

Eco-ships investment and price differentials

Eco-ship engines are more energy efficient than conventional ships. This means they consume less fuel and emit less greenhouse gas emissions on voyages per tonne-nautical mile. Eco-ships cost more to buy than conventional ships, however. In this research by the Clean Maritime Research Hub factors that contribute to price differences and lack of eco-ship investment are explored.

This research uses Clarkson's Shipping Intelligence Network (SIN) data and time-series econometric modelling to explore price differentials over the period 2019 to 2024. A key finding is that market drivers alone are insufficient to encourage eco-ship investment. Ships have a useful lifetime of c.25 years. A lack of investment in eco-ships risks "lock-in" to higher emissions and compromises government objectives such as clean growth and green transport.

Research findings:

- Price differences between eco-ships and conventional vary but are c.25% more
- Eco-ship time charter (TC) rates are only 9-15% higher depending on market conditions
- More eco-ships are deployed in recessionary markets (TC rates below average) increasing TC rate differences
- In expansionary markets (TC rates above average) supply is tighter reducing TC rate differences
- Fuel costs and levels of vessel sales have a stronger effect in recessionary markets
- Loan costs only marginally lower for eco-ships versus conventional ships
- 50% orderbook is for new conventional ships and only c.7% fleet (by gross tonnage) is alternative fuel capable (including LNG)
- Higher capital investment costs and policy uncertainty demotivates investment in more sustainable ships.

Research on the costs of retrofitting conventional ships to eco-ship standards is forthcoming.

POLICY RECOMMENDATIONS

Policy interventions are required to encourage investments in low emission ships. Suggestions include:

- Clarity and certainty around market-based measures and alternative fuels regulations
- Green finance options to encourage investment in eco-ships
- Fossil fuel levies to discourage conventional ship use and encourage eco-ship investments



Price premium for Dry Bulk Carriers (Moutzouris et al (2024)) illustrating price differences in recessionary and expansionary markets

RESEARCH PUBLICATION

Moutzouris, I. C., Papapostolou, N. C., Marchese, M., Tamvakis, M. N., & Shi, Y. (2024). Determinants of the price premium for eco vessels. *Transportation Research Part D: Transport and Environment*, 136, 104414. <https://doi.org/10.1016/j.trd.2024.104414>

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