

Riders on the Storm...

Global mining deals
2011 mid-year update

September 2011



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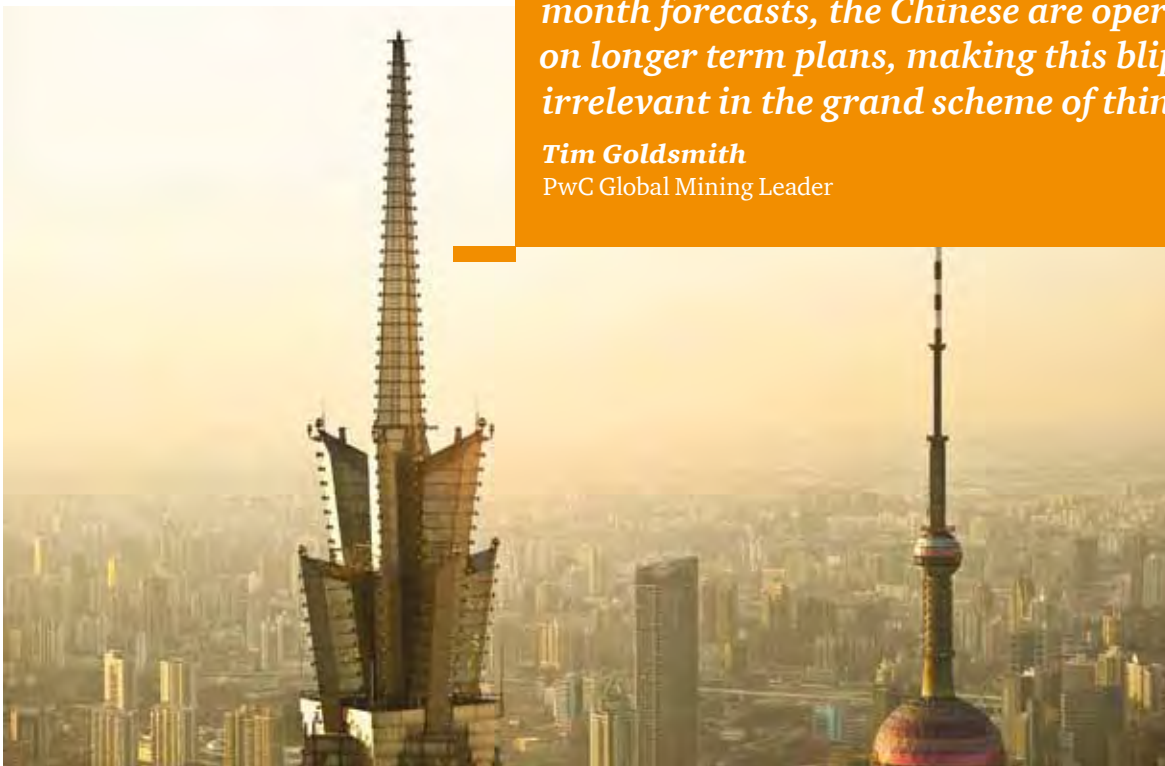
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The evolution of the theme for this half-year update has been, in and of itself, enlightening. As we approached June 30, 2011, commodity prices neared record highs, a cause for optimism for global deal making activity in the mining sector. We toyed with the title *“Still Haven’t Found What I am Looking For.”* Subsequent analysis, however, revealed that M&A during 2011 was not all that it appeared to be: the majority of activity was confined to an American-led rush to secure scale in the coal and iron ore sectors. Many buyers in Australia, the UK and Canada remained on the sidelines and, while most western markets were betting on the strength of China, Chinese entities, firmly focused on value, retreated from iconic western takeovers. We then considered *“Under Pressure”* as perhaps a more fitting theme.

Nearing publication, however, economic and political catastrophe ensued. As we readied to print, Standard & Poor’s (S&P) announced a downgrade on the credit rating of the United States, the European Union was racing to finalise a new euro-zone rescue package, the Bank of Japan was intervening in currency markets to slow the appreciation of the yen, emerging markets were battling inflation concerns and most commodity markets, with the exception of gold, were experiencing price volatility. Economic instability was accompanied by severe political unrest in regions through the Middle East and Africa. And so, again, we revised our theme to *“Riders on the Storm”*—a more apt description of the state of the global mining M&A market. With this, we are pleased to share with you our views on Mining M&A in the half year ended June 30, 2011 along with our outlook on how the global mining deal market will unravel and emerge victoriously from the 2011 market storm.

“While the western world operates on three-month forecasts, the Chinese are operating on longer term plans, making this blip largely irrelevant in the grand scheme of things.”

Tim Goldsmith
PwC Global Mining Leader



“Undun”

A data snapshot of
Global Mining M&A
in 2011

Global mining M&A deal volumes and values rally during 1H 2011. Volatile capital markets will prompt dealmakers to proceed cautiously.

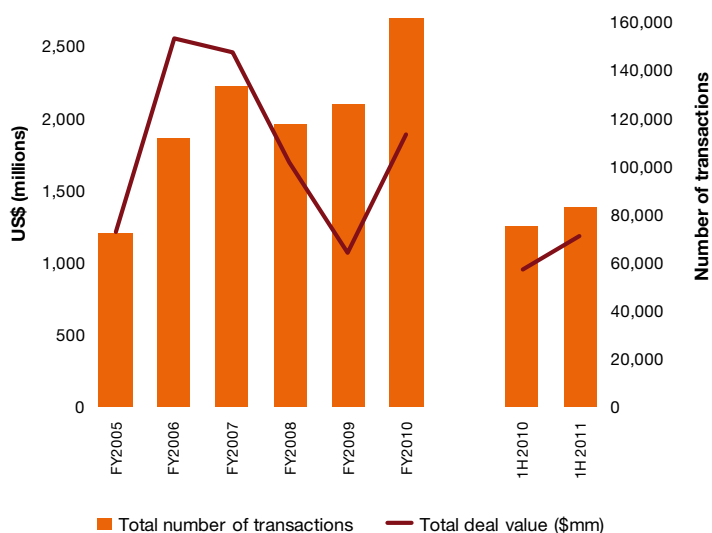
- 1,379 deals worth \$71 billion were announced during the first six months of 2011. Deal volumes and aggregate values were 10% and 25% higher than the first half of 2010. On an annualized basis, deal volumes and aggregate values were 24% and 2% higher than 2010 and 122% and 32% higher than 2009. To put this into perspective, consider that annualized volumes make 2011 the busiest year of M&A in the history of the mining sector (more frenzied than even 2007!).

- Many signs, however, point to a slowdown for the remainder of the year (largely as a result of uncertainty in broader capital markets). As depicted in the accompanying graph, deal values and volumes have already decreased by **32%** and **19%** month over month in July and a further **25%** and **7%** respectively in August. Since June, on aggregate, global mining deal values have declined by 49% and deal volumes have declined by 25% .

