Mining Industry
Overview

Boyi Xie
March 5, 2012
Michael Porter’s Five Forces

- **Potential Entrants**
  - Threat of new entrants
  - Bargaining power of suppliers

- **Industry Competitors**
  - Rivalry among Existing firms

- **Suppliers**

- **Buyers**
  - Bargaining power of Buyers

- **Substitutes**
  - Threat of substitute products or services
Outline

• Products
• Suppliers/Customers
• Industry Competitors
• Cost
• Revenue & profit
• Overall trends
• Other factors
Products

• Aluminum
• Copper
• Lead
• Zinc
• Gold
• Silver
• Uranium oxide
• Diamonds
• Stainless Steel Materials
• Iron Ore
• Coal
Marketing & Customers

• Marketing centers of mining companies
  • Sell products at the most advantageous price to make the most of their intrinsic value
  • Act as a source of specialist expertise
  • Identify value opportunities

• Customer service:
  • Technical assistance
  • Transportation, e.g. BHP Shipping, Rio Tinto Marine

• Customers
  • Jewelry makers. E.g. gold, silver and diamonds
  • Manufacturing/construction companies.
    • E.g Hyundai Steel
  • Government
  • Other retailers
BHP Billiton

- BHP Billiton is a global mining, oil and gas company headquartered in Melbourne, Australia and with a major management office in London, UK. It is the world’s largest mining company measured by revenue.
- BHP Billiton was created in 2001 through the merger of the Australian Broken Hill Proprietary Company Limited (BHP) and the Anglo-Dutch Billiton plc. (Billiton origins stretch back to 1860)
- It is now a dual-listed company in Australian Securities Exchange and London Stock Exchange.
- It operates a wide variety of mining and processing operations in 25 countries, employing approximately 41,000 people.
- It has operations on: aluminum, diamonds, iron ore, petroleum, stainless steel, uranium, etc.
- Mines in: Algeria, Australia, Brazil, Canada, South Africa, USA
Rio Tinto

• Rio Tinto, now headquartered in London, UK (and Brisbane, Australia), was founded in 1873, when a multinational consortium of investors purchased a mine complex on the Rio Tinto river, in Huelva, Spain.

• It is now a dual-listed company in Australian Securities Exchange and London Stock Exchange.

• It is one the world leaders in the production of aluminum, iron ore, copper, uranium, coal and diamonds.

• It also has significant operations in refining, particularly for refining bauxite and iron ore.

• It has operations on six continents but is mainly concentrated in Australia and Canada.
Vale

- Vale is a Brazilian multinational diversified metals and mining corporation and one of the largest logistics operators in Brazil.
- It’s the largest producers of iron ore, pellets, and second largest nickel; other products include manganese, ferroalloys, copper, bauxite, aluminum.
- It’s listed on stock exchanges of Sao Paulo, New York, Paris, Hong Kong and Madrid.
- It’s also the corporation with the most “contempt for the environment and human rights” and was named world’s most evil company.
• Mining companies have continued to outperform the overall market.

• While the industry was hit hard by the global financial crisis, mining companies have led the return and gone beyond.

Source: Bloomberg.
Global Indices

- Emerging countries continued to storm ahead, with demand for resources driven by strong GDP growth, including close to 10% growth in China.

- Mining market capitalization continued to rebound in 2010, with many players recovering the remaining market capitalization lost during the global financial crisis and surpassing the level seen at the end of 2007.

- The total year end market capitalization of the top 40 companies increased by 26%, with larger gains generally achieved by the smaller companies.

Source: Bloomberg.
Top 10 Mining Companies

• Across the top companies, there was a cumulative 32% increase in revenue, a 72% increase in adjusted EBITDA and a 156% increase in net profit.

• New entrant: Coal India. Following its IPO in October 2010, it’s the largest new entrant.

• The big get bigger. They are also diversifying in other directions. For instance, some have begun exploring the benefits of vertical integration in an attempt to control the entire commodity value chain – from coal mining to steel production to power generation.

Note: EBITDA: earnings before interests, taxes, depreciation, and amortization.
The Super Majors Step Out

• During 2010 we saw the top three miners (BHP Billiton, Vale and Rio Tinto) step clear of the rest of the industry.

• At the top, BHP Billiton’s market capitalization further strengthened, putting it clearly above the rest.

• The market capitalization of third place Rio Tinto is double the size of the next largest player, China Shenhua, which declined 25% in value during 2010.

