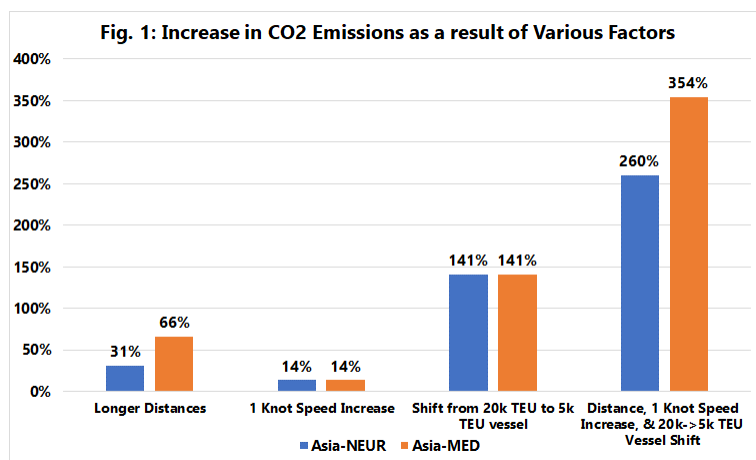# Red Sea Crisis: Increase in CO2 emissions

With the escalating Red Sea conflict, it is increasingly clear that we might be in it for the long haul, forcing shipping lines into round-of-Africa routings for the foreseeable future. A direct consequence of this is an increase in CO2 emissions.

There are three elements to consider: Increase in emissions due to longer sailing distances, potential increases due to faster sailings speeds (to maintain weekly departures), and if there is a shift from large vessels to smaller, less fuel-efficient vessels. Using a proxy container service, we can estimate the scale of these increase in CO2 emissions.

Fig. 1: Increase in CO2 Emissions as a result of Various Factors

If the shipping lines use the exact same vessels, at the exact same speed, then emissions increase on a 1:1 ratio with increased sailing distances. As sailing distance around Africa are on average 31% and 66% longer for Asia to North Europe and Mediterranean, respectively, CO2 emissions will increase by these factors, at minimum.

If the vessels also sail faster, then emissions will increase even further, as fuel consumption is not a linear function of sailing speed. As an example, based on our fuel consumption model, a 1 knot increase in speed from 16 to 17 knots, will increase emissions by 14%.

Finally, as shipping lines scramble to phase in additional capacity to cater for the longer sailing distance, we see smaller, less fuel-efficient vessels being deployed on Asia-Europe. On a TEU-basis, some of these smaller vessels see an increase in CO2 emissions of 141%, compared to conventional ULCVs. Putting all three components together, could lead to CO2 emissions increases of 260% and 354%, to North Europe and Mediterranean, respectively.

There is no realistic way to mitigate the increased emissions, at the very least those that are due to an increase in sailing distances.

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