- Average deal values during the first half of 2011 were **\$104 million** a **40%** increase over 2010. For publicly listed targets, the average premium over the day prior to announcement share prices was 14%. Premiums varied considerably by target size: For \$500 million+ acquisitions, the average premium was 37%. For sub-\$500 million deals, the average premium was only **8%**. Also noteworthy is the fact that these premiums were on the heels of a **42%** trailing twelve month appreciation in public mining companies' market values (as measured by the HSBC Global Mining 100 Index as at June 30, 2011).

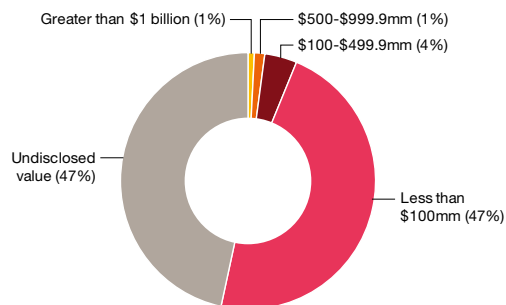
- Jittery global equity markets will likely put downward pressure on most mining company valuations in the near term. As a proxy for expected compressions in deal value, consider that between July 1 and August 31, the HSBC Global Mining Index has declined by 9%. Gold and silver are notable exceptions as currency instability has propelled each of the metals to appreciate **23%** over the last two months alone.

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



Source: Capital IQ, PwC Analysis

Figure 2: Global mining M&A (1H 2011) by transaction size

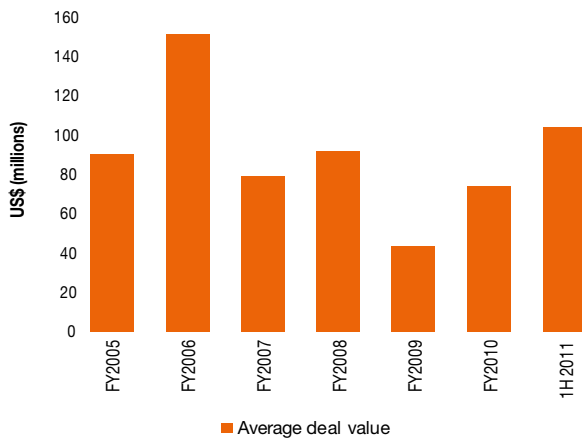


Source: Capital IQ, PwC Analysis

Figure 3: Number of deals

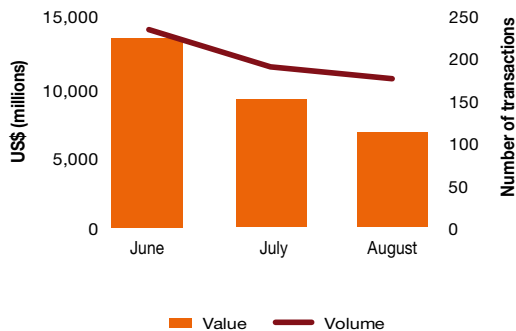
Number of deals by transaction ranges:	1H 2011	1H 2010	% change
Greater than \$1 billion	11	11	0%
\$500 - \$999.9mm	18	12	50%
\$100 - \$499.9mm	56	42	33%
Less than \$100mm	651	591	10%
Undisclosed value	643	566	14%

Figure 4: Global mining M&A average deal values



Source: Capital IQ, PwC Analysis

Figure 5: Global mining M&A July – August 2011



Source: Capital IQ, PwC Analysis

• 2011 has yet to see the return of the “mega” mining takeover (>\$10 billion). While the number of deals in the \$1 billion+ segment was consistent with the same period in the prior year (11), deals were generally smaller. Consider that the top 10 global mining deals during 1H 2011 were worth, in aggregate, approximately \$9.2 billion less than the top 10 deals observed in 2010. As majors shifted their focus to bolt-on transactions, the mid-size deal segment was clearly driving volume. In the \$500-\$1 billion segment, for example, **18** deals were announced, a **50%** increase over the same period in the prior year.

- Volatile market conditions during July and August are already impacting the availability of leveraged M&A finance, a trend that suggests mega-deals will remain elusive in the mining sector for the remainder of 2011 (with the exception, perhaps, of gold-related deals).

M&A trends in the global mining sector

Aggregate analysis is a useful compass for dealmakers, but it provides little in the way of strategic value. The real questions to address are: what was driving deal-making this half-year and what is the outlook from here on in? To this end, PwC has identified three key trends on the following pages that will make 2011 a year unlike any other in the global mining sector.



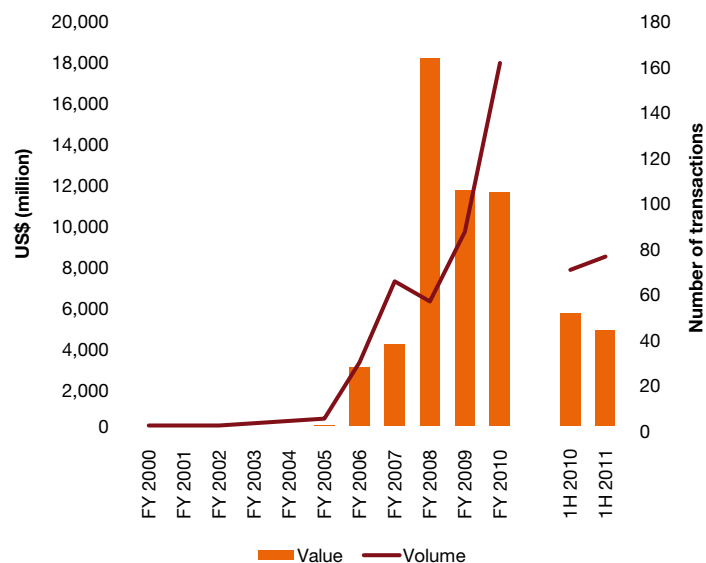
1. *“Won’t Get Fooled”*

Soaring deal valuations keep Chinese buyers close to home. Political and economic pressures to weigh on outbound activity through to year end.

- In the first six months of 2011, Chinese entities announced **75** acquisitions in the global mining sector worth a total **\$4.7 billion** (excluding cancelled & withdrawn deals). Dollar values were down **15%** over the first half of 2010 and, on an annualized basis, were **18%** lower than 2010.
- Despite repeated efforts to extend its geographic reach via M&A, Chinese entities remained close to home in 2011. **68%** of acquisitions were in Asia/Pacific emerging markets, including the largest Chinese acquisition of the year, Hong-Kong listed Mongolian Mining Corporation’s (MMC) acquisition of Mongolian coking coal miner QGX Coal for \$465 million: \$379.5 million in cash plus \$85 million in convertible bonds (plus a future price adjustment based on future reserve calculations).
- Lacklustre Chinese buy-side volumes were not for lack of a desire for deal-making. In fact, 2011 saw numerous Chinese-led takeover attempts that failed during valuation negotiations. Two notable examples are:
 - In early April, Minmetals Resources made an unsolicited C\$6.3 billion cash offer to acquire Australia’s Equinox Minerals, a copper miner with rich reserves in Zambia and Saudi Arabia. Ultimately, Minmetals’ offer was trumped by Barrick Gold’s C\$7.3 billion offer, a counteroffer that prompted Minmetals to retreat, rather than engage in a bidding war.

