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Economic Obsolescence to Marine Assets: A Timely Update

Valuation of marine vessels is complicated, not only in light of their high capital cost base but also in terms of shifting trading trends and a tightening regulatory environment, both domestically and internationally. The regulatory environment is only one variable. The ability to quantify functional and technological obsolescence is another. It is essential for lessors and other financiers to conscientiously analyze asset risk.

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By Basil M. Karatzas

It seems that one cannot open a business newspaper these days without running into an article about carbon footprint, emissions, and "future proof" technologies. No doubt we live in times of accelerated momentum. In the marine industry, that includes complying with new environmental mandates as well as environmental, social, and governance (ESG) criteria or standards. To those, add the ever-present sense of urgency for the commercial application of new technologies.

No one disputes that running an environmentally friendly operation

Shown on the Mississippi River, the MV Stephanie Stone is a towboat built in 1974, with its engines (and emissions) grandfathered.

Specifically in the marine industry, whether for domestic (Jones Act) or for international shipping, the implications are even more pronounced, given the high capital cost base of marine assets.

or piece of equipment, is a highly commendable goal that should underlie business decisionmaking. At the very least, we owe it to ourselves and to future generations to maintain a clean environment.

However, from a strictly economic point of view, the concern arises that if new equipment and machinery are "advanced," then logically, existing equipment ought to be "dumb," "bad" or obsolete. Accordingly, existing equipment should automatically be valued at a discount to new equipment and also at a discount to its estimated residual (or book) value.

The economic implications of such statements are self-evident not only to any type of asset owners, not only to lessors and equipment finance companies but also to financiers, who may have exposure to future value of assets (via balloon loan payments, residual value insurers, and so on).

Specifically in the marine industry, whether for domestic (Jones Act) or for international shipping, the implications are even more pronounced, given the high capital cost base of marine assets. From a lowly inland towboat that costs several million dollars to build new (roughly $6.5 million for a 2000 hp vessel) to a Jones Act wind turbine installation vessel (WTIV) with a $600+ million newbuilding cost, any asset risk can be material.

Likewise, in international shipping, from a small handy-size bulker ($28 million for 38,000 deadweight) to an LNG tanker with a $260 million newbuilding contract price, even a small percentage drop in secondary market values would lead to multimillion dollar write-offs. (An LNG tanker transports liquefied natural gas.)

NEW TECHNOLOGIES AND OBSOLESCENCE

In the last couple of years, in our marine survey and appraisal practice, we have had to field an ever-greater number of concerns and questions from financiers, mostly lessors and equipment financiers, about the impact of new technologies on existing marine assets and requests to quantify functional and technological obsolescence risk on marine assets. Whether for relatively new marine assets or assets approaching the end of their economic life, a new generation of assets would have an impact, but likely at a different rate. Likewise, for marine assets in critical operations (tank barges or tanker vessels) the impact of obsolescence likely will be higher than for backwater assets, such as barges, deck barges, and inland pushboats.

From an appraiser's point of view, obsolescence is a form of depreciation or deterioration of an asset. There is physical depreciation of an asset, with which we all are familiar, and which is attributable to the age of an asset and its wear and tear from daily use. Additional depreciation might occur due to functional

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obsolescence—loss in value due to factors inherent in the property itself—exemplified by changes in design, materials, or process resulting in inadequacy, overcapacity, excess construction, lack of functional utility, excess operating costs, and so on. Economic obsolescence can occur due to the loss in value or reduced desirability of ownership arising from forces external to a property.

Modern vessels are generally new and improved designs of existing equipment that allow for marginally better performance in some way, and that would pertain to functional obsolescence. On the other hand, there is the risk that external-to-the-equipment variables may affect its performance, such as new environmental regulations for lower emissions, that, unless they come with some "grand-fathering" provisions, may render existing equipment useless.

Further delving into appraisal terminology, we find the fine differentiation of curable and incurable depreciation (obsolescence), whereby it makes economic sense to upgrade a piece of equipment and remedy its functional or economic obsolescence. Sometimes the cure may be minimal and would make economic sense. However, other times the cure may require the complete redesign and reconstruction of a vessel, to the effect that an asset owner is economically better off to look for a replacement asset.

Functional obsolescence is generally quantifiable. For instance, a newer design that has 10% incremental capacity or 10% lower operating expenses would not face an existential risk. Moreover, the economic differential between an older and a newer asset is fairly obvious and mostly indisputable. However, new regulations that impose a new working frame for a (marine) asset would not be so readily quantifiable.

