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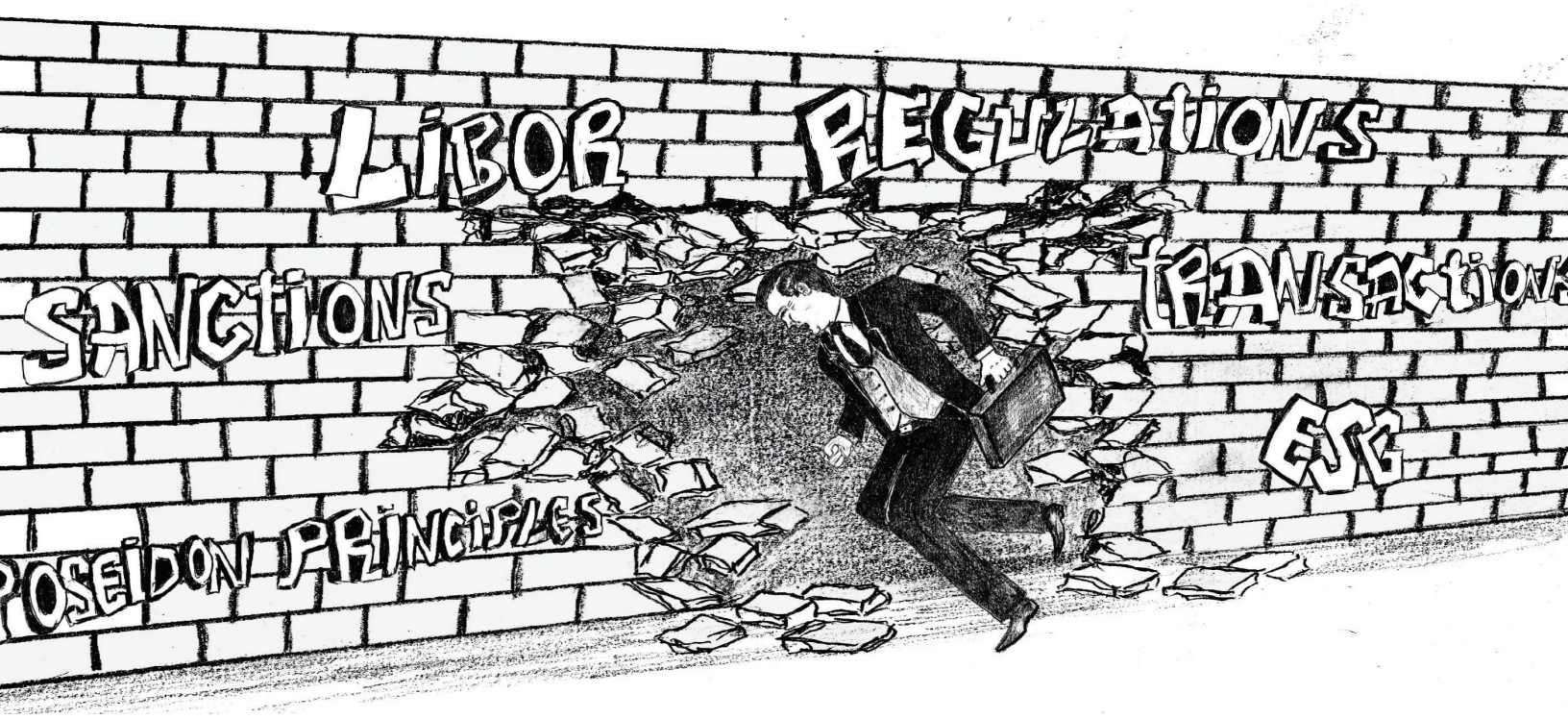

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The Legal Issue

A QUICK GUIDE TO THE POSEIDON PRINCIPLES

By Sophie Parker, UMAS, and Julia Zhan, Marsoft

Leading shipping banks, responsible for $100 billion in ship finance, signed up in June 2019 to the Poseidon Principles, officially launched at Marine Money. The initiative will, for the first time, include climate variables into decision-making when providing shipping company loans. Inspired by the Equator Principles, which now has close to 100 financial institutions in 37 countries, the list of signatories is expected to grow substantially, as many banks are doing due diligence to understand the benefits and risks of joining.