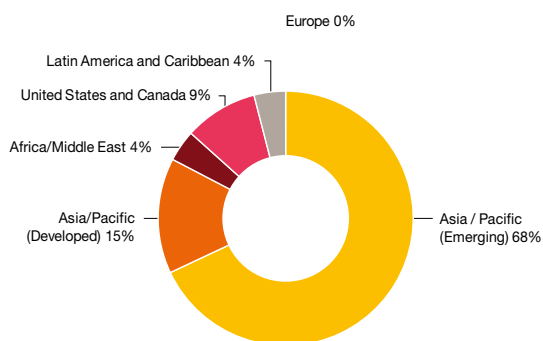
“The price offered by Barrick is above our most optimistic assessment of value,” said Andrew Michelmore, Chief Executive Officer of Minmetals Resources. *“Competing with Barrick at these prices would, in our view, be value destructive.”*

Figure 6: Chinese equity acquisitions in the global mining sector (excluding cancelled/withdrawn deals)



Source: Capital IQ, PwC Analysis

Figure 7: Chinese acquisitions in the mining sector (by geography, 1H 2011)



Source: Capital IQ, PwC Analysis

- In May 2011, Yanzhou Coal participated in a bidding process to acquire Australia's Whitehaven Coal. The Chinese coal miner reportedly met the minimum required bid of \$3.7 billion. However, after a review of offers, Whitehaven deemed Yanzhou's offer, along with a number of other similar offers, as insufficient:

"Following further negotiation of these proposals, the Whitehaven board has now determined that no proposal is sufficiently attractive to warrant recommendation to shareholders. The process has therefore been terminated". Yanzhou was not fazed, Zhang Baocai noted: *"We do business in our own way, based on our own study on these seven to eight projects. We won't dance to other people's rhythm."*

Yanzhou went on to swallow private Queensland miner Syntech Resources for \$202.5 million and has noted it will consider further acquisitions.

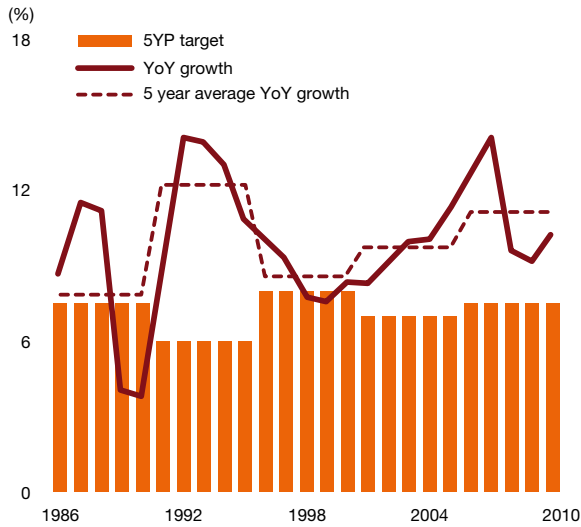
- The Chinese M&A story would have been dramatically different this year if the two aforementioned deals were consummated. China's buy side deal tally, inclusive of Equinox and Whitehaven, would have been \$16 billion, a **183%** increase over 2010 half year dollar volumes. These results would have positioned China as the second most acquisitive nation in the global mining sector (by value) and, perhaps more importantly from a symbolic perspective, the Asian giant would have boasted control of two Western owned miners. (For commentary on Chinese buy-side activity during this past decade, re-visit our year end publication. www.pwc.com/ca/en/deals/m-a-industry-briefing.jhtml).
- We found it rather interesting that two Chinese-listed entities walked away from potentially iconic transactions due to valuation concerns. This behaviour is a contrast to the general perception that State Owned Entities (SOEs) always serve state interests over commercial interests and may be a sign that Chinese corporations are becoming more mature dealmakers.

“We are certainly not closing the door on Weld Range. However, we must make the right business decisions in order to protect our assets and ensure a realistic future for our organization. Sinosteel has made no secret of the fact that continuing delays to the Oakajee Port & Rail project would have a significant impact on our operations ...Unfortunately we have now had to draw a line in the sand.”

