Increasing the Odds of Exploration Success:

Why the top 5% of junior exploration companies consistently outperform the bottom 95%

By Gerardo Del Real: Tuesday January 13, 2015

It is well understood that mineral exploration is a highly risky business venture. It is also well understood that the high risks associated with mineral exploration, can bring rich rewards for companies that have exploration success.

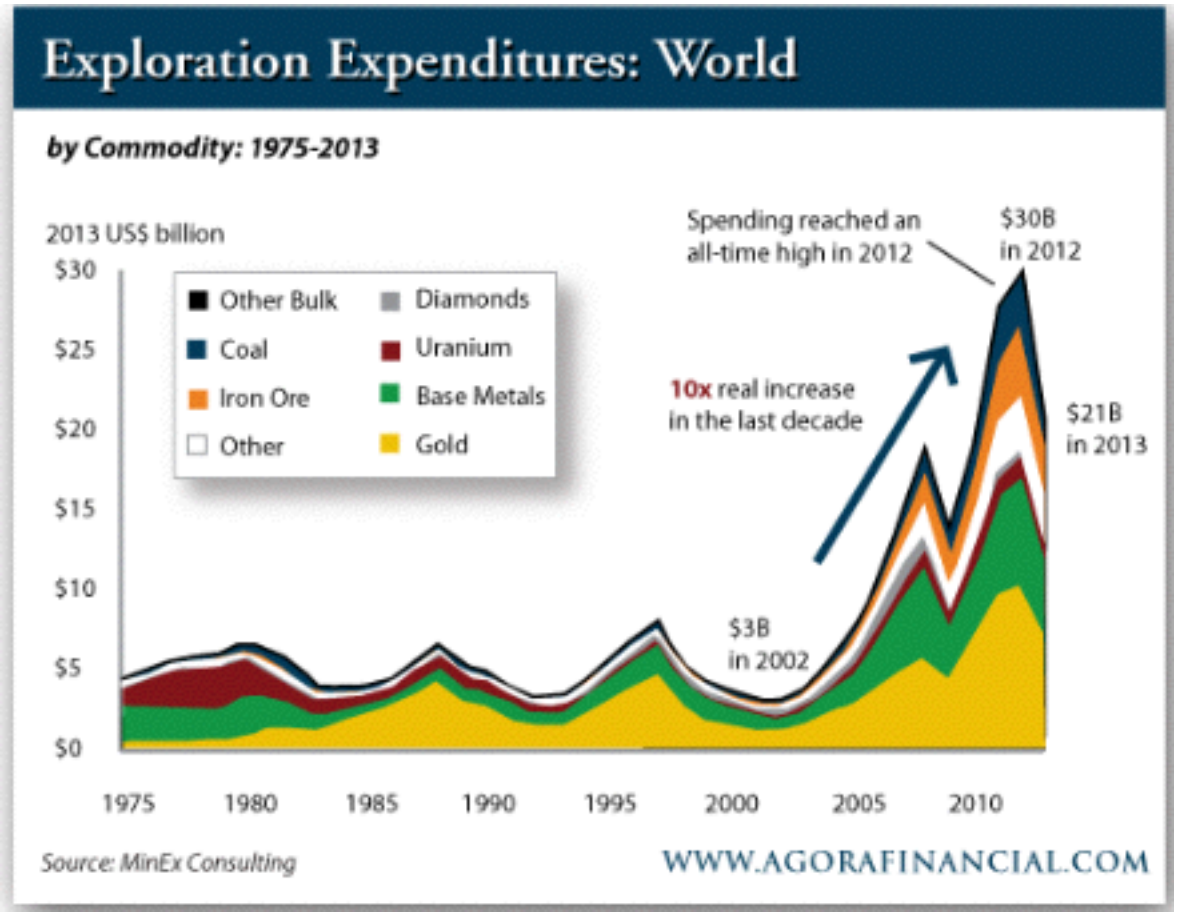
Despite a 10-fold increase in spending on exploration over the last decade, the amount of discoveries has remained relatively flat. A combination of higher costs, declining commodity prices and the misallocation of capital, has led most of the 2,000-plus junior-exploration companies to find themselves struggling to keep up with the expenses required to continue to exist.

There are however exceptions to the rule. In January of 2014, Cayden Resources (TSX:CYD) traded at just under a dollar, after early exploration success, and indications of multiple high-potential targets, Cayden hit a 52-week high of $3.49 in September 2014 after Agnico Eagle offered to acquire the junior for approximately C$205 million, in a deal that caught many by surprise given the early-stage nature of their project.

