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What Is The Lassonde Curve?

The Lassonde Curve is a concept popularized by Pierre Lassonde which illustrates the typical lifecycle of a junior mining company from its inception through to its eventual acquisition. While every project is unique it provides a useful mental model when investing in Junior Mining Companies.

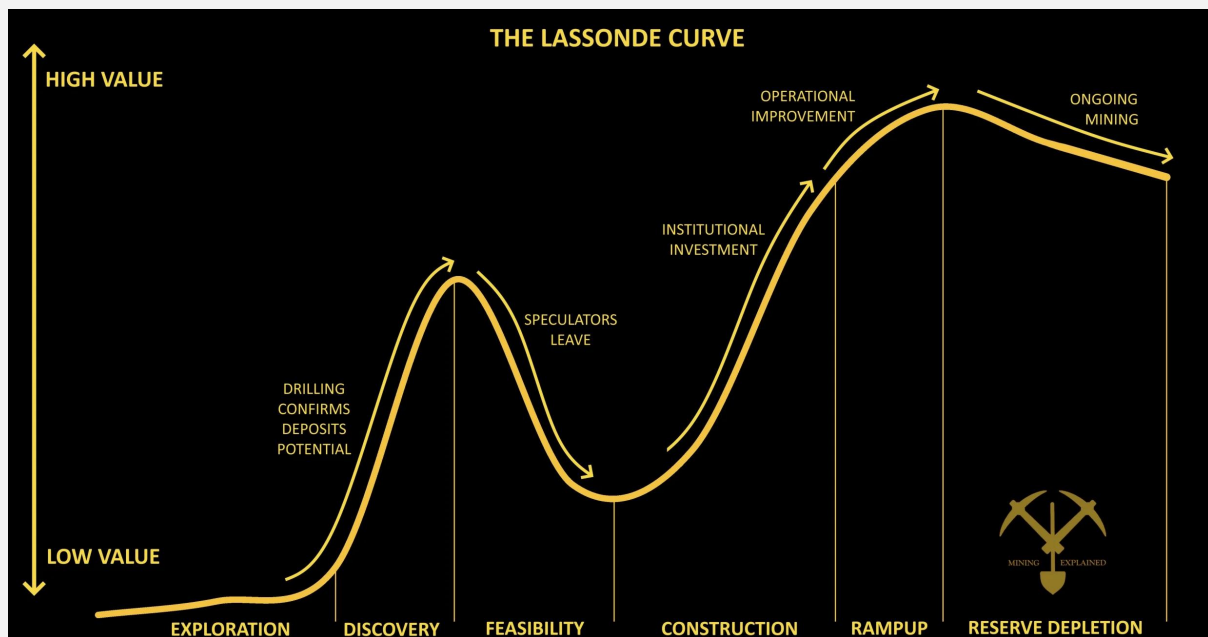
Who is Pierre Lassonde?



Pierre Lassonde is a professional engineer and financier whose achievements include serving as the President of Newmont Mining Corp from 2002 thru 2007 as well as being one of the two founders of Franco-Nevada Corporation.

Founded in 1982 Franco-Nevada took the royalty model used by the oil industry and was the first company to apply it to gold. Franco-Nevada's first move was to acquire the royalties of a small Nevada property which grew into the Goldstrike mine which produced 750k+ ounces of gold annually making it the 8th largest gold mine in the world. This and other shrewd deals led to Franco-Nevada's continued growth and over the next 20 years they provided shareholders with a 36% annualized rate of return.

The Stages Of The Lasso Curve



We think there's a chance he may know what he's doing when it comes to resource investment.

Exploration - Chasing Smoke

This is the initial stage of mining exploration. Maybe there was past mining activity in the region or perhaps a prospector tripped over a shiny boulder while chasing their dog. Either way there exists reason to believe a deposit may exist in them thar hills! Initial work will usually consist of soil sampling, geological mapping and perhaps geophysics to search for evidence hinting a deposit may be hiding beneath the ground. The results will be analyzed and any targets with potential to host mineralization are identified across the property.

Once sufficient evidence has been found then money will be raised from investors.