Julian Mizera,
Sinosteel Midwest Chief Operating Officer

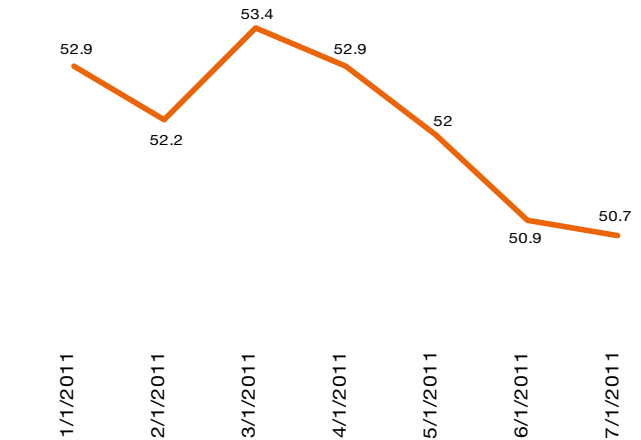
- Further dispelling the notion that Chinese entities are in favour of securing supply “at any price”, there have been some recent examples of Chinese companies suspending or re-evaluating mining investments in order to protect against investment losses. One recent notable example is:
 - In June 2011, Chinese metals giant Sinosteel Midwest Corporation placed its Weld Range iron ore operation in Western Australia on hold. The decision to suspend operations was due to rising tariffs and cost overruns for the proposed Oakajee Port and Rail facility. The Oakajee project, which has seen cost estimates balloon to A\$5.2 billion from A\$4.4 billion and a completion date shift out as far as 2015 from 2012, could have negatively impacted Sinosteel’s profitability to the tune of A\$100 million per year (Despite placing a hold on operations, however, Sinosteel has pressed ahead with the environmental approval process for the Weld Range project).
- There appears to be a trend of increasing Chinese regulatory oversight over outbound investments. In what some see as a response to increased instances of overseas investment losses, China’s State Owned Assets Supervision and Administration Commission (“SASAC”) seems to have begun to strengthen oversight on outbound deals, implementing policies in 2011 to enhance risk management mechanisms and make SOEs more accountable for outbound investment decisions. While guidance has not been provided with regard to the extent SOEs will be held accountable, investigation of SOEs overseas investments would expand.
- Going forward we expect China to:
 - Acquire quality industrial resource assets that can provide secure sources of raw material inputs for the long-term industrialization and urbanization processes, especially: iron ore, metallurgical coal, fertilizer minerals and base metals. Deals that can permit China to increase its bargaining power in negotiating raw material prices and provide good financial returns will be preferred. In fact, a late 2011 market correction may be just the right opportunity to achieve the latter.
 - Acquire gold and other precious metal assets that will help the state to diversify its \$3.2 trillion store of FX reserves and make a political statement about the value of government-backed currencies (especially in light of the recent downgrade of the United States of America’s credit rating by S&P).
 - Acquire attractive assets in frontier markets, especially Mongolia and Africa, where vast untapped mineral and energy resources exist. These regions are attractive from a valuation perspective given that political risk and the requirement to commit to the infrastructure spend can make acquisitions relatively attractive from an upfront price perspective.
 - Consolidate fragmented mining capacities within the Asia / Pacific region and bring together small and medium size overseas acquisitions to pave the way for home-grown mining majors.
- Political and economic forces within China will likely incite buyers to remain conservative in the mining sector. Specific indicators to watch for that may impact Chinese-led deal making in the near term include:
 - **Macro volatility:** In addition to shrapnel from macro weakness in the US and Europe, China is experiencing its own unique economic challenges. The Asian giant’s CPI has climbed rapidly since June 2010, hitting a three-year high of 6.5% in July 2011. To counter inflation, the Chinese Central Bank has raised the benchmark interest rates three times this year including the latest rate rise of 25 basis points on July 6, 2011. It also hiked the reserve requirement ratio six times, ordering banks to keep a record high of 21.5% of their deposits in reserve to rein in excessive lending. Inflationary forces and tightening credit can curb the availability of credit to support M&A and may have a temporary impact on the number of China-led “mega deals”.
 - **Deceleration in Chinese growth:** China’s manufacturing Purchasing Managers Index (PMI) came in at 50.7 in July 2011, its lowest level since February 2009. The declining trend suggests that China’s manufacturing

Figure 8: China GDP growth target versus actual growth



Source: China National Bureau of Statistics

Figure 9: 2011 Chinese PMI



Source: Bloomberg

sector is growing at its slowest pace since the financial crisis. Further, in China's most recent 12th five year plan, state authorities themselves targeted slower overall GDP growth (7% instead of 11% plus). We reiterate, however, that it is the **rate** of growth that is expected to slow. Given China's overwhelming strong long-term growth prospects, a Chinese collapse is an unlikely scenario. In fact, as depicted in the accompanying figure, China has consistently outperformed five year plan targets. In 2011, China's economy has already shown signs of outpacing the 7% target, with annual growth of 9.5% between April and June. Irrespective of the latter, some dealmakers may view slowing Chinese growth (down from 11%+ levels) as a signal that corporate growth will contract. This, in turn, may prompt some buy side conservatism.

- **Leadership transitions:** China will experience numerous leadership transitions in the near term including the Communist Party (2011), the National People's Congress at provincial and municipal levels (July 2011 to October 2012), and election of core political power (President, Prime Minister, etc) in early 2013. These changes may also spur personnel changes at SOEs. Uncertainties around leadership could prompt some SOEs to remain cautious, especially in the mega-deal sphere if unsuccessful overseas investment is perceived to lead to negative personal consequences for decision makers and, as such, we may see fewer executives willing to "go out on a limb."



2. “Take the Money & Run”

The US overtakes Canada and Australia to become the mining sector's most acquisitive nation (by deal value). Most developed world buyers are expected to remain conservative through to year end.

- Buy-side activity was decidedly different in 2011. Entities headquartered in the United States (US) overtook Canadian entities to become the mining sector's most acquisitive buyers (31% market share, by value). Buyers from the US announced over \$21 billion in acquisitions, 101% higher than dollar values announced during the entire 2010 calendar year. Four of the top ten deals of the half-year were led by US buyers, three of which were big bets on rising demand for the key steelmaking ingredients metallurgical coal and iron ore:

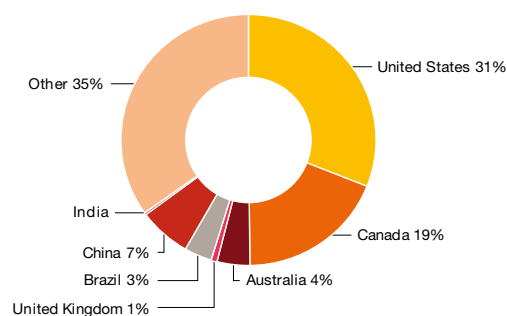
- Alpha Natural Resources acquired Massey Energy for \$8.5 billion (a 21% premium to the share price the day prior to the announcement). In a quest to build scale, Alpha reportedly beat out fellow American Arch Coal to secure the deal.

"We've always thought the combination between our two companies was strategic, transformational and compelling," Alpha Chief Executive Officer Kevin Crutchfield stated. "We went into the process with an eye toward winning, and, at the end of the day we did emerge victorious and we're absolutely delighted that we did."

- Cliffs Natural Resources acquired Consolidated Thompson Iron Mines for C\$4.9 billion (a 30% premium to the share price the day prior to the announcement, excluding currency impacts). The deal was motivated by a desire to further penetrate China (via Consolidated Thompson's existing China-bound business) and was arguably another sign of the turning tide in the North American iron ore industry. Consider that, until 2004, Cliffs generated all of its revenues in North America. Today, Cliffs generates about a quarter of sales in the Asia-Pacific region.

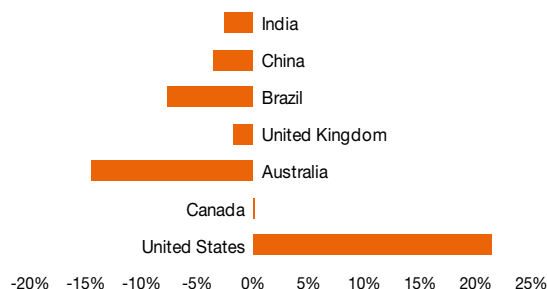
"The North American economies are very stagnant," CEO Joseph Carrabba said. "We felt we needed more exposure to growth markets..."