• Price and production increases in iron ore were major drivers of the growth by the top three.
Production and Revenue

2010 Production

<table>
<thead>
<tr>
<th>Commodity (measure)</th>
<th>Top 40 production (million)</th>
<th>Change from the prior year (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal (tonnes)</td>
<td>1,499</td>
<td>1</td>
</tr>
<tr>
<td>Copper (tonnes)</td>
<td>7</td>
<td>(4)</td>
</tr>
<tr>
<td>Iron ore (tonnes)</td>
<td>716</td>
<td>16</td>
</tr>
<tr>
<td>Gold (tonnes)</td>
<td>34</td>
<td>2</td>
</tr>
<tr>
<td>Bauxite (tonnes)</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>Potash (tonnes)</td>
<td>13</td>
<td>30</td>
</tr>
<tr>
<td>Nickel (tonnes)</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Platinum (ounces)</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Zinc (tonnes)</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Diamonds (carats)</td>
<td>14</td>
<td>(1)</td>
</tr>
</tbody>
</table>

Revenue by commodity

- A 5% increase in overall production
- The increase in production is led by iron ore.
- More than global economic growth but less than the economic growth in the developing countries.
- Developing countries are the primary drivers for higher demand.

Source: PwC analysis.
Cost

- Costs are going up across the board
- Bumper profits have fuelled labor unrest
- New and replacement equipment
- Haul truck tires alone had tripled
- New taxes and royalties is pushing up regulatory compliance costs
Cost

- **Education**, such as mining major
- Long-term **infrastructure investment**, including railways, ports, community housing and schools
- High commodity prices are driving shortages in equipment, labor and other key inputs, pushing costs up. This means mining companies must walk a tightrope **between ramping up volumes to meet demand** and containing their **costs**.
Mergers and Acquisitions

- The global mining industry becomes increasingly more consolidated.
- 1,379 deals worth $71 billion were announced during the first half of 2011.
- Deals volumes and aggregate values were 10% and 25% higher than the first half of 2010.
- The average deal value during the first half of 2011 was $104 million, a 40% increase over 2010.

Figure 1: Global mining M&A volume and aggregate value

Figure 2: Global mining M&A (1H 2011) by transaction size
<table>
<thead>
<tr>
<th>Announced Date</th>
<th>Target</th>
<th>Target Description</th>
<th>Target Headquarters</th>
<th>Transaction Value (millions)</th>
<th>Target Resource Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>04/24/2011</td>
<td>Equinox Minerals Limited</td>
<td>Equinox Minerals Limited engages in the mining and exploration of mineral properties.</td>
<td>Australia</td>
<td>C$7,300</td>
<td>Copper</td>
</tr>
<tr>
<td>05/02/2011</td>
<td>International Coal Group, Incorporated</td>
<td>International Coal Group, Inc. produces coal in northern and central Appalachian regions of the United States.</td>
<td>United States</td>
<td>US$3,400</td>
<td>Coal</td>
</tr>
<tr>
<td>04/14/2011</td>
<td>Kazzinc</td>
<td>Kazzinc JSC primarily produces zinc with copper, precious metals, and lead credits in Kazakhstan.</td>
<td>Kazakhstan</td>
<td>US$3,200</td>
<td>Zinc</td>
</tr>
<tr>
<td>06/10/2011</td>
<td>PT Bumi Resources Minerals Tbk</td>
<td>PT Bumi Resources Minerals Tbk, through its subsidiaries, engages in the exploration and development of mineral properties in Indonesia and in west Africa.</td>
<td>Indonesia</td>
<td>US$2,100</td>
<td>Diversified Metals and Mining</td>
</tr>
<tr>
<td>02/03/2011</td>
<td>Fronteer Gold Incorporated</td>
<td>Fronteer Gold Inc. engages in the acquisition, exploration, and development of mineral resource properties in Canada, the United States, and Turkey.</td>
<td>Canada</td>
<td>C$2,300</td>
<td>Gold</td>
</tr>
<tr>
<td>03/02/2011</td>
<td>Companhia Brasileira de Metalurgia e Mineracao</td>
<td>Companhia Brasileira de Metalurgia e Mineração engages in the extraction, processing, manufacture, and marketing of niobium-based products.</td>
<td>Brazil</td>
<td>US$1,950</td>
<td>Diversified Metals and Mining</td>
</tr>
<tr>
<td>06/22/2011</td>
<td>Vale Fertilizantes SA</td>
<td>Vale Fertilizantes S.A. produces and supplies phosphate- and nitrogen-based inputs for the production of fertilisers and inputs for chemical companies in Brazil.</td>
<td>Brazil</td>
<td>US$1,390</td>
<td>Fertilisers and Agricultural Chemicals</td>
</tr>
<tr>
<td>06/15/2011</td>
<td>Drummond Company, Inc., Colombian Mining Operations and Related Infrastructure</td>
<td>Drummond Company, Colombian Mining Operations and Related Infrastructure comprises coal exploration properties with probable reserves of about 2 billion net tons.</td>
<td>Colombia</td>
<td>US$1,524</td>
<td>Coal</td>
</tr>
</tbody>
</table>
# 2011 1H Top 10 Global Mining Deals

