

Dear Shareholder,

NEW BUILDING VLCCs AND/OR SUEZMAX ARE NEITHER ECO NOR GOOD VALUE

The following is a paper prepared internally to address the question of whether Euronav should order a series of newbuilding VLCCs and, or Suezmax to take advantage of the impact of current designs on fuel oil consumption.

BACKGROUND

With bunker prices rising significantly since 2009, there has been a renewed emphasis on fuel conservation on the part of end users of tankers. All ships operate in the voyage market for someone, either the owner, or the operator/oil major or the trader to whom they have been time chartered. For a VLCC, daily consumption of bunkers could be up to 100 tonnes (sometimes even more) per day laden at full speed (15 knots), with a cost of US\$60,000 at today's bunker price (\$600 per tonne) which represents the bulk of the voyage costs. This can be compared with the cost of time chartering a VLCC for one year at \$18,000 per day or owners standard operating expenses of \$12,000 per day (excluding any depreciation of the asset, amortisation of debt and interest cost).

If the gross daily return for a VLCC is US\$78,000 per day, then, after voyage costs, the return to an operator of a time charter-in vessel is zero and for an owner operator only US\$6,000 per day. Not enough to pay debt service or any other investment return.

Owners have responded to this price shock by reducing their operating speeds and consequently reducing their fuel consumption in a market where fuel cost variant through consumption is more important than the value of time. So called super slow steaming has proved to be so effective that the world tanker fleet has today uniformly changed operating speeds from 15 knots when laden to 13 knots and from 15 knots in ballast (unladen) to 10 knots.

A number of additional measures can be adopted to save fuel and reduce cost, each of which may be more or less effective depending on the characteristics of each vessel and the trade in which it is used. No measure will deliver a uniform improvement in all trades, and whilst sailing is the most significant activity for fuel consumption, there are an important number of days spent waiting on demurrage, or idle, or pumping and reducing consumption at these times is also relevant. For example, a ship with an electric heavy fuel heater can switch off its boiler when slow steaming or drifting and this can save 5-6 tonnes per day (US\$3,000 to US\$3,600) which is as much as the savings claimed for new ships (so-called Eco) over old ships in reduced sailing consumption. Yet, this retrofit costs no more than \$30,000 and can be installed by the ship's crew, a payback period of less than 10 days waiting time.

**Our technical and operational departments were asked whether newbuildings were really offering a 30% reduction in consumption and they advised as follows:**

1. What is the benchmark?

Fuel savings are usually referred to as the percentage reduction in consumption of one ship over another, and yet even before the most recent designs some ships were 10% better consumers than others. So the question always needs to be asked in the context of one specific class of ship over another (age, size, make and make of equipment). Advocates of

new vessels nearly always choose the worst performing vessels in the world fleet as the benchmark for comparison with their new designs. This gives the impression that the differences are huge but in fact they are not and with good operations and retrofitting they can easily be replicated.

2. Who is the operator?

Consumption can only be measured on the basis of the same speeds and in the same sea conditions with the same laden/ballast conditions. The experience of the crew in loading the ship to optimise trim, operating the main engine and other equipment, navigating the ship to take advantage of current and avoid bad weather are all key elements in reducing consumption. Even the most optimal consuming ship can waste power and therefore bunkers by sailing into a storm. Quality of operation has been demonstrated to have a value on a continuous basis of up to 10% between good operators and average operators. It can be a wider margin with poor operators. Euronav has an excellent record of continuity of service and personal professional development for its sea staff, the average years of service in the company for our captains is 19 years. This level of operational competence is critical in delivering performance and managing consumption.

3. Choose your speed

Engines are optimised to a particular power range so a uniform outperformance over all speeds is not possible. The choice of speed is dependant entirely on commercial factors related to freight compared to voyage cost and in particular bunker expense. It is important not to permanently handicap a ship's speed to improve economy in a poor market because, in a good market, the value of time will become paramount (not the cost of the voyage) for the returns on investment.

4. Hull shape can barely be changed in a tanker

Hull shape is critical in determining resistance but tankers optimise their carry capacity and freight earning through having a very boxy shape (a high cross block coefficient) which unfortunately maximises resistance. This cannot be significantly modified without losing freight (earning) capacity. This is quite different from container ships.

