carry on.

“This is part of the philosophy around the port community and trying to make it a user-friendly environment. Ports are obviously key nodal points; the more they can make things work for their shipping customers as well as the hinterland interface, the better. Making the port safe and interacting with and creating a community that works for trade is obviously positive.”

Long and varied value-added wish list

TT Club admits it is rarely surprised by the variety and different permutations of activities that a port either already undertakes or is looking to pursue. It can, says TT Club’s Peregrine Storrs-Fox, “be a long menu”. The key from an insurance perspective is “understanding what the options are and ultimately rating it reasonably so the client gets the extent of coverage they want, while the insurer isn’t bled dry”, he says.

Apart from adding activities, ports are also entering potential new areas of risk due to regulatory changes, he adds. “There will be emerging risks around fuel and waste disposal, for example. There are new things coming around the corner, whether it’s bunker supplies for ships or electricity substations which tenants will potentially link into. Equally, ports might run an IT community system.”

Ports supporting the construction and/or maintenance of wind farms are another area. “These are high-value items which are also quite vulnerable to damage. But again, it is subject to contractual terms – there is no mystique about that. There are other cargoes that are sensitive in different ways, such as biofuels, which have their own risks.

“With all sensitive cargoes, there needs to be a thorough risk assessment. Also, try to link into any international community there is, because there will be experts that have done something similar, or have handled these cargoes, and can assist. I am a strong believer in the collaborative approach. Other people may have a good idea, or something to add; taking advice is always going to be of value.”

Source: [Port Strategy](#)

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(5) Clarksons Research, 29 September 2017

On The Record: Secondhand News Tells A Story

2017 is shaping up to be a record year for secondhand sales volumes. Meanwhile, newbuilding activity remains at historically low levels. As a result, the ratio of secondhand to newbuild activity has surged, and while this is an indication of the current market environment, it might also be interpreted as an indicator of the ‘market mechanism’ starting to re-balance industry fundamentals.

New And Old?

It's an old question. You've decided you would like to expand your fleet. But how? Do you splash out on a shiny new ship, with the chance to build it to your requirements and to the latest, most efficient and environmentally friendly design? Or, do you invest in a secondhand vessel? It might have fewer years left to operate, but it has a track record, is available more or less immediately and, of course, generally comes at a lower price.

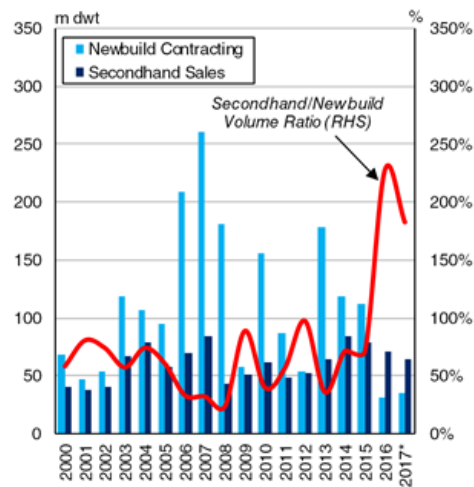
Over the past two years it has been clear that where owners have invested in additional tonnage, they have been much more likely to opt for the secondhand option. The first eight months of 2017 saw 1,092 sales reported, of 64.4m dwt. If this pace is maintained through the final part of the year, then the annual total will surpass the totals of 84.4m dwt recorded in 2014 and the 83.5m dwt seen in 2007.

In contrast, newbuilding activity has remained extremely limited. Last year new vessel contracting fell to its lowest level for over 20 years, and although 2017 to date has seen some increase in the rate of ordering, secondhand volumes are still almost twice as large as newbuild activity in dwt terms.

Graph of the Week

Secondhand And Newbuilding Volume Trends In Focus

The bars show total contracting (vessels 1,000+ GT) and reported secondhand sales in million dwt each year (left hand axis). Newbuilding orders have exceeded secondhand sales every year so far this century with the exception of the past two years. The Secondhand/Newbuild Volume Ratio (right hand axis) expresses the total dwt of reported secondhand sales as a percentage of the total dwt contracted each year. *2017 data basis January-August. A range of time-series relating to secondhand and newbuilding activity are available on the *Shipping Intelligence Network*.



Source : Clarksons Research

Boom And Bust?

The ratio between secondhand sales and newbuilding contracts (in dwt terms) since the turn of the century is highlighted in our Graph of the Week. It reached its lowest point during the height of the boom in 2006-08, when record levels of newbuilding investment saw almost 13,000 contracts of 651m dwt placed over a three year period. Despite secondhand activity being lifted by owners' enthusiasm to purchase assets on the water, the ratio fell to 23% in 2008.

The current market is a very different place. While secondhand activity is proceeding at a greater pace than in 2008, newbuilding contract volumes are far lower, and as a result the ratio has surged. Last year it reached 228%, and so far this year it stands at 183%.

Bad And Good?