Figure 10: Global M&A Activity Market Share of Deal Values by Geography (1H 2011)



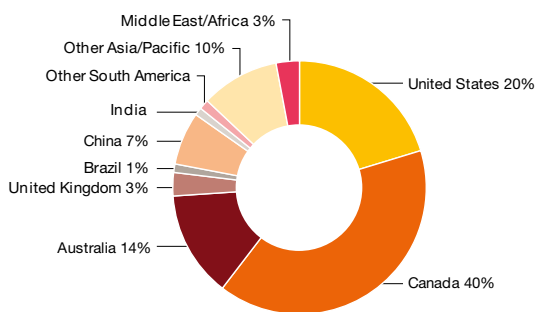
Source: Capital IQ, PwC Analysis

Figure 11: Change in Share of Global Mining M&A Market: 1H 2011 vs FY 2010 (measured by aggregate deal values)



Source: Capital IQ, PwC Analysis

Figure 12: Global M&A Activity Market Share of Deal Volumes by Geography (1H 2011)



Source: Capital IQ, PwC Analysis

- Arch Coal acquired International Coal Group Inc for \$3.4 billion (a 32% premium to the share price the day prior to the announcement). The deal was primarily motivated by a desire to secure scale. Steven F. Leer, Arch’s chairman and chief executive officer, stated:

“This acquisition extends Arch’s reach into every major US coal supply basin, enhances our low-cost and leadership position in core operating regions and creates a world-class global thermal and metallurgical coal franchise poised for growth.”

- With **19%** market share (by value), Canadian entities were bumped into second place, while the market share of typically acquisitive Australian entities was outpaced by Chinese entities and stood at only **4%**. Important to recognize is that Barrick Gold’s C\$7.3 billion acquisition of Equinox Minerals, the second largest transaction of the year, contributed a whopping 58% to Canadian buyside dollar values. The next largest Canadian-led transaction was the merger between White Tiger Gold and Century Mining Corporation, valued at only C\$770 million.

- Excluding the anomalous high dollar value of acquisitions led by US buyers, developed world seniors were relatively quiet in 2011. In fact, many of the “usual suspects” from Australia, the UK and Canada exhibited a high degree of conservatism during the half-year. Consider that each of Rio Tinto, Xstrata, Teck Resources, Freeport McMoRan, Anglo American, and BHP Billiton were quiet on the mining deal front. When acquisitive in traditional metals and mining, the majors focused on junior – intermediate properties in the sub-\$500 million valuation range in stable geographies (hence, Canada and Australia’s market share by volumes were 40% and 14% respectively).

As the global mining industry becomes increasingly more consolidated (and expensive), some miners are choosing to expand into complementary sectors.

- Relative caution in the traditional mining home bases of Australia, Canada and the UK was attributable to:
 - Shareholder and board pressure to deploy capital into organic growth or share repurchases/dividends. Notable examples included:
 - BHP Billiton's second quarter interim report confirmed its intention to spend \$80 billion on new resource developments over the next five years (mainly in iron ore and coal). Major capital investment projects include: a \$6.6 billion commitment to iron ore operations in Western Australia's Pilbara region and a \$2.5 billion commitment to build several coal mines in Queensland, Australia. BHP Billiton has also repurchased \$7.8 billion worth of its Australian-listed and UK-listed shares and plans to pursue up to \$2.2 billion in buybacks by the end of the year. BHP Billiton was by no means pursuing only organic growth exclusively. These announcements were made in conjunction with two notable shale deals worth over \$20 billion, discussed below.
 - In February 2011, Rio Tinto announced a doubling of its 2010 full-year dividend to 108 cents per share, and pledged to buy back \$5 billion worth of shares by the end of 2012. In August 2011, the mining giant announced that the buyback would be raised by a further \$2 billion to \$7 billion. Rio Tinto's CFO, Guy Elliott, stated
"Future investment should come ahead of capital management...But our consistent feedback from investors is that holding on to cash because you think something might come up, when it's not really likely, is not really the right thing to do."
- Uncertainty due to cost pressures:
 - Most miners, especially in the developed world's mining regions of Australia and Canada, faced severe input cost appreciation through 2011. These cost pressures introduced some level of uncertainty into operations and may have interfered with M&A. Cost pressures were best expressed by miners themselves during Q2 financial reviews. Xstrata, for example, noted that:
"Growing demand and tighter availability are leading to increasing electricity and fuel prices, higher costs for key consumables including raw materials, fuel and steel, and steep year-on-year increases in labour rates. To illustrate the scale of inflation, diesel prices have risen by around 70% over the past two years, energy prices in South Africa are appreciating by over 20% per annum and labour costs in Australia have risen by some 40% since early 2009. Compounding the challenge, the persistently weaker US dollar against the majority of producer currencies—in particular the Australian dollar—has exacerbated the impact on US dollar-denominated costs." Xstrata, Half-Yearly Report 2011, page 2
- M&A in complementary industries:
 - As the global mining industry becomes increasingly more consolidated (and expensive), some miners are choosing to expand into complementary sectors. A focus away from traditional metals and mining was perhaps best exemplified by two moves by BHP Billiton during 2011. The Australian giant announced a \$4.7 billion acquisition of US-based shale assets in March 2011 and, shortly after the half year mark, announced a \$15 billion acquisition of natural gas player Petrohawk Energy. Marius Kloppers, chief executive of Australia-based BHP Billiton stated:
"We are very comfortable with petroleum being a bigger weight of the company—more than a third."

“The financialization of commodity trading has made the functioning of commodity exchanges controversial... commodity price developments no longer merely reflect changes in fundamentals; they also become subject to influences from financial markets.”

The United Nations,

Price Formation in Financialized Commodity Markets, June 5, 2011

- Going forward, severe macro volatility (which poses challenges for deal valuation and temporarily impacts demand for commodities) will likely mean most miners will be cautious on the M&A front, especially in regard to “transformative” deal making. When acquisitive, we expect that western miners will focus on:
 - Targets that offer up extremely compelling value propositions. In some cases, we anticipate that buyers will go hostile to take advantage of temporary or irrational value erosion.
 - Targets in metallurgical coal and iron ore (due to strong long-term fundamentals and supply-side concerns) as well as targets in gold and silver (looked to as safe haven investments in times of turmoil).
 - Complementary sectors including extractive industries, like natural gas
- We also expect that many western buyers will continue to face deal hurdles stemming from stakeholder intervention:
 - As outlined in our annual outlook (www.pwc.com/ca/en/deals/m-a-industry-briefing.jhtml) stakeholders, including NGOs, shareholders and governments, are increasingly introducing complexity into deal negotiations and integration. This trend is only expected to intensify through 2011, especially as macro weakness may provoke governments to favour nationalist policies. A new deal hurdle we see emerging is increased resistance to takeover offers from minority shareholders, who may have a bias to retain shareholdings in order to ensure continuous resource supply. This is a natural by-product of a decade long trend of joint-venture/ minority position financing deals structured to ensure supply of key commodities for steelmakers and state owned entities. There have been two instances of such resistance this year. In December 2009, Rio Tinto announced a \$3.8 billion takeover of Riversdale Mining. The transaction was only recently closed because steelmaker shareholders Tata Steel and CSN (together 47% of the register) were keen to secure supply from Riversdale’s Zambeze coal project. Peabody Energy is also currently experiencing some pushback from shareholders Citic Resources of China and Posco of Korea (together 30% of the register) in their bid for Macarthur Coal (a negotiation that, as we went to print, was still underway).
- In light of the strong long-term fundamentals in the mining sector, we also expect that many non-miners will pursue “speculative” M&A, involving short term “buy and flip” strategies. This mirrors, in some ways, the trend towards a financialization of commodities, a phenomena, discussed in the accompanying call-out box, which many argue is responsible for price inaccuracy and volatility in commodity markets through 2011.

