



RESEARCH REPORT

March 26, 2018

Price of Gold (\$USD/oz) \$1348.05

Price of Silver (\$USD/oz) \$16.60

Precious and Base Metals Digging for Insight

This report outlines how we can pivot QUIC's current bottom-up value-based philosophy to investment criteria more suitable to ferrous and base metal mines. To determine effective investment opportunities, we have devised three segments of considerations:

- (1) Macro backdrop of the metal in focus
- (2) Sustainability of the mining company's competitive advantage
- (3) Market response to company-specific news

Industrials

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Introduction

Overview

Most companies in the M&M sector are focused on the extraction and processing of metals. These mining companies can operate as few as one and as many as ~20 mines at a time. The long-term nature of mining projects has given rise to mining streaming companies that fund ventures upfront in exchange for a percentage of future earnings. The large supply and demand lag in the mining industry leads commodity prices to be highly cyclical in nature. Investing in mining companies can be quite unconventional due to the cyclical nature of the industry, unpredictable and inconsistent cash flows, and limited areas for competitive advantages.

Gold

Historically, gold was integral to the international monetary system and remains important as a safe-haven investment. This means investors turn to gold in times of market and economic uncertainty because it tends to retain value during times of turmoil and can

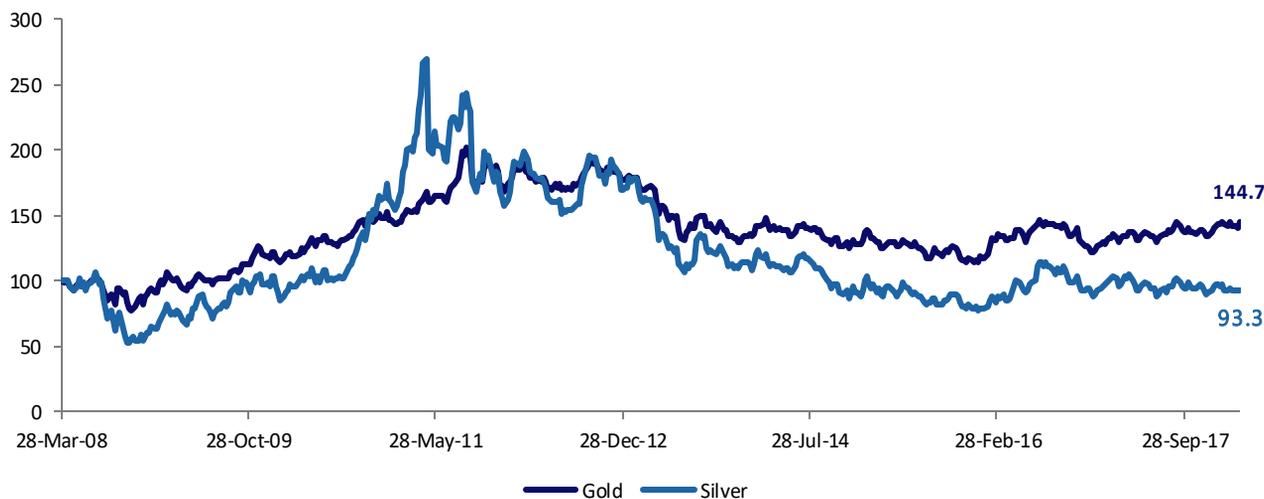
shelter investors from currency devaluation. Gold is commonly used as a hedge against inflation. Gold and its futures are traded on common exchanges, the largest being the Chicago Mercantile Exchange.

Silver

Similar to gold, silver prices are influenced by investment demand and thus, correlate closely with the price of gold. Silver also has many popular industrial applications that drive demand, such as electronics, photography, and photovoltaics. Silver is also unique in that the majority of silver production is as a by-product of other metal production, with only ~30% of production coming from primary silver mines. The mining of lead, zinc, and copper accounts for 56.5% of silver production and as such, silver supply and price is partly linked to base metal production. Similar to gold, silver is traded on a common exchange and is not typically exchanged between individual counter-parties.

