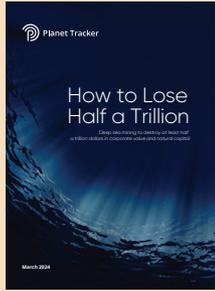


Deep sea mining – HOW TO LOSE HALF A TRILLION

Questions for investors and lenders to ask management of companies

Recommended Questions	Report Key Takeaways
<p>Q.1 <i>What is the total capital expenditure required for deep sea mining and the processing of the nodules?</i></p> <p>Background: Extracting polymetallic nodules from depths of 4,000m to 6,000m requires the construction of collection systems, remotely operated underwater vehicles, surface vessels, and onshore processing plants. The latter could account for c. 60% of the total capex</p> <p>Target: Understand that the heavy capital required to enable deep sea mining could lead to better value creation in other industries.</p>	<ul style="list-style-type: none"> • If companies were to mine polymetallic nodules in international waters, it would destroy USD 30-132 billion of corporate value. • The negative impact that the industry would have on the deep sea's ecosystem services would add at least another USD 465 billion of value destruction, mostly via habitat destruction. • Financial market participants can prevent this potential loss by supporting a <u>moratorium on deep sea mining</u>. • Preserving the planet's abyssal plains is worth, at the very least, ten times more than exploiting them. <p>Click to view the report online</p>  <p>Disclaimer: click here</p> <p>Related reports: Biodiversity impact of deep sea mining Carbon footprint of deep sea mining</p>
<p>Q.2 <i>How large are insurance, maintenance, repair, and environmental costs, as a proportion of operational expenditures, at deep sea mining companies?</i></p> <p>Background: High operational expenditures are likely to lead to negative EBIT margins in the deep sea mining industry. Insurance costs might rise (e.g. Swiss Re <u>will not insure deep sea mining</u>) and maintenance and repair costs might be underestimated. Restoration costs are non-existent for now but if they were even partially borne by companies (like on land), losses would be <u>colossal</u>.</p> <p>Target: Understand whether the return on capital is likely to be negative in the deep sea mining industry.</p>	
<p>Q.3 <i>To what extent are the nickel, cobalt and manganese businesses of terrestrial mining companies vulnerable to deep sea mining?</i></p> <p>Background: Deep sea mining companies promise to extract vast quantities of nickel, cobalt, manganese and copper from the seabed. This could affect the supply and prices of these minerals. If that was the case, large, high cost terrestrial mines would be the most vulnerable.</p> <p>Target: Estimate the potential rise in WACC and/or decrease in profitability of terrestrial mining companies, due to deep sea mining.</p>	