**Introduction**

Last fall, BerchWood Partners published *Global Energy: The Private Equity Opportunity of the Century*, its second private equity insight report. Reflecting our continuing enthusiasm for the broader natural resources opportunity, we are releasing this report, which takes a focused look at the emerging opportunity in global mining.

In the prior report we argued that the North American shale gas revolution, the accelerating global demand for energy, and changing regulatory and technology dynamics were together creating a multi-decade, multi-trillion dollar investment opportunity for private equity.

We still stand by that opinion and indeed, the significant investment activity over the past year, particularly around unconventional oil and gas plays, supports our views. In 2014, Ryan Lance, ConocoPhillips Chairman and CEO, said the shale revolution is "only in the first inning of a nine inning game," and we have only "scratched the surface" to see how the technology will continue to unfold.²

In the adjacent global mining sector, trends such as slower demand growth, increasing costs, and growing shareholder impatience with overspending and financial underperformance are creating an increasingly attractive opportunity for private equity. We think the hallmark attributes of this asset class—investor-management alignment, long-term investment horizon, and adaptability—put it in a particularly strong position to beneficially participate in the sector's transformation.

Some of private equity’s smarter investors, including Apollo Global Management, KKR & Co., and Energy & Minerals look at the mining sector’s upheaval and low valuations as a buying opportunity. Moreover, a growing number of seasoned executives with expertise at extracting iron ore, copper, coal, aluminum and other minerals are gravitating to what they judge as the asset class’ superior organizational structure for creating value in the business.

Mining is new terrain for the asset class—only about US$3.4 billion in mining-focused funds were raised in 2013, US$2.3 billion in the year before,³ and US$1.1 billion so far this year⁴ (see Figure 1). Together, the US$30 billion plus raised last year for natural resource funds accounted for less than 7% of the year’s total private equity capital raised (US$454 billion).⁵ That said, financial investors were responsible for over 30% of mining deal volumes in the first half of 2014, which is slightly less than the volumes for the prior two six-month periods.⁶

![Figure 1: Natural Resources Private Equity Fundraising by Sector Focus](image-url)

*Source: Preqin, 2014.*

We think the data tells an important story for private equity’s growing role and even bigger upside potential.

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5. Financial data on private equity and mining is not readily available given its recent entry and small size. Hence, in this report we sometimes will rely on natural resources private equity funds as a proxy, but it should be kept in mind that oil & gas often represents the great portion of assets in these funds.
“Companies with a counter-cyclical mindset may benefit by approaching this [mining] market turbulence as a buying opportunity.”
Tracking the Trends 2014, Deloitte

in this nascent sector. This story is made even more persuasive when it is combined with a clear understanding of the asset class’ underlying function of building aligned partnerships with investors and management teams to invest capital and create value over a 5 to 10 year period. Capital discipline is a key theme throughout this insight, made even more critical in industries such as global mining which have billion dollar investment needs.

Macroeconomic Drivers

GLOBAL RESOURCE SUPPLY AND DEMAND DYNAMICS

The global economic recovery has reignited demand growth for minerals, particularly in large emerging, non-OECD countries such as China and India, which are seeing rapid increases in the size of their middle classes and, in turn, demand for new infrastructure. Economic growth, urbanization, and population growth above OECD rates are also fueling consumption of minerals and materials. For example, it is estimated that the size of the global middle class will increase from 1.8 billion in 2009 to 4.9 billion people by 2030.8

As the world’s second largest economy, China’s vast size and rapid economic growth rate—7.4% in 2014—have made it the world’s largest consumer of metals. Economic development is built on a number of materials whose essence is minerals. Steel for infrastructure requires iron ore and coking coal; consumer-oriented commodities such as automobiles necessitate aluminum, platinum, palladium, copper, nickel, and zinc.

As illustrated by volatile prices, the demand and supply dynamics for the broader mining and metals sector are generally challenging to forecast. Operating in highly competitive global commodity markets, long-lead time supply responses to cyclical and structural demand can both over shoot and experience lags in capacity increases.9

The dynamics are further challenged in precious metals where supply can be materially limited due to geological, political, cost and industrial relations issues.