Of course, the current elevated level of this ratio reflects the impact of the challenges that have been faced by many in the marketplace. This has diminished the appetite or ability to place newbuild orders. On the other hand, with overall investment volumes down, and a higher proportion of that which has been seen taking place in the secondhand arena, there could be an interesting pointer for the future. The volume of new tonnage due for delivery over the next few years will be more limited, further restraining fleet growth. In this regard, the currently high ratio featured here might be interpreted as a leading indication of market rebalancing to come. Have a nice day!

Source: Clarksons

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(6) Hellenic Shipping News, 6 October 2017/ Roar Adland

The 80/20 rule of smart digital shipping

My former boss, shipping guru Dr. Martin Stopford, first introduced me to the “80/20 rule”. Being a Clarkson Research analyst with a freshly minted PhD at the time, I suppose I was about to dig myself deep into some complex time-consuming analysis, as one does. Martin pointed out that 80% of the output can be achieved with 20% of the inputs (work, time, data etc.). This came from someone who has made a name from simple but elegant analysis, so I tried to take it to heart.

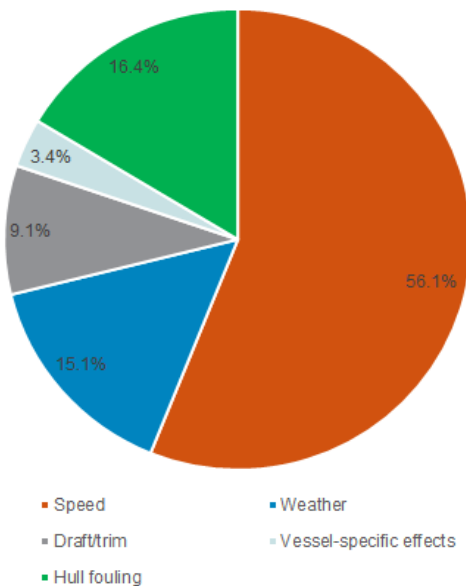
If I only had more data...

Today’s discussion and salesmanship surrounding all things “smart” and “digital” in shipping is pretty much the opposite to the 80/20 rule. The more data you have and the more sensors you install on your vessel, the better off you will be. It’s a paradigm shift!

It’s great salesmanship, and well suited to scare the C-suite into paying for an expensive piece of consulting advice, an expensive sensor kit, or hiring that Chief Digital Officer.

If you stop to think for a moment and look at reality, though, data and algorithms cannot actually change all that much. Ships are still subject to the same physical laws in what is arguably the most complex operating environment that exists, ship operation is still subject to the same contractual constraints, AIS data still have the same flaws and geographical “blind spots”, the rate of hull fouling does not change, mechanical equipment will still break down, etc.

What drives daily fuel consumption?



Source: Adland, Cariou & Wolff (2017).
Aframax example, laden/ballast average

A good example is the “noon report” data that most shipowners now collect and process in some way or another. Yes, they’re slightly flawed, inaccurate and don’t measure anything at high frequency, but you know what? It’s the 20% of the data that will give you 80% of the answers, maybe a lot more.

In recent research with my colleagues, Professors Pierre Cariou and Francois-Charles Wolff, we took a closer look at what drives the daily fuel consumption of a fleet of mid-size crude tankers in global operation, using “noon reports”. The result is shown in the pie chart below.

Which if these factors are actually under the control of the owner/operator?

Speed: Partly, but it is largely decided by external factors (C/P speed, meeting laycan etc.)

Weather: Save for allowing minor deviations for weather routing, weather and wave conditions certainly are exogenous.

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Draft/trim: Trim can be adjusted, though there is little agreement on what is optimal. Draft is either a commercial issue (laden) or stability issue (ballast).

Hull fouling: Can be partly controlled through the quality of the antifouling paint and frequency of hull cleaning, but even so the rate of marine growth is exogenous.

Having "big data", continuous monitoring and the latest sensors does not change any of this. Indeed, there is academic research showing that all you achieve is converging to the same results with less data (reducing uncertainty).

Until digitalization finds a way to banish the laws of physics I dare say the 80/20 rule still holds.

Source: Roar Adland (Ph.D., MICS), Shipping chair professor at Norwegian School of Economics (NHH)
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(7) UK Chamber of Shipping, 5 October 2017

UK Chamber launches new introductory textbook on shipping

The UK Chamber of Shipping has launched 'Understanding UK Shipping', a new book that gives a comprehensive overview of the nation's maritime industry to newcomers and anyone looking to increase their understanding of the sector.

The book covers a range of topics from national and international legislation; crew employment rights, safety standards, and the carriage of goods and passengers by sea.

The publication was written by the UK Chamber's policy team, who between them have over 100 years of experience in developing shipping's regulatory framework and advising industry on legislation and compliance.

Robert Merrylees, editor of the book at the UK Chamber, commented:

"We originally developed the publication in-house to complement our popular Introduction to Shipping course. As the course's popularity has increased, so too has the need for a more detailed and nuanced text about the UK shipping industry.

"This led us to produce this publication in partnership with Witherby's. We think it makes essential reading for anyone wishing to gain a deeper understanding of our diverse and dynamic industry."

Source: UK Chamber of Shipping

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