The founding Signatories have begun to prepare for disclosure of their first portfolio climate alignment score, published at the end of next year. UMAS and Marsoft have been discussing with Signatories, potential Signatories, owners and other organisations about applying the PPs framework to their businesses. They have shared concerns and asked many questions, the answers to which we believe are key to the implementation of PPs and can help all stakeholders in shipping. In this article, we will share our insights into important questions:

- How do I manage the legal and technical issues associated with IMO DCS data, which are major inputs to the Poseidon Principles ("the PPs")?
- What is the current PPs decarbonisation trajectory? How will it evolve?
- How could the PPs affect my business? What should I prepare for in relation to climate risk management?

In collaboration with the UCL Energy Institute, UMAS co-authored the Poseidon Principles. UMAS is a world leader in providing decarbonisation solutions for maritime shipping, with foundations in leading the IMO's 3rd GHG study. Marsoft has successfully forecasted and helped clients manage past shipping cycles. We believe the PPs will catalyse a Green New Cycle in shipping, and aim to help stakeholders capture the climate wealth to be created in this cycle.

IMO DCS AND RELATED DATA

What is IMO DCS data, and how is it sourced for the Poseidon Principles?

The IMO Data Collection System (the "IMO DCS") enables the carbon intensity of ships[1] to be calculated annually, starting from the 2019 calendar year. The regulation is an amendment to MARPOL Annex VI, a regulation which entered into force by the IMO in March 2018, and requires the collection of:

1. The amount of fuel consumption for each type of fuel in metric tonnes
2. Distance travelled
3. Hours underway
4. Technical characteristics of the ship including the design deadweight

A ship that does not comply with IMO DCS reporting will not be allowed to operate. This ensures that data collection will have global coverage for the ships included in the scope of IMO DCS.

While the IMO DCS is specified by the IMO, the data must be checked to be in accordance with the regulation by the relevant flag State where the ship is registered. Each flag State has its own rules for DCS reporting, and can elect to use organisations duly recognised by it, known as Recognised Organisations (or "**RO**[2]").

The verification guidelines provided by the IMO require only simple checks of the data by the ROs. Following verification, a Statement of Compliance ("SoC") will be issued by the relevant flag State or RO no later than 5 months from the beginning of the following calendar year (e.g., for the calendar year 2019, it would be issued no later than the end of May 2020) provided the data is in accordance with the regulation.

The data reported to the IMO is collated into the IMO's Ship Fuel Oil Database. This database is anonymized and confidential, and therefore cannot be accessed from the IMO by the Signatories or other parties. Signatories can, however, request IMO DCS data from the owners, to whom they provide loans. Owners can either nominate the RO[3] to send the owner data to the Signatory on their behalf or can send the data themselves directly to the Signatory.

The Poseidon Principles Association (PPA) is considering creating a secure platform to pool IMO DCS data from ROs for the owners that have provided consent for ROs to store the data in the platform

on their behalf. A secure platform would greatly reduce the PP administrative burden.

What are the legal issues associated with sourcing the IMO DCS data?

Some banks have expressed concerns about their right to obtain data from the ROs. ROs are not required to provide this data unless required to do so as part of a regulatory enforcement or fraud investigations (i.e., required by law), so it remains to be seen if all ROs will disclose the data, provided the owner gives its consent.

The legal basis for an owner to provide data depends on whether it is an existing loan or a new loan. Under standard loan covenants, information can often be requested by a lender about a ship's employment and compliance with IMO regulations. However, it remains to be seen how owners will respond to a PP request.

Signatories have more flexibility with new loan agreements. The PPs provide legal guidance on the wording of new loan covenant clauses for Signatories which explicitly includes wording requiring the owner to supply all information necessary in respect of IMO DCS data for PP compliance. This explicit wording ensures that borrowers have a legal obligation to provide the information necessary to comply with the Poseidon Principles.