Due to unconstrained project development over the past few years, certain commodities, such as iron ore, coal, and aluminum, are in oversupply (see Figure 2). A key factor in the minerals story is the growth trajectory of emerging market countries such as China, India, and Brazil. For example, over 50% of steel demand in China is accounted for by construction and steel intensive infrastructure

Figure 2: Surpluses in Seaborne Iron Ore and Coking Coal Markets

Source: Morgan Stanley, Global Metals Playbook: 4Q13, 7 October 2013 via EY, Global Steel 2014, p. 16

9. “It can take more than 10 years for a new mine to move from discovery to first production.” Colonial First State, Where Are We in the Mining Cycle? 2014, p. 1.
“A decade of high commodity prices has concealed widespread operating inefficiencies and development failures which have become increasingly apparent. As a result, there is a need to provide operational and capital allocation discipline, which are essential to good private equity investing, particularly in the junior sector.”

Jonathan Leslie, CIO, Sandown Bay Resource Capital, 2014

including ports, rail, and airports—critical ingredients for the country’s economic growth. This goes a long way in explaining why the country accounts for nearly 70% of seaborne demand for iron ore.

Overcapacity is translating into falling commodity prices and causing cost producers to exit the industry. This benefits larger producers with low operating costs. For example, UBS estimates that large miners such as Rio Tinto and BHP have a break-even price of US$44 and US$53 per dry metric tonne, respectively, substantially below the market price, which is north of US$80. China remains the wild card for global demand, but some producers are optimistic: “We are less than halfway through the urbanization process in China and people are saying they want better roads, hospitals and more comfortable houses. At US$80 or US$90 a tonne, iron ore is still a great business to be in,” says Andrew Forrest, CEO of the Australian Fortescue Metals Group.

SCARCE CAPITAL — SUPPLY AND DISCIPLINE

As it adjusts to changing global supply and demand dynamics, the mining sector is following the restructuring path of other industries such as oil & gas. The challenge is building focused organizations that can efficiently and nimbly compete in a market characterized by volatile demand and supply imbalances. Simplified, a quality management team and capital discipline—both of which play to private equity’s strengths—are the key ingredients to meet the challenge.

The absence of these two resources has been evident over the past few years. Following years of record spending and poor cost management, shareholders have responded by demanding cuts in spending and greater focus on returns and cash-flow growth. A growing number of active investors have been pushing for specific and fundamental changes to drive value. In response, mining companies are rebalancing their portfolios, shedding marginal assets, and focusing operations on core strengths.

The dismal returns experienced by mining companies in recent years can be traced to the industry’s acquisition binge in 2011, the slowing of China’s economy, and poor capital discipline (see Figure 3). As a result, last year saw the top 40 companies by capitalization lose a combined US$280 billion in market value, or a 23% reduction from 2012. The industry has experienced US$75 billion in impairments charges over the past two years with these write downs jumping from 33% to 44% in 2013 (see Figure 4). Finally, as a result of the industry’s difficult financial condition, equity markets have all but shut their doors to new issues.

Figure 3: Poor Capital Discipline—Share of Projects Over-Budget

Source: EY (Percentage variances between market-advised cost projections and original estimates for selected mining development projects).

In Australia, the home of a significant share of global mining activity, the downdraft from China’s recent slow-

10. EY, Global Steel 2014, 2014, p. 27.
down has been felt particularly hard. Over AUD$110 billion worth of resources-related projects were cancelled in 2013, according to JPMorgan. While traditionally a significant contributor to the country’s GDP, last year the industry’s capital spending contribution was negative. “We are facing the mining investment cliff,” notes research from Macquarie Securities.¹⁵

Figure 4: Top 40 Impairment as Percentage of Capital Expenditure

Poor financial performance in mining has attracted shareholder activists and a push for new management teams.¹⁶ Instead of waiting for commodity prices to rebound, the focus is on structural changes necessary to improve productivity on a sustainable basis. A few of the bigger global resource companies are right-sizing projects and their organizations. For example, BHP Billiton Ltd. and Rio Tinto Group are targeting asset disposals that are expected to raise US$35 billion, according to Deutsche Bank AG.¹⁷

At the other end of the spectrum, junior miners are struggling to survive given that capital markets have generally been shut down to mining. According to Gareth Turner, a senior partner at Apollo Global Management, “There are very few places mining companies can go to today to raise US$100 million to US$500 million of long-term equity capital.” He went on to note that the dislocation of equity prices relative to fundamentals “creates the perfect backdrop for private-equity capital.”¹⁸

Ultimately, the attractiveness of mining assets comes down to value. Apollo’s Turner says that the undervaluation of mining companies relative to commodities’ “fundamentals” is probably at its greatest since the height of the global credit crisis. Consequently, smart investors with counter-cyclical mindsets may see the turbulence in today’s market as a buying opportunity.