The Financialization of Commodities

Recognition of potential diversification benefits from investing in the segmented commodities markets has prompted the rapid growth of commodity index investments and precipitated the process of so-called “financialization” of commodities markets.

Over the years, market dynamics have changed and securitised commodity-linked instruments are now considered an investment or speculation rather than risk management tools. With excessive amount of “hot money” poured into

commodity futures, it adds to price volatility on top of the traditional forces of supply and demand. Increased correlations between the commodity prices and the following are observed:

- Other commodities;
- Stock markets; and
- Emerging market equity indices.

To the extent that financialization of commodities does exist, it can skew the long-term economics of mining deals, and, in some cases, make organic growth a more viable strategy.

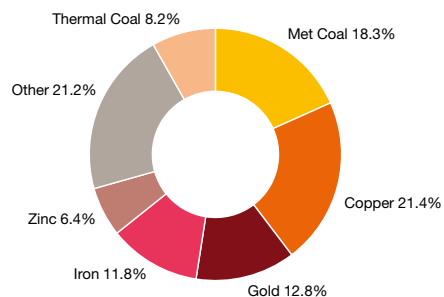


3. *“Back in Black”*

Key steelmaking ingredients dominate M&A during 2011. Despite macro weakness, strong long term fundamentals and supply constraints position the metallurgical coal and iron ore deal sectors to weather the 2011 macro storm relatively well.

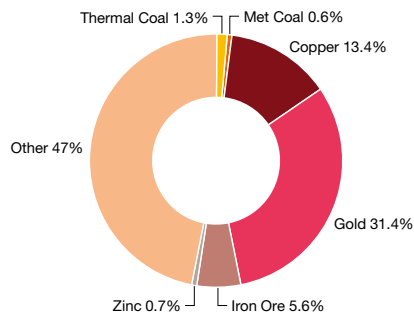
- Mining M&A in 2011 undoubtedly belongs to coal and other steelmaking ingredients. Measured by aggregate deal value, coal surpassed gold to become the most actively targeted resource during of 1H 2011. Together, metallurgical (“met”) coal and iron ore represented over 30% of all announced deals (by value). Exemplifying just how critical steelmaking inputs are, even Niobium, a rare metal that can be utilized in steelmaking, made it into the top ten deal list for the 1H 2011.

Figure 13: 2011 First half deals by resource (measured by value)



Source: Capital IQ, PwC Analysis

Figure 14: 2011 First half deals by resource (measured by volume)



Source: Capital IQ, PwC Analysis

*Appendix A outlines deal trends and drivers in the gold, zinc and copper sectors, which were also very busy through 2011.

“Looking further ahead, our view remains that our markets will continue to experience higher than average growth but they will be characterized by elevated volatility and scope for discontinuities.”

Rio Tinto,

First half earnings release, page 2.

A closer look at M&A for steelmaking ingredients:

Met Coal

- Measured by deal value, met coal targets accounted for 18.3% of the global mining M&A market. Four met coal deals made it to our top ten list. This included the largest transaction of 1H 2011. When measured in terms of transaction volume, however, coal deals ranked 10th, accounting for only **0.6%** of transaction volume. Overall, this is a continuation of a trend observed in 2010 where large deals involving coal represented 19% of aggregate value, but only 5% of transaction volume.
- US buyers led over **75%** of 1H 2011 coal transactions by aggregate dollar values, making them the most acquisitive geography on the coal front. Acquirers in Hong Kong and the UK were behind a further **23%** of the transactions by dollar values. Pure-play coal miners were motivated to transact in order to secure scale and access

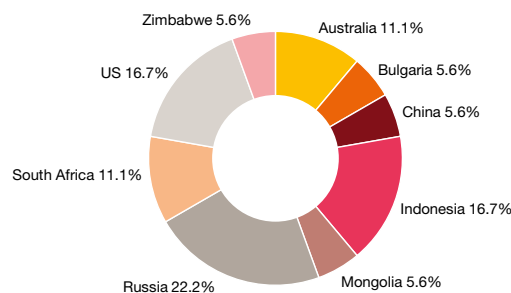
customer contracts in China, while steelmakers continued to seek out targets in order to vertically integrate operations.

- The busiest geographies targeted in terms of transaction volume were the traditional coal regions of Indonesia, Russia, and the US. Deal targets were also scouted out in Australia, Bulgaria, China, South Africa, Zimbabwe and **Mongolia**.

Iron Ore

- Iron ore deals represented **11.8%** of M&A, measured by value (up from 10% in 2010) and 5.6% of deal volumes (down from 9% in 2010). The third largest deal during 1H 2011, Cliffs Natural Resources \$4.9 billion takeover of Consolidated Thompson, was in the iron ore sector.
- Taking a closer look at who was behind the iron ore deals, buyers in Australia, Canada and China were most active by volume, each accounting for nearly 20% of the total iron ore acquisitions. The majority of these buys, however, were sub-\$100 million acquisitions of exploration stage assets. 16 countries spread across three continents were behind the remaining 42% of transactions. Diversified miners were motivated to transact in order to secure scale, while steelmakers continued to seek out targets in order to vertically integrate operations.
- Iron ore targets were spread across the globe with Canada being the most targeted nation—**28%** of the targets by volume were domiciled there. Australia (12%), China (10%) and Brazil (8%) were the other nations with notable takeover volumes. New frontier

Figure 15: Target country of coal takeovers 1H 2011 (by transaction volume)



Source: Capital IQ, PwC Analysis

geographies were also targeted due to their proximity to emerging market nations that demand iron ore but also because of escalating production costs in developed regions. One of the more notable acquisitions in the frontier regions was Xstrata's decision to exercise a call option to acquire management control of the Zanaga Project, an iron ore mine in the Democratic Republic of Congo. Subsequent to the half year mark Hanlong Mining, the global mining arm of Sichuan Hanlong Group, launched a bid to acquire Sundance Resources of Australia for A\$1.44 billion. Sundance is an international iron ore exploration and development company focused on developing its flagship Mbalam Iron Ore Project, which spans the Republics of Cameroon and Congo. While frontier regions are attractive from a reserve perspective, they bring significant complexity to M&A transactions. Namely, in order to make targets economically viable, significant infrastructure investment is required.