Once the presentations are done and the cheques signed comes the fun part!

Drilling commences to determine what lies beneath the ground. Typically this will be a full program with numerous planned holes to thoroughly test the area.

This period can last for some time as a cycle repeats:

- Raise Money
- Explore Targets
- Report Results
- Repeat As Necessary

While the most promising targets are explored first that doesn't mean they will pan out. Each drill program may encounter mineralization but it may take several rounds

of exploration to find truly significant results. But as additional drilling is carried out more is understood about the property and this increased understanding means better guesses at where the fire may be hiding.

Discovery - Hitting Gold

Eventually the big day comes! Results come back from the lab and things are looking good enough to create a splash in the market. The company will put together a press release for distribution to the public, usually scheduled for before market open to catch the attention of investors before the buzz of their morning coffee has worn off. At this point things start to move fast. As news of the discovery spreads the stock price begins to rise rapidly as investors pile in not wanting to miss out on the rush. This phase strengthens as a virtuous cycle takes hold, increased prices make it easier to raise money which makes it easier to drill more which means more results are available to release which captures more of investors attention. Drilling will continue to expand the known size of the deposit and speculation on the final size of the deposit and share price gains continue to drive hype and bring investors into the cycle.

Feasibility - The Waiting Game

Eventually though the time comes to start crunching the numbers. Drilling will continue on the project increasing confidence in the size of the resource but by now there is a rough understanding of the deposits overall size. Engineers begin to get involved around now and if anything is guaranteed to quench fun and excitement this is it, usually with some babble of about stripping ratios and overall pit slopes. This kicks off a vicious cycle of speculators who hoped to make a quick buck selling off to chase the next shiny thing that catches their eye in the news. These sales drop the share price and erodes the confidence of investors who wonder if they are missing something and begin to sell in turn, further dropping the price and so the cycle continues on. But a bottom is reached once the speculators have been weeded out of the herd and those who believe in the value of the project resume accumulating ownership now that they are no longer worried about catching a falling knife.

Meanwhile in the background the number crunchers are still hard at work. They will be employed by a neutral third party and therefore don't give two damns about the share price as long as paychecks keep showing up. They will evaluate a whole

laundry list of considerations ranging from rock strength and geological models to the prices of diesel and office stationary. But sooner or later they run out things to muse about and release a Pre-Feasibility study!

This thumb wag report is what tells us whether a deposit is big enough to justify mining on its own or whether a larger resource is necessary. If it is too small the project either returns to the exploration phase or waits patiently on the shelf for commodity prices or technology to improve and make the project economical. This isn't as rare as one might think. Afterall many of the deposits being actively mined today at a profit would have been laughably unfeasible a century ago.

But if the Pre-Feasibility Study returns positive it will be used to raise further money to fund drilling to reduce the spacing between existing drillholes, carry out further studies such as investigating processing metallurgy and to pay the number crunchers to make a much more serious report known as... a Feasibility Study. You can tell the engineers are involved by the creative naming strategy.

But all things must come to an end and eventually the patient waiting is over. The Feasibility Study comes back with some official stamps, signatures and a positive net present value for the project. Unlike the Pre-Feasibility study the Feasibility Study has a much higher degree of confidence, so high in fact that it is deemed sufficient for the final go ahead to start asking the government for permits and bankers to start writing cheques.

This is the most likely time for a major mining company to buy a junior miner. Building a mine is a long and difficult project even before we consider the challenge of operating the mine post construction. The experienced technical staff required tend to be neither cheap nor very common. In fact they are usually already stably employed by the major mining companies which is one of the reasons they are better situated to extract value from the deposit. Not to say that a junior cannot develop the project themselves and successfully grow into a midsize mining company, just that its rare. Which finally brings us to...

Construction - Building Value

Now the permitting and construction phase deserves its whole own deep dive so we will leave that for a future article and focus on the investing aspects of the project.

Now assuming the sitting government remembers that without work there's no one to pay taxes and approves the project and we kick off the construction phase!