Implementation of the PPs in new loan agreements is already taking effect. Sovcomflot (SCF Group) and NYK Line have announced that they have signed a new loan agreement with three leading international banks which will include a clause to provide their IMO DCS data to the banks.

What publicly available data exists to measure carbon intensity and benchmark my portfolio?

There are two alternative sources of data to measure carbon intensity. The EU MRV regulation measures the carbon intensity (known as Energy Efficiency Operational Indicator, i.e. EEOI) of ships which have voyages that enter or exit the EU ("EU voyages"). While valuable, this data only covers EU voyages. Major trade routes such as China to the US, Middle East to China or, indeed, much of the voyage length associated with China to Europe (any part of the voyage that occurs before the last port of call prior to entering Europe) etc. would not be covered, and the absence is material to the accuracy of the reported carbon intensity.

An alternative data source is to estimate carbon intensity using spatial data (AIS data) of ship movements (e.g., providing speed, distance, and draught) combined with a ship's technical characteristics. UMAS has amassed this alternative, estimated data source by developing a Fuel Use and Emissions (FUSE) model and database for all active ships.

There are three main benefits of estimated data. First, because

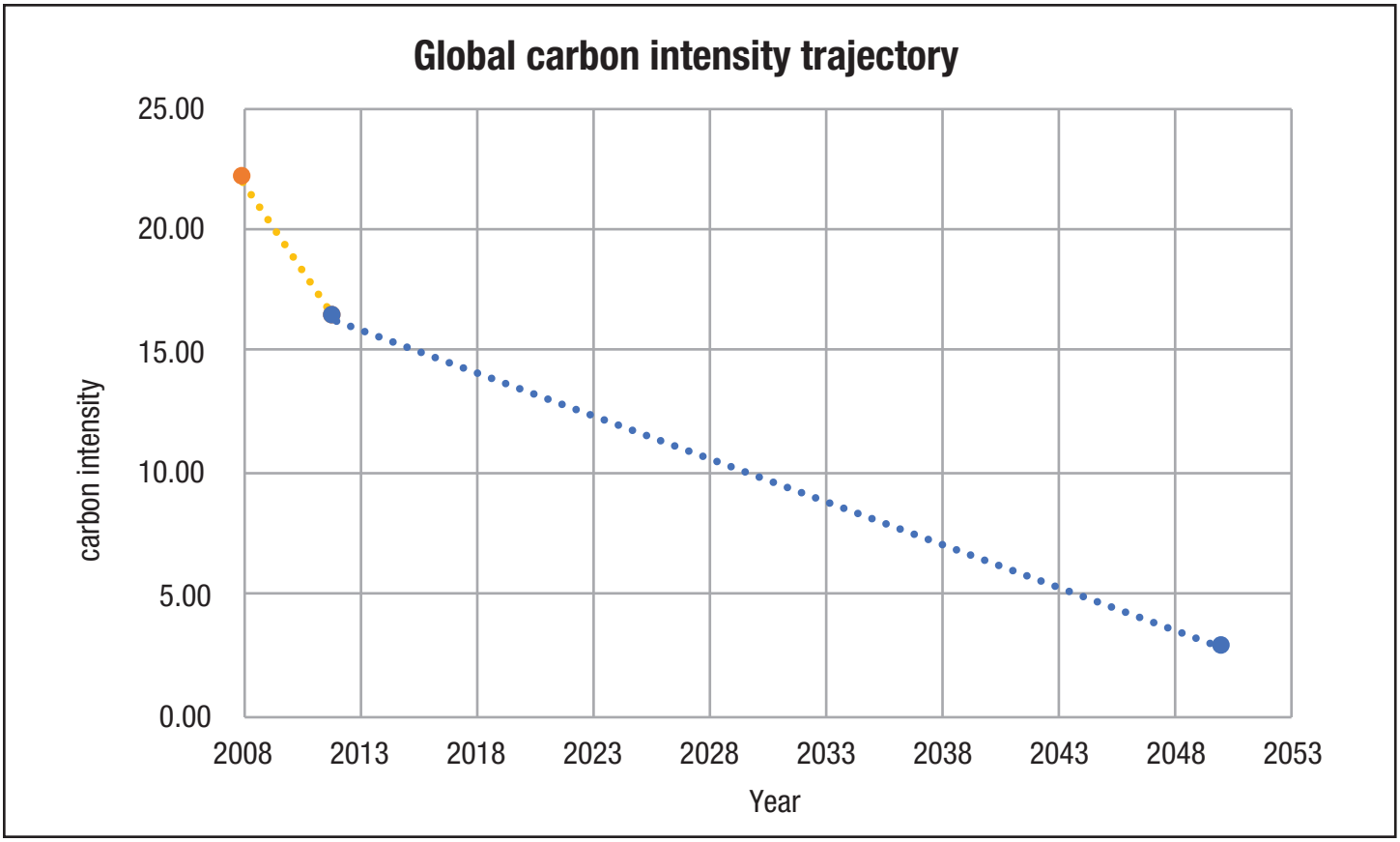

FIGURE 1

the data is available in real-time, a Signatory can monitor the performance of its portfolio during the same calendar reporting year, thus avoiding waiting for information until the following year. Second, estimated data provides a snapshot of the global fleet by ship type and size. This allows a bank to benchmark the performance of each asset class in their portfolio (as IMO DCS global fleet data is not publicly available). Finally, estimated data provides valuable insights into what is driving the carbon intensity of ships (e.g., speed, technical efficiency etc.) that the IMO DCS data alone does not provide.

Tools being developed by UMAS and Marsoft use this rich data to optimize PP management. This analysis allows a financier to engage with their clients in constructive conversations to understand how to form a strategy to be in line with the decarbonisation pathways, and integrate climate risk into their enterprise risk management framework.

DECARBONISATION TRAJECTORY

What do the decarbonisation trajectories represent?

