

  What lesson are we, as investors or potential investors, to learn from reading J.P. Morgan's "projection" of Molycorp's future earnings and its calculation of the company's net present "value"? I think we are learning that J.P. Morgan is recognizing that the era during which Molycorp was the bellwether of the rare earth sector is now over. For the shares of any other rare earth producer or junior mining company to move up or down in lock step with Molycorp's share price is not realistic. Molycorp is a producer only of certain chemical compounds and mixtures of the light rare earths. Its costs are not competitive, and its influence on global light rare earth prices is demonstrably nil.

In fact just one other company's share price should be linked to that of Molycorp. That one company is Lynas. Both companies are producers (on and off during their respective re-start and start-up) of the same product mix in a market where there is not enough non-Chinese demand to utilize anything like the total of their targeted production levels. Both have problems getting into or back into production but Lynas, is not saddled with a costly array of non-core operations.

If further proof is needed of the isolation of Molycorp from a market in which its influence is waning it is being supplied by Toyotsu the 65-year-old Japanese trading company, which today announced that it is bringing roasters on-line to produce light rare earth individual and blended oxides at a new solvent extraction separation and purification facility it is constructing with Indian Rare Earths, which itself has been producing rare earth chemicals since the early 1950s. Toyotsu also has made a substantial investment in Canada's Matamec deposit, and I would guess that when and if it brings that deposit into operation the heavy rare earth rich ore concentrates will be shipped to the Toyotsu-Indian Rare Earth facility in Kerala (India) for processing into end-use products for Toyota Motor's supply chain.

It is very important that you keep in mind that Toyota, itself, is one of the largest end-users of rare earth based components outside of China. If Toyota can get light rare earths from India, or from relatively local Asian or African producers, along with heavy rare earths from the same region or Canada then it will need nothing at all from Molycorp or Lynas. Remember also that in order for either Molycorp or Lynas to supply Chinese customers domestically the offered products would have to be profitable at far less costs than are being incurred by either company today. In addition it is clear that cerium is in surplus in China, as most likely, is lanthanum. Therefore neither Molycorp nor Lynas will be able to sell the bulk of their production into China either.

The world's major market for rare earths, China, already needs more heavy rare earths and yttrium than it says it can produce. It, the Chinese domestic market, has no need for imported light rare earths in any form. Those junior rare earth ventures which have the best survival potential are the ones that have the highest proportion of heavy rare earths and yttrium in their overall mix of rare earths. To further their chances of survival they need to be able to produce at the lowest cost and add value downstream as much as possible, but in total amounts that will not negatively affect the prices of the rare earths.

**Rare earth production is not war production.** The goal is not to produce as much as possible or in any case to out produce the other guy (the "enemy?"). The goal is to produce profitably less than the market's overall demand in order to obtain a share of the market.

Chinese practice has proven that rare earth separation plants with capacities of 1,000-5,000 tons per year

are the most cost effective providing that their feed stocks have the most value not of grade but in their composition. The solubilities of the rare earth compounds fed into a solvent extraction plant are the limiting factor. The conundrum is that in order to process the relatively large volumes of light rare earths-half of which are not even sellable – it is necessary to have very large and expensive capacity. The solution is to have the smallest capacity possible to process just the heavy rare earths and yttrium in the residues from the removal of the light rare earths. The more of the feed stock that is of heavy rare earths and yttrium the better. Neither Molycorp or Lynas considered this possibility and neither one of them has ownership or control of a heavy rare earth, yttrium deposit nor has either one built a heavy rare earth, yttrium capable separation facility.

It has been a mistake to assume a huge demand for light rare earths and build expensive large capacity SX plants to separate them. It must not be overlooked that J.P. Morgan has basically downgraded Molycorp by tacitly recognizing this error in its business model.

At the present time, the Fall of 2013, the overwhelming majority of the global demand for all of the rare earths is in China. The Chinese domestic rare earth market demand is currently self-sufficient in supplies of the light rare earths from domestic sources. The Chinese rare earth industry believes that it will always be self-sufficient based on domestic production of the light rare earths. The Chinese rare earth industry has been sourcing heavy rare earths outside of China for a long time, but it buys only ore concentrates, which can be utilized by its domestic heavy rare earth, yttrium refining industry, and which have the further advantage of being able to be imported into China as raw materials not found in China (such as xenotime concentrates).

I think that the lesson to be learned about securing a supply of rare earths is from the activities of Japan's private equity sector. Japanese companies, such as Toyota, have made an overall procurement plan and are spending money to pursue its realization. The Japanese government has deployed its national geological survey to assist Japanese private industry to find deposits. It is up to the businessmen to determine if the deposits can be developed profitably and benefit Japanese industry. And it is up to these same businessmen to find the capital to do so.

No industry competitive with the Chinese or (soon) Japanese rare earth based industry can be built without a commitment by a region or a nation to the development of a total rare earth supply chain under the ownership or control of regional actors. The acquisition and control of ore bodies of rare earths is the anchor to any such supply chain. Even more importantly those ore bodies must be of the right type; they must contain heavy rare earths and yttrium that can be efficiently processed in volumes linked as little as possible to the volumes of the light rare earths that must be removed or recovered from the same ores.

The only regions or nations in which such TRESsCs (total rare earths supply chain) can be developed are the USA, Western Europe, India, and Malaysia. Each of them has or has easy access to deposits in friendly free-market economies that have heavy rare earths and yttrium as well as enough light rare earths to produce rare earth permanent magnets, alloys, and catalysts to support domestic industries and make them independent of foreign natural resources. Each of these nations and regions also has enough such resources to support an export industry after domestic demands are met. National and regional governments can only help in the creation of TRESsCs as Japan's has done by providing expertise that private equity does not have. Governments with farseeing capabilities (a contradiction in terms?) can also provide capital and regulatory help.

The USA is uniquely favored with the right size and type of deposits and the knowledge base and skill set to create a TRESA. Western Europe is also so favored. India's journey to a TRESA has begun, and Malaysia's is not far behind. Ore bodies can be defined as resource geography. But geography alone is not destiny. The destiny of the rare earth industry is now being determined. As they say in Anglican Sunday services "Thus endeth the lesson."

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