5. Coatings

The hull surface causes friction in the water which is reduced through coatings. These are damaged through normal wear and tear so even new ships see appreciable deterioration through the cycle of 5 years from delivery at the ship yard to first dry docking. This can cause a variance in performance over a five year cycle where in the last year of the cycle the ship is performing more than 10% worse than in the first year of the cycle. This, of itself, may warrant more regular docking just for painting even if not required for a vessels survey cycle. Needless to say that modern coatings can be applied on old ships.

6. Propulsion efficiency

Propulsion comes not only from the main engine but from the flow of water over the propeller and the single most effective measure to enhance this is to retrofit a Mewis duct. Euronav has demonstrated that the installation of a Mewis duct results in savings of

between 10 % on one class of VLCC to 7% on another class of Suezmax. The cost of this retrofit, which takes place in dry dock is less than \$500,000: a payback period of less than half a year! Euronav will retrofit its entire fleet as are two other owners we know amounting in total to 40 retrofitted VLCCs.

7. Shipyard marketing vs reality

Shipyards do not guarantee speed and performance of the vessel as a whole. They will guarantee fuel consumption against engine output in a bench top exercise but not as a sailing ship. Some shipyards in Korea are now admitting that when they advertised the fuel saving capabilities of new models of tankers their theoretical claim of 30% savings will likely translate in 10% when the ship is operated. Furthermore the new designs do not anticipate fuel regulatory changes expected to impact in the coming years.

**The question was put to our financial and chartering department as to whether a newbuilding would earn a premium to the market and if so would this be a good investment?**

**1. THE VOYAGE CHARTER MARKET IS IN OVERSUPPLY**

*New ships with high depreciation may make a loss regardless of their consumptions and therefore bunker costs being lower than a competing ship. This is already apparent today in the variance between existing ships. It is better to have better consumptions for certain speeds but the key question is whether the owner retains the benefit and whether it warrants the risk of investing in expensive new buildings.*

The voyage market is a market for the movement of cargoes. Ships compete individually in this market, not as a fleet. Ships are eligible through their suitability for the trade and their position, being such that they can reach the load port on or before the expected time for loading with suitable certification and inspections completed and valid. Ships are traded in an auction market where the lowest bidder will get the first opportunity to negotiate and fix the terms.

The cheapest eligible ship will fix the business. The owner should estimate his freight bid by calculating the daily breakeven costs of his ship multiplied by the time taken for the voyage plus the voyage costs on the basis of a voyage commencing ex last discharge port and finishing ex discharge port for the cargo currently marketed. However, in practice, this is calculated only for reference and the owner will check the market, in particular whether he has the only ship eligible for the voyage and if not, what other competition is available. If there are many eligible ships then the owner may bid low in order to fix the business notwithstanding that this may make a loss for the company owning the ship. The reason for this is that waiting for a later cargo will cause the ship to have additional costs from waiting only to probably face the same pricing negotiation at a later date, unless the number of competing ships reduces through an increase in cargo volume in the waiting period, in which case the market rates will move up and the additional costs may be recovered in the higher rate.

The owners will estimate the rate required to 'win' the business and then, using the position of the vessel, calculate the voyage costs using the vessel's speeds and consumptions to accurately calculate the time charter equivalent earnings for the vessel. Once this is done the owner can compare time charter equivalent costs with time charter equivalent earnings and work out whether the result for

the owner is a profit or a loss. A significant element in this calculation is the vessel's depreciation of original purchase price, amortisation of debt secured against the vessel and the interest cost of financing the vessel whether on a financing cost basis or on the basis of the required rate of return of the owner/investor. It is critical to note that these elements vary hugely from ship to ship and ship owner to ship owner and do not drive pricing of the service but rather determine whether there is a profit or a loss generated from the earnings fixed by the market. New ships with high depreciation may net back to a loss regardless of their consumptions and bunker costs being lower than a competing ship. This is already apparent today in the variance between existing ships.

Charterers pressurise the rate downwards to reduce their costs of transport irrespective of whether the owner is making a loss and in particular when a ship has a favourable position for the cargo. If the ship finished its last voyage closer to the current cargo load point when compared to the other competing ships and consequently has less distance to travel with less positioning cost to load the cargo, the charterer will press the rate further down arguing that the owner has incurred less fuel and time cost for the voyage. Therefore the owner can pass on that benefit, or at least part of it to the charterer. It is continually demonstrated that improved logistical scheduling drives up supply and drives down the returns to the ship owner. The same is true when a ship is a so called better performer.