A decarbonisation trajectory is a representation of how many grams of CO2 a single ship can emit to move one tonne of goods one nautical mile (gCO2/tnm) over a time horizon. They were developed for the PP to assess whether a ship and bank's shipping portfolio are climate-aligned. There is one decarbonisation trajectory for each ship type and size category. This ensures there is an apples-to-apples comparison of ships, given carbon intensities vary as a function of ship type and size.

The trajectories are constructed by connecting historical carbon intensity data with the IMO's Strategy of reducing shipping's total emissions by at least 50% by 2050 compared to 2008 and projections of transport growth out to 2050. Figure 1 shows the trajectory for the global fleet average.

The rate of improvement in carbon intensity is a lower bound because it represents a 50% reduction, the lower bound interpretation of the IMO Strategy is "at least" 50% absolute reduction. This is not consistent with the Paris Agreement's temperature goals now agreed by 60 countries. There is compelling evidence that a larger and/or faster reduction in emissions may be imposed on shipping.

The trajectories will be updated with new information and once the 4th IMO GHG study has been released. For example, if there has been additional slow steaming/uptake of energy efficient technology, it would be reflected in a lower starting point historically and a flatter projected curve, i.e., a slower pace of required reduction.

How likely is it that the IMO implements policy in line with its Initial GHG Reduction Strategy?

The IMO is starting to develop legally binding policy measures to reduce GHG emissions, and will debate and agree to a revision to its initial strategy by 2023. This could include measures to increase ships' technical and operational energy efficiency, a low and zero-carbon fuels implementation programme, and market-based measures, e.g. carbon pricing. These measures would be in addition to the existing IMO measures on the design efficiency of ships.

If what is achieved in the revised strategy is not sufficiently aligned to the Paris temperature goals, the EU may incorporate international shipping into the EU carbon trading scheme. The new President of the European Commission, Ursula Von Der Leyen, has already publicly stated she thinks shipping should be included in EU ETS regardless of what happens next at IMO.

Are vessels aligned today with the decarbonisation trajectories?

