Deep-Sea Mineral Endeavors in Response to Tariffs: An All-Encompassing Economic Analysis of The Metals Company

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Abstract

As land resources become less abundant, groups are searching for alternative forms of mining. The Metals Company (TMC) has a solution and presents a compelling but highly speculative investment opportunity. Founded in 2011 and traded publicly in 2021, TMC is focused on extracting nickel, copper, cobalt, manganese, and some forms of sulfate from polymetallic nodules (stone-like deposits) located on the ocean floor. This paper will analyze the stock market performance of this company, trending news in relation to politics, and the technological history of deep-sea mining, in order to predict this company's future viability. This paper has found that since The Metals Company has seen a dramatic increase in stock value since August 2024, signaling growing investor interest, market confidence, and support from the Trump Administration. However, many of these trends are driven by anticipation rather than established profitability. While the company's reports show promise, The Metals Company faces substantial financial and operational risks, including limited funding and a lack of data behind its scalability. Regardless, with no foreseeable downfall, no direct competitors, and continued government support, The Metals Company is exhibiting current growth that makes it worthy of at least a short-term investment.

Keywords:
International Seabed Authority; Deep-Sea Rovers; Mining; The Metals Company; Economics; Stock Market

Introduction

The current stock market has experienced dramatic volatility due to changes in governmental policies that have traditionally supported specific industries and the imposition of tariffs. While a precise evaluation of companies remains uncertain, one money-maker remains true: innovation.

Nodules, a recent object of interest, are baseball-sized deposits loaded with manganese, nickel sulfate, and cobalt sulfate; metals that aren't produced in the United States. The United States relies entirely on highly priced imports of these metals in order to produce vital products such as lithium batteries or even everyday steel. On the other hand, nodules are rich all over U.S.-owned waters, meaning that the metals are brought in locally, immune to tariffs or international import prices. Most nodules are semi-buried or entirely buried in the ocean floor. This means that they require a certain level of ground agitation in order to be collected. The process of shooting water into the ocean floor in order to unearth these nodules is known as Hydraulic Collection

Technology (HCT). This process uses pressurized water in order to clear dust and rock away from the nodules. The Metals Company has taken this technology and applied it to their underwater rovers in order to create rovers that can carry tons of load and clear debris all on their own. These rovers are then extracted by industrial mining ships that carry the nodules to land to be processed.

Most of these nodules are being explored in the Clarion-Clipperton Zone of the Pacific Ocean. This zone follows a complicated history of permits because it is controlled in a joint operation between the U.S. and the International Seabed Authority (ISA, 2024). In order to mine, The Metals Company is seeking permission to mine from the ISA, which was previously rejected in late 2024. The Trump Administration has publicly released an executive order positively addressing deep-sea mining exploration as a worthy endeavor.

Beyond approval, there is much deeper analysis that needs to be done on the economic viability of such an operation that has never been industrialized (Liu, 2024), as well as its well-debated environmental impact. The company has previously faced controversy on its mission statement and real environmental impact, which has also played a role in its economic performance for investors.

This paper will explore the statistics behind The Metals Company technology and compare it to the ROI of mining companies producing similar metals, in order to determine the technology's viability in the near future. It will briefly explore the carbon footprint that such an operation leaves, in comparison to the company's reported expectations and the current operations of other mining companies.

Methods

For long-term estimates, I will compile data on the estimated costs of HCT when compared to conventional mining strategies, as well as the adjusted price with the two-tier market. I will then apply the principles of Economies of Scale in order to estimate the projectability of the company. This will be represented through a table covering primary costs and earnings, which can be used to determine the company's overall profitability.

For short-term estimates, I will evaluate a number of factors to evaluate the company's performance. Under three specific scopes of political standing, economic reports, and media, I will evaluate the importance of these factors and form a guide on the company's profile as an investment.

Results

Long Term

The Metals Company has projected extremely positive returns, with a life mine EBITDA of 32.3 billion dollars within a single mine in the Clarion Clipperton Zone (The Metals Company 2025). However, it must be analyzed how this will compare to the estimated costs of operation:

Form of Opportunity	Factors of Earnings	Factors of Loss
Resource Production	The United States, under anti-international import regulations, is highly subject to trade. Assuming that dry nodule tonnes are around $384 in value as released by the ISA (ISA, 2025), these valuable metals, which are not all producible in the US, are worth about 30% more. The adjusted value of these tonnes would be approximately $500 in value.	Operation costs in correlation to the output of dry material: $200-$340 to produce one dry metric tonne of polymetallic nodules (Volkmann, 2018).
Product Innovation	Pairing with Nauru has given The Metals Company complete control of future mining opportunities in the Clarion Clipperton Zone. If they successfully scale their operation, Nauru and The Metals Company hold patented technology that offers almost unlimited upside. They would become the leading company in the mining industry. However, if they fail, these rovers offer little to no value in any other program.	The Metals Company has already spent 30.4 billion dollars in loans, investments, and government money for research. (The Metals Company, 2025) These will set The Metals Company back, and the figures will only continue to grow as they will not attempt to industrialize until late 2026. Estimating a steady state of loans, The Metals Company will be 43.2 billion dollars in debt. (Total / Time since launch * Estimated Time of Industrializing)
Recycling Opportunity	Metal Recycling has long existed and has been for-profit. The Metals Company will be able to make a steady state profit with margins of around 30% considering this industry is the easiest for them to innovate in their favor. (Blanco, 2023)	Along with the entirety of the company's scheme, recycling and metal production centers of this magnitude have extremely high barriers to entry. However, The Metals Company has the funding to overcome these barriers.

	Carbon Credit Offset profits by tonne. Raabe estimates that they will be able to almost entirely offset their carbon dioxide emissions to earn carbon credits in their mining industry of around $40 (Raabe, 2024).	

After mapping out these sources of cost and earnings, these factors will be investigated with the target of seeing if costs will be negated. If costs can be negated, The Metals Company already offers enough deep-water research to make it a notable company. Beginning with resource production, Volkmann's estimates of output to dry material ranging from $200 to $340 are, in fact, beaten by the current value of these nodules. At a minimum, these metals are valued internationally at around $380, and the increasing demand for lithium will only make these metals more valuable.

Moving on to product innovation, it will be extremely difficult for The Metals Company to overcome its startup costs of more than 43.2 billion dollars. Additionally, unaccounted maintenance will likely add value of 30% as evidenced by larger American mining companies like Southern Copper (Thompson, 2024). This will only be higher for The Metals Company, as it will inevitably face more lawsuits and costs that come with operating in a new industry, in water. Adjusted, this will be a minimum of 40% maintenance costs, meaning about 7 billion added dollars in maintenance costs every year. Considering that this is a long-term estimate, these operational costs will be minimal if their scaling works. The estimated value of their discovered mine site will already cover 80% of their startup costs (The Metals Company, 2024).

Fortunately, the main factor that is supporting The Metals Company is the rapidly increasing prices of worldwide metals. Beyond the current two-tier market conditions that may stay or leave, metals worldwide, specifically battery metals, are increasing in demand faster than they can be supplied. These metals are only becoming more and more scarce.

Deep-sea nodule mining has been found to have a lower Ocean Minerals Company (OMCO) measured disturbance level than conventional sea mining when testing mapped seafloor grooming and overall sediment plume (Jones, 2025). Especially considering the environmental laws of states on the Pacific coast of the United States, The Metals Company will largely benefit from Carbon Credits because of their ability to produce raw materials under the status quo. The average carbon dioxide emissions for producing a tonne of steel are two tonnes of carbon dioxide emissions. For each tonne of carbon dioxide, the California Cap-and-Trade branch gives approximately 40 dollars in credits if saved (Raabe, 2024). This money can be used to pay off their enormous volume of debt. Additionally, conventional underwater mining operations produce significantly more carbon emissions in the long run because they are all currently oil companies. Oil will ultimately be burned

and contribute to carbon dioxide emissions, while The Metals Company offers a system to reduce and reuse the metals. This refining technology and its effectiveness are analyzed above. of the time Considering that this operation will be ultimately driven by lithium-powered machinery, a large portion of operating costs in carbon emissions will be negated when compared to similar outputs of conventional mining.

However, the hydraulic technology causes the majority of its destruction by spreading sediment that covers life on the ocean floor. Deep-sea nodule mining is a relatively new invention when compared to other conventional underwater mining methods, such as hydraulic boreholes. While boreholes have already been proven to produce significantly more plume, it is rather unclear how the deep-sea ecosystems recover in a reasonable time frame of around 40 years, especially since the toxic metal Manganese is spread widely (Xiang, 2024). This should leave room for investors to speculate on how The Metals Company will be treated when subject to overall environmental health questioning.

The final factor that has not been considered is the profitability potential of their technology. If their endeavor is successful, The Metals Company is partnering with the only patented rover company (Nauru) that is directed towards deep-sea nodule collection. This means that they will have the right to distribute the most efficient method of hydraulic collection technology in a mining industry that has proven to generate profits. If private firms do not approach this opportunity, governments will. The Metals Company has serious potential for upside for the rest of its existence because of its potential to distribute technology.