EXHIBIT I

Indexed Gold and Silver Prices 2008-2018



Source(s): Bloomberg

Macroeconomic Considerations

Base Metals

Base metals such as copper, lead, nickel, and zinc are used almost exclusively in industrial applications with a high concentration in demand from construction. As a result, demand is driven primarily by GDP growth and investment-based demand for base metal commodities is relatively rare compared to precious metals. Supply tends to have a greater impact on base metals prices as there are far fewer reserves and a large portion of supply is in areas of high geopolitical risk. Unlike precious metals, base metals mining companies typically sell through direct contracts with buyers. Through spot and futures contracts, these metals are also commonly traded at major commodity exchanges.

Currency Effects

Due to the USD's role as the international reserve currency, the majority of commodities are priced in USD denominations. This creates an inverse price

relationship with USD strength because as the dollar falls, other currencies effectively become more valuable, increasing metal demand. Base metals have a moderate correlation with USD strength, with a correlation value of -0.64. Additionally, as the USD falls, demand for precious metals as a safe-haven investment rises. Producers also must be aware of how shifts in foreign exchange markets will impact export values and international costs.

Outlook for 2018

Strong government spending, weak forecasted output for the coming year, and trade uncertainty should help to push precious metal prices higher. It is unclear whether new US tariffs on aluminum and steel will have a positive or negative effect on base metals prices. However, anticipated strong global economic growth and accelerated Chinese demand fueled by innovation and consumer consumption should exert upward pressure on base metals in the near future.

EXHIBIT II

Base Metals Spot Price Commodities Index and USD Index



Source(s): Bloomberg

Sources of Competitive Advantage

The unique nature of mining companies demands a unique approach to assessing future investments. Firstly, the macro backdrop of the metal must be demonstrably promising. Secondly, the intrinsic competitive advantages of the company must prove sustainable and significant. Finally, we will be looking to capitalize on the investment opportunities when mining companies make announcements that result in overreactions in market sentiment.

Asset Quality

Mines with large areas open to future exploration and year over year rises in proven and probable reserves indicate growth potential within existing assets. The presence of geopolitical risk can price mines at a discount with uncertainty as a tradeoff. In addition, 60% of zinc and lead mines in Sichuan, China were closed upon inspection in 2017, exemplifying the fact that as global scrutiny towards the environmental impact of mines rise, it is increasingly important that

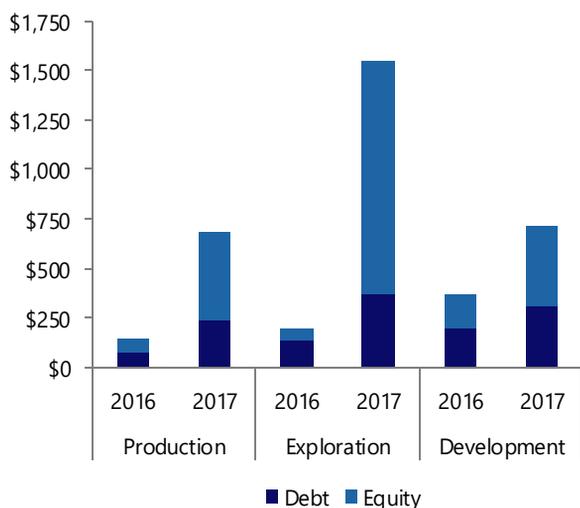
mines are not situated in locations with potentially restrictive shut-down policies. The grade of the asset's ore, or the average proportion of the metal contained within the ore, is also an important measure of asset quality; higher grade ore requires less input costs to extract and purify, and can lead to greater margins.

Effectiveness of Capital Allocation

Mining companies usually spend about 5 to 10 years committing large amounts of capital to explore and develop potentially fruitful mines. Operational cost efficiency and balance sheet health are therefore especially important; stable and proven revenue streams may not only pay off initial injections but also provide financial flexibility to deal with commodity price fluctuations. Only disciplined investment in new explorations (rather than short-term decisions during boom or bust periods of the business cycle) can lead to a more sustainable long-term approach.