Avrupa Minerals (TSX:AVU) traded at C$.08 cents approximately one year ago and just last month—on December 17, 2014— reached a 52-week high of C$.40 cents on the heels of just one exciting drill hole that yielded 126.5 meters of 6.2 g/t Au (Click for NR) in a largely unexplored region of Kosovo.

Also on December 17, 2014 Coeur Mining announced it had entered into a merger agreement to acquire all of the outstanding shares of Paramount Gold & Silver in an all-stock transaction valued at $146 million.

Clearly, there is demand for new discoveries as the discovery rate is barely keeping up with the rate of depletion. Despite the rich rewards for successful explorers and the need for new discoveries, very few explorers actually make a discovery. Several influential voices in the resource sector have estimated the odds of drilling a discovery at 1 discovery for every 1000 properties drilled.



Ross Beaty, the very successful exploration geologist and mining entrepreneur, wrote a column in 2010 (Click for Link) (Issue 81 of the SEG Newsletter) outlining—among other things— why he believed that discovery rates would continue to trend lower relative to funds expended on exploration.

In 2007, Kennecott Exploration and Rio Tinto (from their 2006 annual business report) estimated that of 1,000 greenfield targets—not properties—targets, approximately 1 became a

profitable mine and only 1 target in 3,333 became what they referred to as a world-class deposit.

So how is it that despite these odds, there are several exploration teams that continually make discoveries while the majority of junior-exploration companies fail?

Targets vs. Projects

It's important to differentiate between targets and projects when we talk about the odds of success. Often times the two words are used interchangeably, which could lead many to assume that of 1,000 properties drilled, that only one becomes a mine, when in fact the discussion is about 1 in 1,000 targets.

Published figures (Lord et al., 2001) of exploration targets that eventually become profitable mines, for brownfield targets, came in at 1 in 24 in a well-endowed gold district.

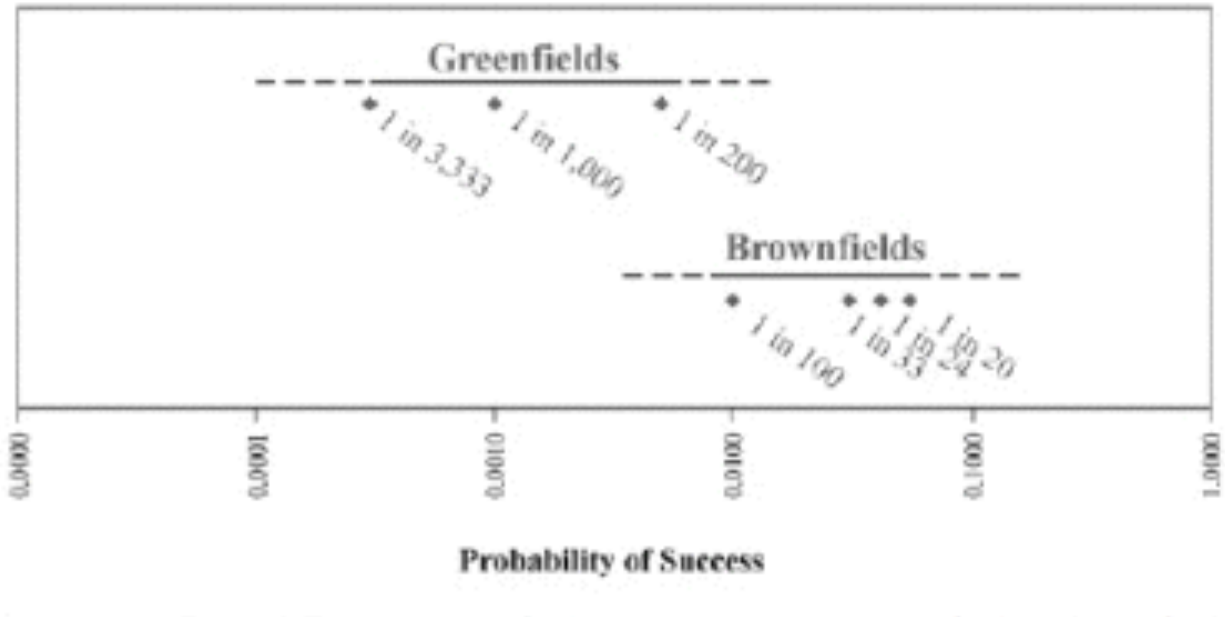


Figure 1. Typical ranges of industry success rates in brownfields and greenfields environments based on figures by Lord et al. (2001), McMahon (Maureen McMahon, pers. comm., 2004), Schodde (Richard Schodde, pers. comm., 2006), Rio Tinto (2007) and Kennecott Exploration (2007: website information no longer available).