Investor Interest: Attractive Asset Attributes and Performance

Institutions, including pension funds, endowments, and insurance companies, have been long-term investors of private equity precisely because they have generally received superior risk-adjusted returns through long-term investments, which matched their long-term liabilities. As private equity has grown, matured, and specialized, it has continued to generate above-market returns for long-term investors.

Increasing specialization is seen both from the broadening of investment vehicle choices with distinct risk and reward profiles as well as fund focus. Thus, buyout funds tend to provide greater returns and higher risks while infrastructure funds provide lower returns and risks. Mining has turned up as an asset focus on both fund types. In addition, while mining once resided

¹⁶ In July, the hedge fund Casablanca Capital LP successfully toppled the board of Cliffs Natural Resources Inc., the U.S. largest iron-ore producer. Casablanca’s plans included removing the existing chief executive and refocusing firm’s operations. David Benoit and John W. Miller, “Hedge Fund Declares Win Over Iron-Ore Producer,” Wall Street Journal, July 30, 2014.
primarily as part of natural resource funds, today there are a growing number of specialized mining-only funds.

The supply and demand dynamics of natural resources make them especially attractive investments. Certain natural resources such as oil & gas, copper, iron ore, and coal have a finite supply (e.g., already exhibit declining grades and growing supply lead times) yet strong demand given the critical role they play in economic development and sustaining economic growth.

In addition to risk and return dimensions, investing in real assets such as mining and metals can provide additional benefits:

> Strong hedge against inflation (e.g., most metals are priced in US dollars).
> Diversification of returns that are not correlated with the rest of the market.
> Bond-like current income from selling commodities.

Increasingly sophisticated investors look for investments that will improve the overall performance and resiliency of their portfolios across different market environments. In the opinion of David Mazza, at State Street Global Advisors, "We know that introducing real assets, such as gold, can boost portfolio diversification and be quite beneficial in controlling portfolio volatility and managing real risk-adjusted return."20

INVESTORS

Natural resources investment characteristics are driving investor interest. According to Preqin, foundations, public pension funds, and endowments are the investors indicating the greatest appetite for committing to natural resource funds (see Figure 5). In addition, other investors such as insurance companies with long-term liabilities are also attracted to the long-term and hard-asset nature of natural resource investments.

Reflecting growing interest, a number of LPs are creating separate accounts allocations to natural resource funds.

For example, New Mexico Educational Retirement Board has a target allocation to natural resource funds of 3.5% of total assets, University of Texas Investment Management Company (UTIMCO) has a target allocation of 13% of total assets, and Yale Endowment has a target allocation of 7% of total assets.21 Yale has invested in mining-related private equity funds since 2011, and its inception-to-date return on its natural resource investments is 16% per annum.22

Finally, investors look carefully at how much GPs personally commit to their funds, as it, along with sharing profits, are key tools for aligning GP and LP interests. As indicated in Figure 6, natural resource funds have the highest median GP commitments (5%) and fourth (out of 8) highest mean commitment percentage (4.60%). According to Preqin, the most common level of GP commitment is between 1.00% and 1.99% for funds with a vintage of 2012 or 2013.23


Attractive and sustainable returns have also been important in creating interest in private equity natural resource funds.

Figure 6: Average GP Commitments as a Percentage of Fund Size by Fund Type


RETURNS

As a result of private equity’s relatively early entry into the mining sector, there is no performance history for these specialized funds, but there is for natural resource funds. Attractive and sustainable returns have also been important in creating interest in private equity natural resource funds. While private equity has tended to outperform public markets over the last five and ten-year periods, Preqin’s Natural Resources Index has consistently outperformed its All Private Equity Index over the past seven years (see Figure 7).

The data available publicly on mining on an individual fund basis points to a positive picture, for example:

> Resource Capital Funds (RCF), which has invested in mining projects since 1998, has six funds, with Fund V producing a 27% IRR as of May 31, 2012, according to UTIMCO. The rare earths producer Molycorp, which RCF bought from Chevron and floated in July 2011, was dubbed by Forbes as “one of the greatest private equity deals ever”.