In order to get rights to break ground, there are many ways for The Metals Company to force its way against the ISA. Nine countries already have limited permission to collect nodules in the Clarion Clipperton zone, including France, India, and China (Gales, 2024). Offshore oil rigs are already prominent as well, and the carbon credit loophole under a mining label gives The Metals Company more reason to be allowed into the mining industry with their new technology. With a profit of $160 per ton, which is about 50% of their production value, The Metals Company will produce plenty of profit when operating in the United States for them to survive their scaling. Also, applying the Economies of Scale theory, The Metals Company has already been framed to work on a large scale equivalent to that of other world-leading mining companies. Therefore, once they begin production, their production costs will only decrease as they continue to scale.

Short Term

As of October 18th at 5 pm ET, The Metals Company has a Market Capitalization of 3.33 billion. The Metals Company has not begun producing metals to be used practically, which is why they have a Price to Earnings Ratio of -18. Most industrial metal companies not impacted by the tariffs, as shown by the Freeport Mcmoran company based out of North America, are around 15.5. The same goes for return on equity, which is negative 364%. This company is currently staying afloat entirely by issuing stocks and direct funding from the government. Although the stock value is rapidly rising and reliably rising at that, the true value of this company will arise when it attempts to industrialize and actually produce for profit. Considering

the world's reliance on metals, especially steel and batteries, a P/E ratio will likely turn out to be pretty close to 30. The additional costs of deep-sea mining could very well be neutralized by the tariffs and lack of necessity to import internationally (Sumaila, 2023).

Additionally, the world is already seeing a dramatic decrease in concentration and an increase in value for all metals. Copper mines now rely on veins that are around 0.5% in concentration, which must be refined. When refined, copper is around 10,000 dollars per ton. This means that each ton mined is really only $50 in value on average. So, when compared to the nodule value of $640, it really depends on the cost to extract underwater and the additional profit of being able to operate within the United States.

Since August 2024, The Metals Company has seen a dramatic 700% increase in stock value, and that movement has been a constant increase. This movement signals growing investor interest, market confidence, and support from the Trump Administration. However, many of these trends are driven by anticipation rather than established profitability. The company is currently awaiting key international regulatory approval to expand its deep-sea mining operations, which have failed multiple times. If granted, TMC would be able to industrialize its tests in order to see if its production works on a large scale at the current market prices of metals. While the company faces substantial financial and operational risks, including limited funding and a lack of data behind its scalability, it benefits from many investors and news companies that seem to be convinced by its effectiveness.

Using the Carhart 4-Step Evaluation, TMC is performing far ahead of the Beta and has been reliably doing so for the last year. Although most tension comes when the real technology is industrialized, this is not a simple process.

Of course, all of these components make The Metals Company a highly volatile stock. For similar companies that are on the rise, it should not be suggested to put any more than 20% of your portfolio in stocks that are this high-risk. This stock already regularly moves 5% a day. The basic stock itself will already move enough, so call options are not necessary, nor are they a good idea.

If one chooses to invest in this stock, they must pay careful attention to the United States Government Decisions surrounding deep-sea mining, and also stay updated on the news. The Metals Company experienced a dramatic drop to 10 percent of its value within a week in October 2021, because there were concerns around the sustainability statement behind TMC.

Despite operating in a nascent and controversial industry, TMC's unique technological approach, alignment with global sustainability goals, and potential government backing make it a high-risk, high-reward investment. Further research into the technological viability and environmental implications of deep-sea mining is needed to more accurately project long-term performance. Nonetheless, for investors with a high-risk tolerance and a belief in the future of alternative energy infrastructure, TMC may offer a rare opportunity to gain early exposure to a groundbreaking industrial shift.

Conclusion

This paper examines the long-term projection of The Metals Company through examination of their technology and the market they seek to compete in. Although their projected numbers and current market conditions make it a ripe time for such a company to enter, The Metals Company is highly reliant on the US Government to be able to push access by the ISA into the Clarion Clipperton Zone. If they are capable of pushing into the industry, Hydraulic Collection Technology has a place in the United States mining industry because of the opportunity to avoid tariffs on foreign metals, as well as the Metals Company already clearing the greatest difficulty of entering the mining business: the cost of entry.

Even though only test pilots have been conducted, this paper demonstrates that the operation will not be difficult to scale and will likely experience similar economies of scale to those of other reliable metal-producing companies in the United States.

Regardless of The Metals Company's success, TMC offers a very valuable investment opportunity to those with high risk tolerance. This stock regularly moves in increments of 5% every single day, and trends have been upward. The largest concern of this company to investors has been their environmental statements, as evidenced by their October 2021 drop in value. Their research and collaboration with the United States Government, however, shows lots of promise and makes it a rather reliable grower over the next 8 months.

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