This is where real money begins to get involved. Whether a major mining company acquired the project or the junior mining companies existing backers are so determined they set out to raise the money themselves. Either way haul trucks are expensive, explosives are expensive, workers are expensive, wildlife studies on the rare species of some albino snake or other rare creature that inevitably lives on top of an economic ore body are.... you guessed it... expensive! All of this takes serious money to get rolling and even the largest companies are going to need a banker, royalty company or institutional investors to cut a cheque.

For investors though these are exciting times! The entry of institutional investors money finally eliminates the worry that maybe the market knows something you don't. We have a theory here at Mining Explained that Big Money has a habit of making sure they get paid come hell or high water! So once they have joined the pack it provides some significant de-risking to the project and investor confidence. All this means a virtuous cycle resumes and share prices begin to climb again!

This price climb will continue alongside the construction of the mine as more shares are bought up in anticipation of future profits. And the closer the mine is to completion the more likely those profits become.

Ramping Up - The Art of Digging A Hole

Once construction is complete and mining operations are fully underway that does not mean that maximum potential value has been achieved by the project.

A mine is a complex place and no two operations are the same. Even if the operation is lucky enough to have an experienced workforce to draw upon, hundreds of people need to learn to work together efficiently before production can be optimized and this takes time. Therefore when a competent management team is in place it can still be an opportune time to collect some value from the project. Particularly if impatient investors expecting instant results from day one are exiting their positions. Over time production rates will improve, costs will lower and the operations cashflow will increase as a result! If the project has not already been acquired by a major mining company in a previous phase it will likely be acquired at the start of this phase. The hard work is done but the major company has the people, expertise and resources to get the most additional value from the ramping up phase.

Reserve Depletion - Running Like A Fine Swiss Watch

Now modern mines tend to have significant mine life's measured stretching numerous years if not decades. But over that time the value of the operation will slowly but steadily shrink as processing depletes ore reserves, equipment wears out and other challenges arise.

But the silver lining to this situation is that the need to replace ore reserves only grows if the operating company wants to continue making full use of their very expensive and paid off infrastructure beyond the original end of mine life.

There are numerous ways for this to be achieved. A company can explore the surrounding properties itself if it is lucky and either the original land package around the mine is very large or adjacent land with mineral potential is unclaimed for some reason.

The closer to the end of life a mine gets the greater the value of adjacent properties and deposits grows even if in the past they may have not been deemed economic as stand alone projects.

But that is a discussion for another day!

The Lassonde Curve - Lessons to Take Away

As a quick summary of some of the main points from today:

There Are Three Optimum Windows to Acquire Shares

- Before or immediately following a major discovery. The trick is knowing what's an actual discovery versus noise in the crowd. Someone should really build a website looking into this... **Oh Wait That Is What We Do!**
- As feasibility studies are completed and the project has been de-risked but before institutional investors begin piling in. Prices remain depressed following the exit of speculators chasing quick wins but improvements are close at hand.
- When construction has completed and operations have commenced but growing pains are not yet over. Impatient investors are taking money off the table early despite potential value remaining.

The Two(ish) Most Likely Times For A Major Miner To Purchase A Junior Miner

- The most likely time for a major to purchase a junior mining company is after Feasibility Studies are complete but before construction is underway. This is

the optimum time for a major company to acquire the project for the best value/risk ratio.

- The second most likely time for a purchase is as construction is completed/underway but operational excellence still has not been achieved. There is minimal risk but still meat on the bone for the taking.
- The third most likely time is any random Wednesday. Sometimes there seems to be no rhyme or reason behind boardroom decisions.

Conculsion

The Lassonde Curve is an important mental model to evaluate where a junior mining company is in its lifecycle and what may lay ahead for it. As we continue evaluating junior mining companies and projects here at Mining Explained we will be referring to the Lassonde Curve often and thus wanted to put together an article explaining what the Lassonde Curve is and how we interpret each of its phases. Obviously the Lassonde Curve is only a general overview of an ideal junior mining companies lifecycle and we are looking forward to digging deeper into each of these areas in more depth going forward! We hope that you enjoyed todays article and till next time...

Cheers!