> Energy & Minerals Group, which was spun out from NGP Energy Capital Management, is raising a third fund, and, as of September 2013, its Fund I generated a 24.5% IRR, and Fund II generated an 11.9% IRR.

> The Sentient Group, which manages over US$2.7 billion in metal, mineral, and energy assets globally, is investing its fourth fund, with its vintage 2002 fund achieving a 30.5% IRR (putting it in the first quartile), while its vintage 2006 fund has generated a 14% IRR, both as of March 31, 2014.

Finally, Figure 8 shows that natural resource funds in aggregate have a relatively attractive risk (measured by standard deviation of net IRR) and return (median net IRR) profile when compared to other private equity strategies.

“Skin in the game for us is absolutely critical. It ensures that our incentives are aligned with those of the management team and on day one, we all want to know that we’re heading down the same path together.”

Caroline Donally, Denham Capital Metals and Minerals Director

Source: Preqin, Private Equity Spotlight, August 2014, p. 3.

Risks and Risk Management

A great part of the success of private equity is its ability to identify and manage risks better than many other organizational forms. The robustness of these capabilities has been critical to the asset class’ success in providing capital discipline, improving business performance, and generating value for investors across a growing number of industries.

The following structural attributes of private equity are especially central to risk identification and management in the mining sector:

> **Personal capital at risk with investors** – When they have substantial “skin in the game,” GPs tend to be highly attentive to risk and risk management; and hence, are particularly serious about due diligence.

> **Long-term, but limited life funds** – With ten-year funds, investments can be over longer periods, riding out commodity boom-bust cycles, but, at the same time, disciplining fund managers to return capital to investors if they want to raise sequential funds.

> **Relying on industry veterans** – Having experienced management teams is particularly important in entering new markets with complex risks and operational challenges; hence new fund managers tend to hire industry executives to manage risk and unlock value (see Figure 9).

Figure 8: Risk and Return by Strategy (2001-2011)

Figure 9: Risk Management: Mining Industry Veterans

<table>
<thead>
<tr>
<th>Date</th>
<th>New Mining Entity</th>
<th>Fund</th>
<th>Executive</th>
<th>Position</th>
<th>Previous Employer</th>
<th>Previous Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>Resource Capital</td>
<td>Raising 6th fund ($1.75 b)</td>
<td>James McClements</td>
<td>Co-founder</td>
<td>Rothschild Group</td>
<td>Natural Res Banker</td>
</tr>
<tr>
<td>1998</td>
<td>Resource Capital</td>
<td>Raising 6th fund ($1.75 b)</td>
<td>Henderson Tuten</td>
<td>Co-founder</td>
<td>Rothschild Group</td>
<td>Leader Rotchild Aus</td>
</tr>
<tr>
<td>2006</td>
<td>Energy &amp; Minerals</td>
<td>Raising fund III ($4 b)</td>
<td>Lee R. Raymond</td>
<td>Board member</td>
<td>ExxonMobile</td>
<td>Chairman &amp; CEO</td>
</tr>
<tr>
<td>2009</td>
<td>Platin Capital</td>
<td>$400 m</td>
<td>Bradford Mills</td>
<td>Founder / Man. Dir.</td>
<td>Lonmin Pte</td>
<td>CEO</td>
</tr>
<tr>
<td>2012</td>
<td>QKR Corp.</td>
<td>$1 b (Qatar/Kulczyk)</td>
<td>Lloyd Pengilly</td>
<td>Founder / Man. Partner</td>
<td>JP Morgan</td>
<td>Gold Analyst</td>
</tr>
<tr>
<td>2012</td>
<td>QKR Corp.</td>
<td>$1 b (Qatar/Kulczyk)</td>
<td>Andre Liebenberg</td>
<td>Director</td>
<td>BHP Billiton</td>
<td>CFO</td>
</tr>
<tr>
<td>2013</td>
<td>X2 Partners</td>
<td>Seeking $3 b</td>
<td>Mick Davis</td>
<td>CEO</td>
<td>Xtrata</td>
<td>Xtrata</td>
</tr>
<tr>
<td>2013</td>
<td>X2 Partners</td>
<td>Seeking $3 b</td>
<td>Trevor Reid</td>
<td>CFO</td>
<td>Xtrata</td>
<td>CFO</td>
</tr>
<tr>
<td>2013</td>
<td>Magris Resources</td>
<td>Not available</td>
<td>Aaron Regent</td>
<td>Founder / Man. Partner</td>
<td>Barrick-Gold Corp.</td>
<td>CFO</td>
</tr>
<tr>
<td>2013</td>
<td>B&amp;A Mineracrao</td>
<td>$520 m (BTG Pactual Bank)</td>
<td>Roger Agnelli</td>
<td>Chairman</td>
<td>Vale</td>
<td>CFO</td>
</tr>
<tr>
<td>2014</td>
<td>Sandown Bay Resource Capital</td>
<td>$500 m</td>
<td>Jonathan Leslie</td>
<td>CFO</td>
<td>Rio Tinto</td>
<td>Global Head of Copper, Gold &amp; Diamond Divs.</td>
</tr>
<tr>
<td>2014</td>
<td>Sandown Bay Resource Capital</td>
<td>$500 m</td>
<td>Leigh Clifford</td>
<td>Investment Committee</td>
<td>Rio Tinto &amp; KKR</td>
<td>CEO, Board Director</td>
</tr>
<tr>
<td>2014</td>
<td>Audley Capital</td>
<td>Plan sharemarket float</td>
<td>John MacKenzie</td>
<td>Head</td>
<td>Anglo American</td>
<td>Head of copper unit</td>
</tr>
</tbody>
</table>

