Clean Maritime Policy Unit

POLICY BULLETIN

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Scrubber investment and market prices

The International Maritime Organisation (IMO) introduced in 2020 a regulation restricting sulphur shipping emissions to 0.5%. Rather than purchasing more expensive low sulphur fuels, a scrubber can be installed on ships to meet this regulation with conventional fuel. Scrubber installation is a shipping technology that has high capital expenditure but enhances profitability. This is due to fuel cost savings when operating the vessel or higher freight income when leasing it out. Volatile fuel prices and freight rates mean that making such investment decisions is challenging.

This paper analyses scrubber investment based on 2021-2024 financial data for tanker and dry bulk shipping sectors. Using financial models combining shipping and energy data, it is found that the supply of scrubber-fitted vessels is determined by its profitability compared to non-scrubber-fitted ones. But as this supply increases, their relative profitability decreases. Owners of scrubber installed vessels earn income in two ways; (1) operating on the "spot" market where rates are the same as for conventional vessels, or (2) hiring out vessels on the "time charter" market at premium rates due to expected fuel cost savings. Profitability in case (1) is the operational fuel cost savings as conventional fuel is cheaper than low sulphur fuel and in case (2) higher freight income.

FINDINGS

Investment in green shipping technologies and market prices are interrelated:

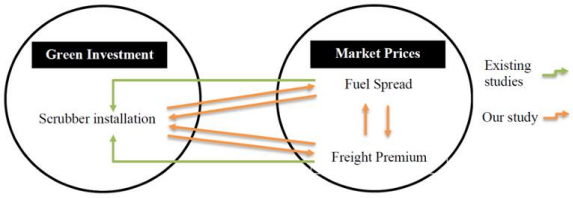

Fig.1. Green investment under market uncertainty

- Vessel's profitability influences the decision to invest in scrubbers.
- An increase in the number of scrubber-fitted vessels can reduce their profitability.
- Higher income premium for scrubber vessels results in increased (charter market) demand for non-scrubber vessels, this increases demand for low sulphur fuel, and therefore fuel costs, compared with conventional fuel.
- In turn, increased fuel cost savings further boost income premium on the time charter market.

Timing implications of investment in green shipping technologies:

- Early adopters have inadequate information about their asset's future profitability.
- Late adopters may experience lower profitability due to an oversupply of scrubber fitted vessels.

POLICY RECOMMENDATIONS

The IMO sulphur cap is effective in motivating green shipping investment and note that:

- Stricter regulations can lead to faster net-zero transition.
- Adoption of non-compulsory green technologies can occur when there are financial rewards for investors.

Financial incentives are key for investing in green shipping technologies, but market price uncertainty can delay investment. Policy suggestions include:

- Prioritise motivating early adoption to encourage the more risk averse investors.
- Highlight potential financial benefits to investors.
- Design supportive instruments, such as tax benefits and green bonds.

RESEARCH PUBLICATION

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