There is some uncertainty about whether current portfolios are likely to be climate aligned or misaligned, but we expect that most of the fleet will not be far from today's trajectory alignment requirements. Since 2008, the fleet has instituted a lot of carbon intensity improvements (slow steaming, significant increase in attention to energy efficiency, newbuild EEDI regulation).

Historical data analysis[4] has shown a wide variation within each ship type/size class category, meaning improvements may not have happened for all ships. The mix of ships in a given financier's portfolio could also affect the outcome.

In the event that results from the first year (2019) show that there is a systemic (across financier's portfolios) significant misalignment, the PP Association may revise the starting point for the definition of trajectories, but the end point will remain the same regardless of the starting point.

HOW WILL PPS IMPACT THE SHIPPING BUSINESS?

What solutions are available for ships to reduce carbon intensity?

There are a number of ways that the vessels within a portfolio can help improve the climate alignment score of its portfolio. In the short- to medium-term (i.e., 1-5 years), for most sectors (especially for ships which travel on long haul routes), the most commercially viable solution for reducing carbon intensity is through speed reduction and energy efficiency technologies.

Analysis performed on different ship types shows that speed reductions and energy efficiency technology, in combination with wind propulsion, reduce carbon intensity by between 30% and 70%[5]. However, to achieve such a high reduction requires a large reduction in operating speed which could be undesirable for commercial and operational reasons. Fulfilment of the IMO

Initial Strategy objectives, including at higher operating speeds closer to those used today, is only achievable with the use of lower carbon fuels (at least a 75% carbon reduction factor).

Lower carbon fuel options include harvesting of renewable energy on board (wind propulsion, solar, wave), bioenergy, battery energy storage, synthetic or e-fuels made from renewable electricity or fossil fuel sources in combination with Carbon Capture and Storage. For car/passenger ferries and cruise ships, there has already been a sizable penetration of batteries.

The application of these alternative fuels for deep sea shipping use is the subject of intense R&D effort, and their potential availability is expected over the coming decade. The Getting to Zero Coalition, launched in New York this September, already shows the extensive commitment towards making this a reality by engaging with the leading companies, think-tanks, NGOs, ports, and local governments across every element of the full value chain.

How are earnings and carbon intensity related?

In the short-term, reducing speed can significantly reduce the carbon emissions of a fossil-fuelled ship, but it is likely to lead to a decrease in revenue in a good market in the long term, as the vessel forgoes loaded voyages by sailing slower. Owners with more energy efficient vessels can, however, sail at a faster speed (and achieve equivalent carbon intensity performance) to secure future trips and offer a better speed-fuel consumption curve to the charterer than less efficient ones.

Over the longer-term, a GHG regulation that makes high carbon fuel more expensive, e.g. a carbon levy, will impact the operating cost of fossil-fuel powered ships, causing the supply to shift away from fossil-fuel ships to low carbon ships as carbon is priced in. Due to the long life of shipping assets (20-30 years), a fossil-fuel ship which is invested now or later may face an existential risk mid-way or sooner into its lifetime once zero emissions ships start penetrating the market. This loss in earnings could impact the probability of a shipowner defaulting on a loan, and thereby the cost of debt finance.

Do the Poseidon Principles mean I can only finance green, climate-aligned ships?

The PPs do not require that a Signatory must be aligned with the climate goals of the IMO. The PPs only require Signatories to assess and disclose the climate alignment of their shipping portfolios on an annual basis for secured loans and/or leases. Signatories that set targets to be aligned with the climate goals can also finance