THE EFFECTS OF GRANDFATHERING

Even when the asset is grandfathered (granted regulatory exemptions to operate), its economic life cannot be the same again, so to speak. In their simpler forms, grandfather clauses come with limiting provisions such as geographic region to operate, or requiring existing ownership to be maintained, so as not to allow any grandfathering to be passed along to buyers.

Thus, while a (marine) asset is exempted to comply with new regulations, it may not be allowed to be positioned to another region or area or jurisdiction, or be sold, without losing its exemption qualifications. Just like that, the value of the asset can change, if now it cannot be allowed to move around as freely as before.

One example of grandfathering is compliance with Subchapter K in the Jones Act passenger ves-

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sel market. In this case, existing passenger vessels are designated as "inspected" by the U.S. Coast Guard, thus ensuring that they were built and have been maintained to regulations at the time of their original construction—but not necessarily to current regulations of Subchapter K. This can be a detrimental detail when appraising (and financing) passenger vessels in the Jones Act–U.S. market.

Inasmuch as grandfathering and exempting from compliance appear convoluted regarding the valuation of marine assets, compliance itself can be even more complicated. For the marine industry, the International Maritime Organization (IMO) of the United Nations is responsible for setting regulations in the international marine industry; however, again, the responsibility to enforce such regulations rests with local jurisdictions. This suggests that some jurisdictions may not care enough to enforce them in the first place, or they have higher priorities.

For the United States, although it is a signatory to the IMO, generally U.S. regulations take precedence over IMO regulations, especially in inland waters. In other words, an international vessel calling to a U.S. port must comply with both IMO and U.S. regulations, whereas a Jones Act vessel trading exclusively in the United States effectively can ignore the IMO regulations for the most part. The now famous Subchapter M regulation, coming into effect in 2022, has been an effort to synchronize IMO and Coast Guard regulations in the tugboat industry. It has highly impacted both operations and tugboat values.

There are yet more complications. For example, while the Coast Guard sets the navigation regulations, the Environmental Protection Agency generally runs emissions and environmental regulations in the United States. Furthermore, certain individual states (such as California and Texas) enact their own environmental laws, which may be more stringent or lenient than the federal standards.

In short, maritime asset operators face a plethora of environmental regulations in various sectors, with a few cracks and loopholes in between. For instance, a well-known industry practice for vessel owners and operators consists of signing newbuilding contracts at the last minute (with additional options for more contracts) on the eve of new deadlines, just to be able to build grandfathered vessels in the future, for example, having Tier II engines while the standard for newer vessels will be Tier III or Tier IV engines. The higher the tier the lower the emissions, but also the higher original cost of such an engine (more components and electronics involved) and the higher operating cost over time, and thus the (economic) preference to stick with lower-tier engines.

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COMPLIANCE: LIMITS BUT NOT SOLUTIONS

More interestingly, regulations define limits (such as for emissions) but not solutions, which are left to the individual companies to devise, adopt and implement. In order to render a vessel compliant with emission regulations, a vessel operator might elect to install exhaust gas cleaning systems (EGCS), colloquially known as *scrubbers;* or modify the vessel to burn better quality fuels, ranging from marine diesel to natural gas to methanol and ammonia; or possibly to have hybrid technologies on board for dual fuel or even battery power.

Another complication: there is no magic bullet fuel or technology to address the problem of energy and operational efficiency while allowing for minimal or zero emissions. Different fuels have certain advantages and may be ideal for certain types of vessels while they may be completely unsuitable for other vessel types.

For instance, while for a large ocean vessel such as a supertanker LNG may be an energy efficient, low-emitting fuel, a tight-dimensioned harbor tug is unlikely to have storage space for liquefied natural gas tanks. Thus, LNG effectively is not an option for small vessels. Likewise, while battery and electric power may be suitable for small vessels on regular routes (such as small ferries), battery power packs would be prohibitively heavy to propel a supertanker.

Clearly, a lessor in the marine space navigates a fragmented set of regulations and an even wider option set of fuels and technologies. If a vessel is not properly certificated at multiple levels or jurisdictions, its present and future market value may be affected. Likewise, another variable in present or future market value could arise from getting a vessel fitted to burn a new type of fuel but subsequently facing hiccups in the production or supply of such fuel—now or in the future, locally or regionally, where a buyer of the vessel may wish to reposition it upon acquisition.

The list of permutations can be quite extensive. Accordingly, the concerns and questions posed by asset managers of leasing and equipment finance companies are indicative of their considerations and thought analysis. For these players, sourcing the “right” marine asset to finance and ensure predictable residual values is of utmost importance.