Niobium

- Niobium, a rare metal used as an additive to provide durability and strength in the production of steel, made it to the "top ten" list during 1H 2011. A consortium of Korean and Japanese buyers led by the Pohang Iron and Steel Company (POSCO) acquired

a 15% stake in Companhia Brasileira de Metalurgia e Mineração (CBMM), the world's largest niobium producer for approximately \$1.8 billion. Interestingly, the deal was rumoured to be motivated by a Japanese and Korean desire to secure a stable supply of niobium against a backdrop of high demand from Chinese competitors.

"Behind the move is the growing demand for niobium in China, and its aggressive move to secure supplies from abroad because its domestic output is very limited. Japanese steelmakers, worried of China's aggressive moves, moved quickly in a tie-up with Korean firms,"

stated Kaz Machida, president of KAY International, a rare metal consultant.

"But let us be clear. Without the strength of China's growth, we would all be in a lot of trouble..."

Tom Albanese,
Chief Executive, Rio Tinto, April 2011

"Because of growth, mainly in China, we have the wind in our sails and can expand at an unprecedented rate."

Andrew Forest
Chairman, Fortescue, June 2011



“Coal has underpinned China’s massive and unprecedented growth in output, fuelling an economic miracle that has helped to improve the standard of living.”

IEA, 2009

“China drives the entire steel and raw material industry, due to the country’s major focus on rising steel production..,”

R K Sharma

Secretary General, the Federation of Indian Mineral Industries,
August 2011

“Steel Wheels”

Key steelmaking ingredients drive M&A

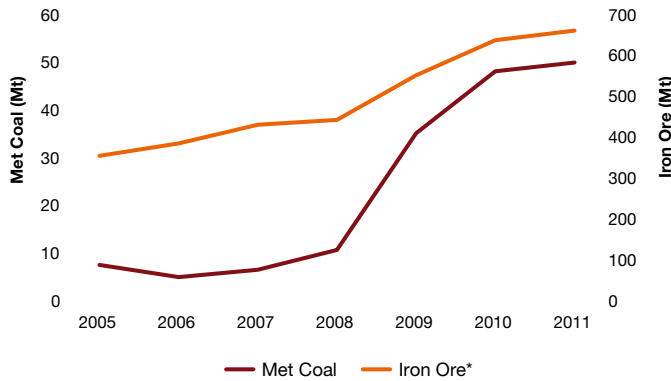
- Metallurgical (“met”) coal, iron ore and niobium are all steelmaking ingredients. Steel, in turn, is critical material input for the industrialization and urbanization processes currently underway in various emerging markets, particularly China.

- Chinese demand for met coal has increased over 680% since 2005 (a compound annual growth rate of 37.7%). In fact, China is now responsible for 17.6% of global met coal demand, up from only 3.4% in 2005. Similarly, Chinese demand for iron ore has increased by over 187% since 2005, an average annual increase of 11%. China is now responsible for almost 49% of global demand of iron ore!

- Strong demand for steelmaking ingredients was accompanied by major issues on the supply front during 2011. In developed regions, most surface deposits of coal, iron ore and other steelmaking ingredients have already been discovered. New discoveries are

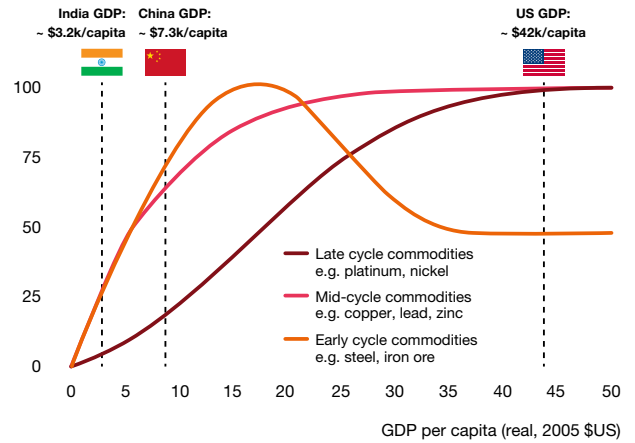
few, especially in the met coal segment. The supply challenge is not one that will be easily overcome. While frontier markets may offer the promise of rich resources, accessing and transporting resources is extremely challenging. In Africa, home to many new iron ore discoveries, a lack of infrastructure will make delivery to end users difficult. In numerous cases, massive infrastructure investments are required to set up supply lines (a dynamic that challenges the economic viability of deal making in these regions). These natural supply challenges have been compounded by weather disruptions in Australia and other regions. Scarcity of new supply was a key deal driver for coal miners and steel companies eager to secure new sources of coal during 2011. Going forward, there are some near term concerns of slowing emerging market demand for steel, a trend that would inevitably negatively impact the price of raw material inputs (and, by association, M&A in each of these subsectors). In early August, Zhang Changfu, vice chairman of the China Iron and Steel Association, commented on state-owned China Central

Figure 16: Estimates of Chinese demand



*Iron Ore is on a 62% Fe grade Equivalent basis
Source: The AME Group

Figure 17: Commodity Intensity



Source: Xstrata, reproduced with permission

Television that “...the growth of the auto, shipbuilding and engineering machinery sectors is declining...steel production growth will slow down further in the second half of this year.” Both of those comments initially seem to give a pessimistic tone for second half demand for met coal and iron ore. Mr. Zhang also noted, however, that Beijing’s social housing projects and large-scale irrigation projects would likely continue to be a strong source of demand for steel.

these future sources of demand are taken into account, it becomes quite clear that the long term fundamentals for steelmaking ingredients are incredibly strong. The quantum of expected demand is best illustrated, perhaps, in the accompanying figure which highlights that, overall, emerging markets are just beginning to climb commodity intensity curves.



- Even in light of decelerating demand from main centres in China, it is important to recognize that outside of the main cities like Shanghai and Beijing, numerous cities are in various stages of urbanization. In addition, the economies of India, Brazil and other emerging nations are further behind on the steel intensity curve. When

There are 448 cities under various administrative levels in China:

- 14 Sub-provincial cities have a population of over 6 million – Chengdu has a population of 14 million, Guangzhou has a population of 12.7 million, Shenzhen has a population of 10.3 million.
- Of the 268 Prefectural-level cities:
 - 107 cities have a population exceeding 4 million.
 - 108 cities have populations between 2 million – 4 million.

“China’s 12th five-year plan for 2011-2015 continues to support the drivers of commodity demand, including iron ore, coal and copper. The social housing program, involving the construction of 36 million units, out of which 10 million are scheduled to take place in 2011 and another 10 million in 2012 will add strength to the property market and iron ore demand from 2H11 onwards.”

Vale, 2Q11 Report, page 7

There is only one city in Europe with a population over 6 million – London.

There is only one city in the United States with a population over 6 million – New York.