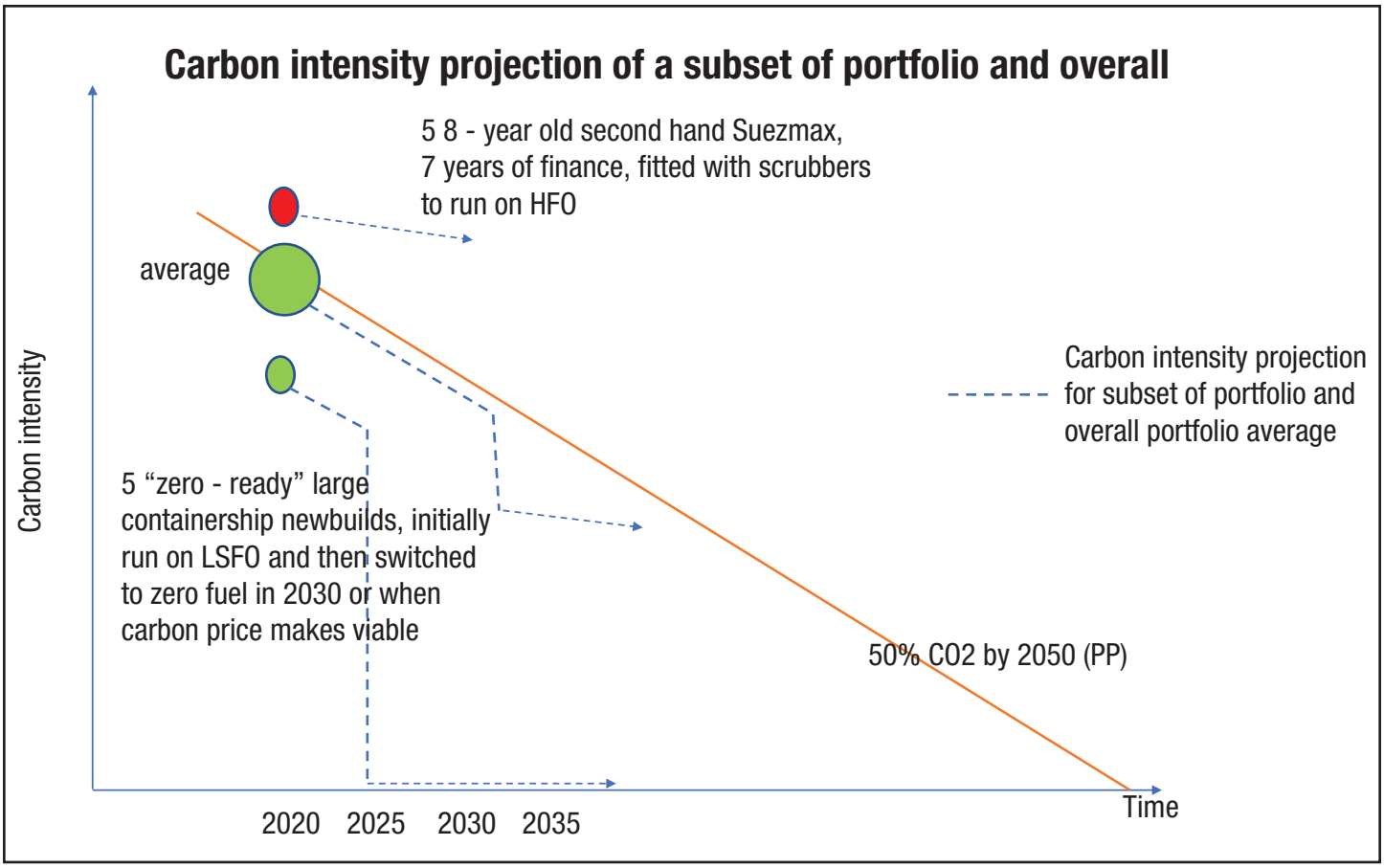

FIGURE 2

some "dirty" ships – ships which exceed the allowed carbon intensity threshold – as long as they direct enough financing to "green" ships to offset the bad ships' alignment values.

Figure 2 illustrates the case where a Signatory's overall portfolio average is "green" today (e.g. overall it is in compliance with the decarbonisation trajectory) but comprises some "dirty" second-hand ships. The Suezmax tanker ships are misaligned with the trajectory, but the portfolio has some newbuild containerships ships running on LSFO that are aligned today. This allows the Signatory to have a good score overall. However, these ships will become misaligned by 2030, and will need to switch to a lower carbon fuel to meet the trajectory as it becomes more stringent over time. These ships could be designed to be "zero-ready" so that they can be run on zero emissions fuel when it becomes economically viable.