EXHIBIT IV

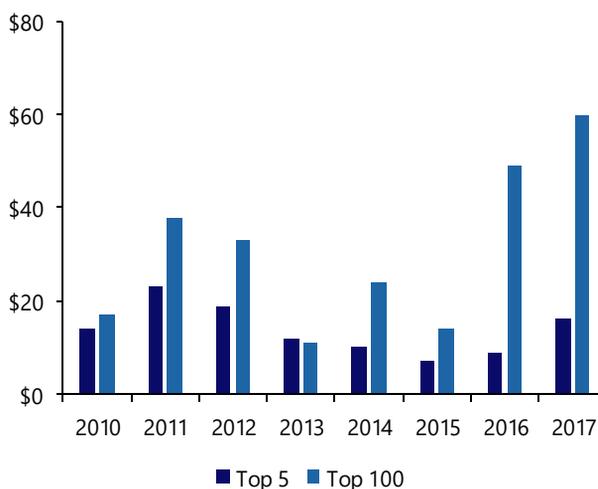
Capital Structure of Canadian Mines (\$MM CAD)



Source(s): S&P Global Market Intelligence, PwC

EXHIBIT V

Average Cash of Mining Companies (\$MM CAD)



Source(s): S&P Global Market Intelligence, PwC

Sources of Competitive Advantage

Technological Developments

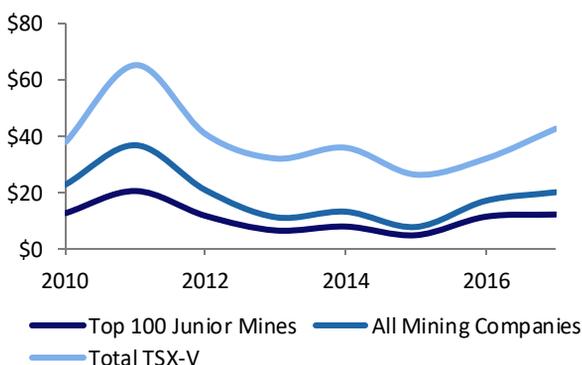
In 2017, Barrick Gold Corporation (TSX:ABX) embarked on a digital transformation initiative to increase its production. Since then, it has successfully leveraged advanced analytics and machine learning to increase their mill throughput by 8% at their Cortez mine. Global mining productivity has declined by 3.5% over the past decade and is now reliant on technological developments for productivity improvement. Analytics, equipment optimization and research capability improvements can reduce the risk of the highly variable and uncertain nature of exploring new mines.

Potential as Acquisition Target

Mining companies can be categorized as either junior, intermediate or senior, based on their asset sizes and place within the exploration, development and production processes. The aggregate market cap of the top 100 junior mines has increased 7% from \$11.4B to \$12.2B in 2017. Cash balances for junior mines increased by 74% to \$1.57B, the highest in five years. This financial health has primed junior mines to be effective acquisition targets; as this trend picks up in the future, the ability for a junior mine to position itself as an acquisition target can serve as a proxy for its investment quality.

EXHIBIT VI

Market Cap of Top 100 Junior Mines (\$MM CAD)



Source(s): PwC

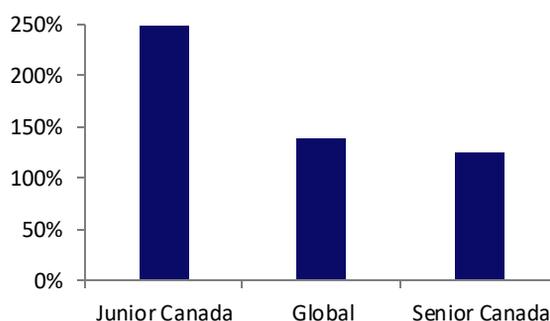
Exchange-Related and Cost-Saving Advantages

Not all precious and base metals are traded over common exchanges; with base metals heavily driven by infrastructure development, their respective mines' success can be correlated with the nature of their contracts and the stability of their demand. In addition, companies may also develop unique competitive advantages based on the cost drivers of their output. For example, Polaris Materials Corporation (NASDAQ:USCR) prides itself in the optimization of their integrated logistical chain. As a concrete manufacturer, their ownership of terminals close to their operations in Orca Quarry, B.C. allows them to gain an advantage through savings related to shipping costs.

Competitive advantages can also be developed based on the exact output of the mine. While gold companies' refinement processes all aim to achieve purity, lithium companies such as Nemaska Lithium (TSE:NMX) have been able to distinguish themselves through its proprietary process of lithium production to reduce the use of soda ash in their process, a costly input. Particular mining companies can leverage the various uses of their outputs to establish distinct competitive advantages for their products.

EXHIBIT VII

Gold Miner Share Price Growth Over 2016



Source(s): Bloomberg

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