This will only be corrected by a reduction of supply, because in an oversupplied market all value is transferred to the charterer. In the current market a ship with better speeds and consumptions may perform better but a number of factors will impact on whether the gains due to better speeds and consumptions can be enjoyed by the owner or lost to the sea conditions or handed over to the charterer. Ships with similar (consumption) variances to those currently marketed by the shipyards, are already operating in the market. The impact of these variances is, however, not discernible when compared with other factors around the marketing and operational discipline of the owners/managers. It is better to have better consumptions for certain speeds but will the owner retain the benefit and does it warrant the risk of investing in expensive new buildings.

A number of retrofits which significantly improve consumption across all speeds are available to the owner today. These retrofits are for the most part not compatible with one another. Euronav has chosen one to be applied to all its modern ships: the Mewis duct. The improvement in consumption has varied from 10% to 7% depending on the class of ship concerned.

When comparing a retrofitted Suezmax with a newbuild Korean Suezmax the difference is no more than 3 tonnes of fuel per day on paper. Our ships are sailing in open sea for approximately 290 days per year which is when the improved consumption figures will make a difference. The value differential of the better consumptions on an annualised basis is therefore  $3T * 290 \text{ days} * \$600$  or approximately \$500,000 per year. This advantage can be easily lost through poor chartering or through poor management of the bridge and engine room. Over the lifetime of the ship the differential in potential value is unlikely to be more than 3-4M USD as the newbuilding will have periods of underperformance, including market and sea conditions, which do not reward the potential. However the difference in price today between the latest ordered VLCC newbuilding and a vessel built in 2008 is over 30M USD!

Indeed the price of a 2008 Korean built VLCC can be estimated at 60M USD compared with a Korean newbuilding ('so called eco') sold ex yard at say 90M USD. If one assumes a total return to capital of

7.5% and a twenty year life to a scrap value of 16M USD, then there is a significant difference in the breakeven cost for the two assets. The '08' VLCC costs US\$16,700 and the 'new' VLCC US\$23,000. This is a daily handicap for the 'new' ship of US\$6,000 per day that can never be won back through operational efficiency and fuel saving.

## **2. THE TIME CHARTER MARKET DOES NOT DECREASE SUPPLY**

Owners can lease their ships out to charterers for a fixed period of time at a daily hire rate. The rates which are used for time charter business are based on time charter equivalent earnings produced in the voyage market to which either a discount factor will be applied if the market is thought likely to be worse during the period proposed for the time charter or a premium factor if deemed to be better. The owner will describe the ship in terms of its performance capabilities and the services which are provided. The key today is the range of speeds that the ship may be ordered to sail at and the quantity of fuel oil warranted by the owner as consumed by the ship when sailing at those speeds. It is of real value to the charterer to have consumptions warranted by the owner that are lower than other ships as this should translate into better results from the voyage market for the charterer. However, the owner must be careful. The charterer will have an express right to claim any loss caused to the charterer through the ship not performing as described. The charterer will certainly prefer to lease the ship with the best figures but will not pay more for that because the improved performance is what the charterer wants to keep, not pass back to the owner. Furthermore the full extent of the difference of performance may not be realised because this is only a potentially better performance and the charterer cannot be sure that it will be as described (even shipyards do not warrant this) and, more importantly, the use of the vessel may not give opportunity to realise the value of the difference. An obvious example of this would be if the vessel was used for storage and not sailing for a significant part of the proposed time charter period. In this case, a charterer might like to have a better performing ship but will not want to pay anything for that potential.

## **CONCLUSION**

Existing good quality fleets maximise investor leverage to market gains, newbuildings do not. All VLCCs move cargo in the same market, and the poorer performance of the older and less efficient ships is reflected in their lower acquisition prices which of itself creates an interesting investment case. All Newbuildings increase supply and consequently decrease market rates. This means that a new ship has no competitive advantage for an investor in a market that is over supplied. In an oversupplied market, the world fleet slow steams and waits with zero advantage in performance. The real advantage of a newbuilding with better speeds and consumptions will only be seen in a full speed market (for which they have probably not been designed) when the ships maximise time over cost then the newbuilding will have the maximum number of days with lower voyage costs. However, in this very same market, older cheaper vessels will return by far the best results financially for the investor.

Yours sincerely

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On behalf of Euronav NV  
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