It is necessary, therefore, to anticipate how the portfolio will evolve to be in line with the decarbonisation trajectory of each ship type and size. Equally, investment planning should account for the likelihood of future zero emission vessel (ZEV) competition, under which fossil-fuelled ships may have a much shorter economic lifetime, and consider all the risks and opportunities under such scenarios.

Shipping finance is driven by relationships, not just assets. How best to manage counter-party risk under the guidelines of PPs?

Some banks have commented they would like to see the PPs evolve to measuring carbon intensity by owner rather than individual ships. Maintaining relationships with clients that have sound credit quality is core to their business. These banks have expressed an interest in having the flexibility to finance a "bad" ship as long as the client is green overall, shifting its financing over time to the client's greener ships. While the IMO DCS data only provides data on the ships a bank finances, estimated data can be used to measure carbon intensity per counter-party, including for ships that a financial institution does not currently finance.

UMAS and Marsoft are developing a service that provides a lens on counter-party climate risk. There are two advantages of this approach. It provides a more comprehensive picture that takes account of banks' business, and can be presented to the risk and sustainability committees. Second, this would allow the PPs to expand to a broader financial audience in the capital markets — a growth area for green investing — by allowing unsecured loans to be measured.

Final Words

Many industry stakeholders with whom we have spoken have been thinking about climate risks in terms of physical impacts and stranded assets (e.g., tankers and offshore vessels). We agree the Poseidon Principles is about risk, but it also presents opportunities for growth. Top banks have started or are exploring initiatives to fund sustainable shipping projects as the investor appetite grows for targeted green investing.

Many banks are at a very early stage in developing their own climate risk management strategy. Marsoft and UMAS, with our advanced tools and knowledge, aim to help industries develop and convey a climate action strategy to their stakeholders which can tell a compelling story beyond PP compliance.

The implications of climate risk on assets are real and getting more difficult to ignore. It is becoming increasingly clear that shipping companies and banks which take steps to prepare for this new future will be more resilient to earnings and residual value risks. The Poseidon Principles and its Signatories are pioneering this uncharted frontier, and their message is being heard around the world.

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This article is a condensed version of our full PPs insights. For full access, please refer to the UMAS and Marsoft websites.

UMAS is a commercial advisory service providing decarbonisation solutions to the maritime shipping sector. In collaboration with the UCL Energy Institute, it is world leading in shipping energy demand and emissions and using models to explore future policy and technology scenarios.

Since 2014, UMAS has been delivering maritime and shipping projects for a range of clients in the public and private sector, including the IMO, European Commission, Climate Works Foundation, European Bank of Reconstruction and Development, Committee on Climate Change, Carbon War Room, International Paint and Danish Shipowners

[1] *The IMO DCS requires ships which are 5,000 gross tonnage and above engaged on international trade to collect and report for each calendar year.*

[2] *Recognised Organisations are organisations that are authorized to perform statutory certification and services on behalf of a flag State as defined by the IMO's Code for Recognized Organizations (RO Code). The number and type of organisation depends on the flag State. For example, the UK flag has only six members, all of which belong to the International Association of Classification Societies (IACS), whereas other flags such as Panama have over 20 authorised ROs.*

[3] *The RO who performed the data validation is the only entity that would hold this data on behalf of the owner.*

[4] *The Existing Shipping Fleet's CO2 Efficiency; International Maritime Organization (IMO) London, UK, March 2015; Smith, T. W. P.; Prakash, V.; Aldous, L.; Krammer, P.*

[5] *Based on analysis performed on a medium range tanker. Reductions were relative to the 2010 baseline design and operational specification. See Smith, T., Raucci, C., Haji Hosseinloo S., Rojon I., Calleya J., De La Fuente S., Wu P., Palmer K. CO2 emissions from international shipping. Possible reduction targets and their associated pathways. Prepared by UMAS, October 2016, London.*