It may be that building and financing only top-tier vessels is a way to ensure minimal asset risk, at least in terms of economic obsolescence. That may be one legitimate choice to optimize the asset risk profile, but how about economic returns? A marine asset that is considered top notch from an engineering or regulatory point of view may not necessarily be a good investment. For example, a methanol-powered towboat under construction in the Jones Act market has a cost basis of

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4 times that of a comparable, conventional towboat. While the asset risk is nominally minimized for this methanol-powered asset, it is hard to see how such a vessel can commercially compete in the market against vessels with a fraction of its cost basis.

PERSPECTIVE ON GREEN VESSELS

One might suppose that the charterers would be willing to pay up for such a high-specification vessel. Based on their track record, however, do not bet on it. From a practical point of view, while all major charterers (i.e., oil companies, grain houses, etc.) advertise their green initiatives, most of the time they will not invest in a greener vessel. The bottom line takes precedence over green credentials, which at least partially explains why vessel operators pursue grandfathering policies even for newbuildings instead of building a top-notch vessel.

As the question was pointedly framed on a slide at a trade conference last year, "WTF with the newbuildings?"—meaning, Where is the financing for the top-notch newbuildings? Who pays for these new, high-specification marine assets? If blue chip charterers do not pay up for green vessels, there is little incentive for a vessel operator (with much shallower pockets than these well-established charterers in the form of energy, grains, and mining companies) to go for high-specification vessels in the first place.

Such a reluctance to undertake the financial commitment and provide long-term employment for new, state-of-the-art marine assets implies certain duplicity on the part of these established charterers. Even as they advertise their commitment to a green environment, they do not seem to put their money where their mouth is.

However, on narrow economic terms, as the construction of and transition to new, green marine assets is in slow motion, existing marine assets maintain relatively strong asset prices, whether economically obsolete or not.

From the perspective of both an asset manager and a marine appraiser, trying to value marine assets in present time under such circumstances is challenging. However, it is even more challenging having to assess residual values for the vessels in a changing world, based on where the world may be five years into a leasing transaction.

New assets may be shiny and attractive and apparently inherently minimize asset risk, but they may not necessarily provide superior returns. Older assets may be cheaper and earn almost as much as a new asset, but they also stand to lose a lot in a shifting or a weakening market. For instance, in a strong freight market that raises all boats (literally and figuratively), old and new vessels enjoy good

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Diligence encompasses selecting types of vessels that have higher resilience to obsolescence as well as considering which vessel designs and vessel age brackets will hold up reasonably well in the future under a wide range of circumstances.

returns. That said, in a poorly performing market and high underutilization, charterers opt for modern vessels just because they are almost as cheap to charter as older vessels. Simply stated, if the daily rate is rock bottom, why not simply go first class with a modern vessel?

CONCLUSION

In conclusion, we are not suggesting that profitable investments cannot be made in the marine industry. After all, many other industries are facing equally seismic shifts in terms of new technologies, regulations and consumer patterns. However, any lender, investor, or lessor in the marine industry—including the service providers on whom capital providers depend upon for professional advice, such as marine surveyors and marine appraisers—must perform a conscientious analysis of the asset risk involved. This diligence encompasses selecting types of vessels that have higher resilience to obsolescence as well as considering which vessel designs and vessel age brackets will hold up reasonably well in the future under a wide range of circumstances.

It is important to remember that the marine industry, like other modes of transport, cannot be outsourced, offshored or substituted. As a reminder, classifying transport workers and mariners as essential workers during the Covid-19 pandemic signaled the importance of the marine and transport industry to maintaining a normal daily lifestyle for the average citizen.

Fashion and consumer trends may shift with time. However, the shipment of end-product containerized cargo, raw materials (like ores), energy sources (oil, natural gas, and so on), and industrial materials (like fertilizers and industrial chemicals) is essential to sustain human activity and maintain better living conditions for people around the world. Cargoes and commodities will physically have to be transported seaways tomorrow and a hundred years from now, a testament to the endurance of the marine transport industry.

In a world of accelerated technological and regulatory evolution, for a successful marine asset investment, any financier must endeavor to fully understand all marine asset risk associated with the asset under consideration, not only at the time of initiating a transaction but also taking a decade-long forward look.

Older and newer marine assets have different asset risk profiles—which themselves are dynamic with time and not necessarily in sync with each other. Thus, in our opinion, financiers in the marine industry should try to offset such asset risk by staying focused on the marine assets (both asset class and vintage) within their core expertise. The goal is an understandable, predictable asset risk profile, with the source of the capital and objectives of the investment aligned with the asset risk profile. ■

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