Source: Various public financial media sources.

“All of these [private equity] firms have had tremendous success investing in the energy sector and are seeking to translate that success into the mining sector.”

Michael Faralla, TD Securities head of global mining investment banking

> Investment flexibility across geographies, commodities, phase of business, business function, and timing – The most successful private equity groups are able to minimize investment risk by having wide latitude to pursue opportunities where there is the greatest potential for generating risk-adjusted returns.

As commodity businesses, one of the biggest risks in operating in the mining sector is price volatility. “The best hedge against price volatility is to have low operating costs, to ensure we occupy the lowest position in the cost curve so that we’re successful in any price environment,” observed Peter Kukielski, the former mining chief at ArcelorMittal, who recently came on board at Warburg Pincus. This is the standard private equity best practice—across industries.

The other important risk mitigation strategy for addressing price volatility is building multi-commodity operations to hedge a single-commodity exposure. This appears to be precisely the approach taken by PE mining groups such as B&A Mineracrao and Denham Capital.

Finally, mining has attracted its fair share of community and regulatory backlash that has been magnified in the media. Anti-mining sentiment has been especially significant in Latin America and Africa where “mining is perceived as having a negative impact on human rights, communities, and the natural environment.” Consequently, the industry has taken on board the concept of “a social license to operate.” As it makes good investment sense, private equity increasingly focuses on identifying and mitigating Environmental, Social and Governance (ESG) risks through the industry’s granular due diligence process and installing hands-on governance and oversight practices.

Conclusion

Natural resources such as copper, iron ore, aluminum, and precious metals have a number of attractive attributes for long term investors particularly given their finite supply and significant demand as essential inputs in economic development. Until recently, investors have not had many opportunities to invest long-term capital in the sector with industry-knowledgeable, active partners whose interests were fully aligned with theirs.

As we have highlighted, rapidly changing supply and demand dynamics across the global mining business are overturning existing industry structures and providing an opportunity for private equity to allocate capital to higher return projects and companies. Similar to its increasing success in the oil & gas sector, the asset class’ model as a disciplined and flexible provider of capital, and builder of strong management teams, is taking hold in the mining and minerals sector.

Although mining has tended to be a small and relatively unknown part of the larger global private equity investment opportunity space, at BerchWood Partners we think the pace of activity will accelerate as GPs and investors gain experience, expertise, and a track record of performance.

We welcome your feedback and questions, and thank you for your interest.

This report was prepared by BerchWood Partners and its outside advisor and writer, David Haarmeyer.

For approximately 15 years, BerchWood Partners has been dedicated to raising capital for alternative investment funds globally. BerchWood and its professionals have experience raising funds for North American, Latin American, European, Middle Eastern, and Asian fund managers focused on buyout, venture, energy, mezzanine, turnaround/distressed debt, secondary, growth, infrastructure, and real estate. BerchWood has relationships with diverse institutional investors worldwide.

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