A study by Guj and Fallon (2009) and Fallon et al. (2010a, b) of a very successful exploration campaign in the Plutonic-Marymia Greenstone Belt of Western Australia demonstrates that sometimes green-fields success rates can be much higher (i.e., 1 in 5.5 or 18%). Unpublished data for brownfields exploration by McMahon (Maureen McMahon, pers. comm., 2004) fall within a range of 1 in 100 (1%) to 1 in 33 (3%) while unpublished figures by Schodde (Richard Schodde, pers. comm., 2006) range from 1 in 20 (5%) for brownfields, to 1 in 200 (0.5%) for greenfields exploration.

In 1971 Cominco released statistics that showed that in the previous 40 years Cominco had selected 78 prospects—after looking at over 1,000— worthy of major work, and of those 78, 18 were developed into a mineable ore body, a 23% success rate.

Almaden Minerals: A Case Study in Exploration Success

I recently had the opportunity to speak with Morgan Poliquin, President & CEO of Almaden Minerals. Almaden is a prospect-generator that has a history of discoveries that started back in the 60's with Morgan's father and Founder & Chairman of Almaden Minerals, Duane Poliquin.

Almaden is one of the most successful and respected prospect generators ever. The company was founded in 1986 by current chairman Duane Poliquin, P. Eng, who has been active and successful in mining exploration since 1962. In 1972 he decided he was going to start his own gold company, he quit his job, found a prospect in Nevada and started Westley Mines ltd.

The company traded as low as $.25 cents and after doing some early stage work, optioning it—getting it back— and then optioning it again, the shares hit a high of $7 a share. The company was bought out and the prospect became a producing mine for Homestake Mining.
The prospect generator model was born and Almaden has been executing it to perfection ever since.

I asked Morgan about Almaden's discovery rate. Since Almaden's inception—which includes a 2001 merger with Fairfield Minerals—Almaden has drilled 27 properties and has seen 2 of those go on to production—Elk and Trinidad. 5 other properties have a published resource, including the 4 million-ounce + AuEq Ixtaca Project.

Prior to Almaden, Duane Poliquin went public in 1972 with the aforementioned Westley Mines. That company went public with 7 properties, 2 which became producing mines.

Prospecting

One key point made by Morgan Poliquin was the need for more boots-on-the-ground prospecting. In 1992 Duane Poliquin began to piece together what is now a world-class database on Mexico. Giving Almaden a nearly 20 year head-start to survey, explore and stake the best looking prospects anywhere in Eastern Mexico.

The Poliquins literally looked at thousands of targets from the Texas border all the way down to Guatemala, often by jumping in a helicopter and getting a first-hand look at the potential of each of the over 5,000 locations that were of interest. Of those 5,000 plus individual locations, 30 were selected for soil sampling, IP, mapping etc.

Of the thousands of companies that claim to be explorers, most are marketing oriented with very little geologic expertise. It's hard to increase the discovery odds if the company that's suppose to be in charge of doing that isn't even taking the time to physically look at the targets they are presenting to shareholders as prospective.

As Mr. Ross Beaty points out in his article, with the collapse of the Soviet Union in the 90's, exploration became a global effort as new continents became more accessible. Discoveries that were literally sitting on shelves were acquired, and this again—I believe—discouraged the kind of prospecting that the Poliquins have been so successful executing.

In addition to the lack of prospecting, there also appears that more and more exploration companies are afraid to drill. In part, because the drill bit—known as the 'truth machine'— can kill a project if drilling doesn't deliver positive results and subsequent funding for a company if they are dependant on just one project.

In a recent interview with Rick Rule and Brent Cook, (Click for Link) Mr. Rule mentioned that Sprott would soon be publishing a paper that would look at G&A expenditures vs. total expenditures. Rick Rule was subsequently quoted in a follow-up interview and said, "I've never seen [corporate] compensation as a percentage of assets or total expenditures come close to this… [it's] deplorable. The severance payments associated with change in control have been the main reason why you haven't seen amalgamation in the industry—which the industry

needs to survive." He added a message to potential shareholders to please quit giving inefficient companies money.