<table>
<thead>
<tr>
<th>Acquirer</th>
<th>Acquirer Description</th>
<th>Acquirer Headquarters</th>
<th>Transaction Status (as at August 8, 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha Natural Resources, Incorporated</td>
<td>Alpha Natural Resources, together with its subsidiaries, engages in the production, processing, and sale of coal in the United States.</td>
<td>United States</td>
<td>Closed</td>
</tr>
<tr>
<td>Barrick Gold Corporation</td>
<td>Barrick Gold Corporation engages in the production and sale of gold, as well as related activities, such as exploration and mine development.</td>
<td>Canada</td>
<td>Closed</td>
</tr>
<tr>
<td>Cliffs Natural Resources Incorporated</td>
<td>Cliffs Natural Resources, a mining and natural resources company, produces iron ore pellets, lump and fines iron ore, and metallurgical coal products.</td>
<td>United States</td>
<td>Closed</td>
</tr>
<tr>
<td>Arch Coal Incorporated</td>
<td>Arch Coal engages in the production and sale of steam and metallurgical coal from surface and underground mines located throughout the United States.</td>
<td>United States</td>
<td>Closed</td>
</tr>
<tr>
<td>Glencore International plc</td>
<td>Glencore International plc, together with its subsidiaries, engages in producing, sourcing, processing, refining, transporting, storing, financing, and supplying commodities to industries worldwide.</td>
<td>Switzerland</td>
<td>Announced</td>
</tr>
<tr>
<td>Bumi plc</td>
<td>Bumi plc, through its subsidiaries, engages in the exploration, mining, and processing of coal and other minerals in Indonesia and West Africa.</td>
<td>United Kingdom</td>
<td>Announced</td>
</tr>
<tr>
<td>Newmont Mining Corporation</td>
<td>Newmont Mining, together with its subsidiaries, engages in the acquisition, exploration, and production of gold and copper properties.</td>
<td>United States</td>
<td>Closed</td>
</tr>
<tr>
<td>POSCO, Sojitz Corporation, Nippon Steel Corporation, JFE Holdings Incorporated, The Japan Oil, Gas and Metals National Corporation &amp; National Pension Service</td>
<td>JFE Holdings, Inc., through its subsidiaries, engages in steel and engineering operations in Japan. National Pension Service is a pension fund manager. Nippon Steel Corporation, through its subsidiaries, engages in the manufacture and sale of steel and related products in Japan and internationally. POSCO engages in the manufacture and sale of steel products in South Korea and internationally. Sojitz Corporation operates as a general trading company worldwide. Japan oil, Gas and Metals National Corporation provides financial assistance, technology development, technical support, stockpiling, gathering/providing information, mine pollution control, and overseas field survey services in Japan.</td>
<td>JFE Holdings Inc.: Japan</td>
<td>Announced</td>
</tr>
<tr>
<td>Vale S.A.</td>
<td>Vale S.A. engages in the exploration, production, and sale of basic metals in Brazil.</td>
<td>Brazil</td>
<td>Announced</td>
</tr>
<tr>
<td>Itochu Corporation</td>
<td>ITOCHU Corporation operates as a general trading company primarily in Japan and internationally.</td>
<td>Japan</td>
<td>Announced</td>
</tr>
</tbody>
</table>
Mergers and Acquisitions

• The US overtakes Canada and Australia to become the mining sector’s most acquisitive nation by value.

• Buyers from the US announced over $21 billion in acquisitions, 101% higher than the entire 2010.

• Four of the top ten deals of were led by US buyers.

• Big bets on rising demand for the key steelmaking ingredients, metallurgical coal and iron ore.
Mergers and Acquisitions

• In the first six months of 2011, Chinese entities announced 75 acquisitions in the global mining sector worth a total $4.7 billion.

• Despite repeated efforts to extend its geographical reach via M&A, Chinese entities remained close to home. 68% of acquisitions were in Asia/Pacific emerging markets. (Hong Kong listed Mongolian Mining Corporation’s acquisition of Mongolian coking coal miner for $465 million)
Government Regulation

- Government touches all aspects of the operations
- A lease or license of the right to access the land and extract the product
- The rights to transport
- Taxes
- Production sharing
- Land rehabilitation
Government Regulation

- Government around the world are reassessing their approach to the mining sector. It’s not simply about taxes anymore. It’s about governments striving to take a greater share in every area of the industry. As time goes on, this may drive mining companies to invest in regions based not only on their political stability, but also on the stability of their fiscal regime.
Sustainability

• Keeping people safe and healthy
  • Exposure to noise
  • Hazardous materials
  • Isolation work
  • Disease
Sustainability

- Reducing climate change impacts
  - Engagement in policy development
  - Reducing energy and GHG emissions
  - Managing water use
  - Enhancing biodiversity and land management

-- Vale turned farm lands into mines. It was nominated as the most evil company of 2011.
Reference

- Mine 2011 – The Game has Changed. Review of global trends in the mining industry. PWC.
- Mine 2010 – Back to the Boom. Review of global trends in the mining industry. PWC.
- Riders on the Storm – Global mining deals 2011 mid-year update. PWC.
- Tracking the Trends 2012 – the top 10 trends mining companies may face in the coming year. Deloitte.
- Rio Tinto Review. Year XX.
- Some other online public resources.
Thank You.