Otto Rock, who Rick Rule has also recently quoted, phrases it a bit differently. He implores people to "Do not feed the animals" and in reference to the Vancouver Resource Investment Conference this Sunday January 18th and 19th, Otto then encourages (Click for blog link) speculators to "by all means go visit the exhibition next weekend and do what kids do at the zoo; point at them, make funny faces at them, laugh at them."

So while companies that shouldn't have any business near shareholder money are starved out, what could companies that are serious about providing a return on and of capital be doing?

Drilling

Clearly Almaden believes that drilling is an important prospecting tool. So much so that they own 5 drills, which not only cuts down on drilling expenses—Morgan Poliquin estimates that Almaden is able to drill at about 1/3 of what most exploration companies drill for—but it also allows Almaden to employ locals, which cuts down on the potential for problems caused by outside contractors who may not understand the cultural norms of the community.

In Morgan Poliquin's opinion, the earlier you drill the better. It allows the company to evaluate the minerals in the target early-on, discard bad targets and move on to targets that have the right characteristics of a potential discovery.

That only makes sense however, if you have multiple shots on goal by way of multiple targets, and/or projects, which is why the prospect-generator model has gained a following among investors looking for project diversification.

If the company's only interest is to sell the story instead of making a discovery, then you can expect to see tons of geophysical work—which is important when the information gathered is used to make a drilling decision, but very little—if any—drilling.

Companies that know when to keep drilling and when to stop, cut their losses and move on have a much better chance of making a discovery than companies that continue to throw good

money after bad projects or never actually get to the drilling stage. The bottom line is you can't make a discovery unless you drill the targets.

Share Structure-Committed Shareholders

The importance—and lack of—long-term, committed shareholders that understand and allow the discovery process to play out—for companies actually looking to make a discovery—is understated and many times overlooked.

Too often, one of two scenarios play out. In scenario one, a company with only one project and a hundred million shares outstanding, trading at $.05 cents, spends its last million dollars drilling a property hoping to make a discovery that will allow them to continue to exist. When the odds play out and they don't make the discovery, the company has to either re-structure and try to start over or throw in the towel.

In scenario number two, A company makes a discovery but has diluted itself so much, that although they add to their market cap, shareholders see very little upside because of the poor shares structure. Short-term investors use the success as a liquidity event to exit out of the stock while maintaining leverage to the company's potential through a warrant (where one exists).

Having a long-term, committed shareholder base allows companies to maintain a healthy balance sheet and a clean share structure but only if the company is able to responsibly manage that share structure early on, in good and bad times.

A solid share structure contributes to increased discovery rates by allowing companies to take advantage of downturns in the market and acquire assets at a substantial discount. For example, in 2001 Almaden was able to by a mill for $200,000—the cost of removing it from the site—the mill would have cost $6 million to buy new.

Projects with attractive targets become more available as companies go out of business and these projects provide a pipeline of robust targets for future development.

After nearly 30 years, Almaden Minerals still has less than 70 million shares outstanding, over 40 projects in their portfolio, a healthy balance sheet and long-term shareholders that have

allowed the discovery process to play out—most recently at Ixtaca—where they've been rewarded with a discovery that now boasts a resource of over 4 million AuEq ounces and lots of upside potential by way of future exploration success and if/when a potential suitor decides to buy the Ixtaca deposit.

Conclusion and Summary

Exploration done by honest management teams is an extremely risky business venture. However, there are several examples of exploration teams—at Pilot Gold, Almaden Minerals, Midas Gold to name a few—that consistently make discoveries where 95 to 98% of remaining junior-exploration companies consistently fail to find anything.

It is clear that if the discovery rate is going to keep up with the depletion rate, junior-exploration companies are going to have to start doing a much better job at putting themselves and their shareholders in a position to succeed.

While technology that uses very large databases of disparate geoscience data that is intended to aid targeting is evolving, there isn't a substitute for boots-on-the-ground prospecting to generate quality targets.

To increase the chances of discovery success, companies must have a willingness to drill early and often. Strong management that has geologic expertise is critical. A company with little technical expertise on their board and executive committees is less likely to have the insight required to aid the discovery process.

There are many examples of companies that consistently and drastically beat the 1 in 1,000 discovery odds that are thrown around. Not once or twice, but many times over decades. The rewards for recognizing those companies early on will continue to exist—even in this tough resource market—and hopefully this will provide sufficient incentive for more companies to execute the exploration process in a manner that gives investors a real shot at participating in the rewards associated in discovering the mines that will provide the stuff of the future.

Disclosure: The author owns shares/warrants in Pilot Gold.