In closing, from here on in, 2011 will undoubtedly be challenging. We don't expect global mining M&A in the second half of 2011 to mirror the first, at all. For the time being, commodity markets are hostage to politics, a cause for market volatility that, in turn, may lead to withering confidence in M&A markets.

Do we think it is the end of an era of unprecedented global mining M&A? No. It is important to recognize that the industrial revolutions underpinning record commodity demand (and record M&A) are not Western-led. Chinese demand is, by and large, the most critical factor in formulating commodity market (and therefore mining M&A market) expectations. While Western worlds operate on three month forecasts, the Chinese are operating on much longer term horizons, making 2H 2011 largely irrelevant in the grand scheme of things. Miners know this. Emerging world politicians know this. Western investors, however, are sceptical. To them, we suggest revisiting the history books to reinforce the fact that China is not a "new player" on the global scene. As aptly stated by Niall Ferguson of Harvard University:

"I believe the 21st century will belong to China because most centuries have belonged to China. The 19th and 20th centuries were the exceptions. Eighteen of the last 20 centuries saw China as, by some margin, the largest economy in the world."

“I can smell QE3, QE4 and many more...”

*Marc Faber,
August 8, 2011*

Commodities are temporarily a hostage to politics!

What to watch for in the coming months:

Event	Impact on Commodity Markets (ex gold)	Impact on Gold Market	Impact on Global Mining M&A
QE3	↑	↑	↑
Breakdown of US debt reduction negotiations	↓	↑	↓
Political instability in Europe	↓	↑	↓
Intervention to curb overheating in China	↓	↓	↓
Additional resource nationalisation	↓	↓	↓



“We have lowered our long-term sovereign credit rating on the United States of America.... The downgrade reflects our opinion that the fiscal consolidation plan that Congress and the Administration recently agreed to falls short of what, in our view, would be necessary to stabilize the government’s medium-term debt dynamics.”

*Standard & Poors,
August 5, 2011*

2011 Top 10 Global Mining Deals

Announced Date	Target	Target Description	Target Headquarters	Transaction Value (millions)	Target Resource Type
01/28/2011	Massey Energy Corporation	Massey Energy Company, through its wholly owned subsidiary, A.T. Massey Coal Company, Inc., produces, processes, and sells bituminous coal primarily in the United States.	United States	US\$8,500	Coal
04/24/2011	Equinox Minerals Limited	Equinox Minerals Limited engages in the mining and exploration of mineral properties.	Australia	C\$7,300	Copper
01/11/2011	Consolidated Thompson Iron Mines Limited	Consolidated Thompson Iron Mines Limited, a mining company, engages in the exploration and development of mineral properties in Canada.	Canada	C\$4,900	Steel
05/02/2011	International Coal Group, Incorporated	International Coal Group, Inc. produces coal in northern and central Appalachian regions of the United States.	United States	US\$3,400	Coal
04/14/2011	KazzInc	Kazzinc JSC primarily produces zinc with copper, precious metals, and lead credits in Kazakhstan.	Kazakhstan	US\$3,200	Zinc
06/10/2011	PT Bumi Resources Minerals Tbk	PT Bumi Resources Minerals Tbk, through its subsidiaries, engages in the exploration and development of mineral properties in Indonesia and in west Africa.	Indonesia	US\$2,100	Gold
02/03/2011	Fronteer Gold Incorporated	Fronteer Gold Inc. engages in the acquisition, exploration, and development of mineral resource properties in Canada, the United States, and Turkey.	Canada	C\$2,300	Gold
03/02/2011	Companhia Brasileira de Metalurgia e Mineracao	Companhia Brasileira de Metalurgia e Mineração engages in the extraction, processing, manufacture, and marketing of niobium-based products.	Brazil	US\$1,950	Diversified Metals and Mining
06/22/2011	Vale Fertilizantes SA	Vale Fertilizantes S.A. produces and supplies phosphate- and nitrogen- based inputs for the production of fertilizers and inputs for chemical companies in Brazil.	Brazil	US\$1,390	Fertilizers and Agricultural Chemicals
06/15/2011	Drummond Company, Inc., Colombian Mining Operations and Related Infrastructure	Drummond Company's Colombian Mining Operations and Related Infrastructure comprises coal exploration properties with probable reserves of about 2 billion net tons.	Colombia	US\$1,524	Coal

Acquirer	Acquirer Description	Acquirer Headquarters	Transaction Status (as at August 8, 2011)
Alpha Natural Resources, Incorporated	Alpha Natural Resources, together with its subsidiaries, engages in the production, processing, and sale of coal in the United States.	United States	Closed
Barrick Gold Corporation	Barrick Gold Corporation engages in the production and sale of gold, as well as related activities, such as exploration and mine development.	Canada	Closed
Cliffs Natural Resources Incorporated	Cliffs Natural Resources, a mining and natural resources company, produces iron ore pellets, lump and fines iron ore, and metallurgical coal products.	United States	Closed
Arch Coal Incorporated	Arch Coal engages in the production and sale of steam and metallurgical coal from surface and underground mines located throughout the United States.	United States	Closed
Glencore International plc	Glencore International plc, together with its subsidiaries, engages in producing, sourcing, processing, refining, transporting, storing, financing, and supplying commodities to industries worldwide.	Switzerland	Announced
Bumi plc	Vallar PLC, through its subsidiaries, engages in the exploration, mining, and processing of coal and other minerals in Indonesia.	Channel Islands	Announced
Newmont Mining Corporation	Newmont Mining, together with its subsidiaries, engages in the acquisition, exploration, and production of gold and copper properties.	United States	Closed
POSCO, Sojitz Corporation, Nippon Steel Corporation, JFE Holdings Incorporated, The Japan Oil, Gas and Metals National Corporation & National Pension Service	<p>JFE Holdings, Inc., through its subsidiaries, engages in steel and engineering operations in Japan.</p> <p>National Pension Service is a pension fund manager.</p> <p>Nippon Steel Corporation, through its subsidiaries, engages in the manufacture and sale of steel and related products in Japan and internationally.</p> <p>POSCO engages in the manufacture and sale of steel products in South Korea and internationally.</p> <p>Sojitz Corporation operates as a general trading company worldwide.</p> <p>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.</p>	<p>JFE Holdings Inc.: Japan</p> <p>National Pension Service: South Korea</p> <p>Nippon Steel Corp.: Japan</p> <p>POSCO: South Korea</p> <p>Sojitz Corporation: Japan</p> <p>The Japan Oil, Gas and Metals National Corporation: Japan</p>	Announced
Vale S.A.	Vale S.A. engages in the exploration, production, and sale of basic metals in Brazil.	Brazil	Announced
Itochu Corporation	ITOCHU Corporation operates as a general trading company primarily in Japan and internationally.	Japan	Announced

Resources Summaries

Gold, copper and zinc rounded out the top five resource list this year (in addition to coal and iron ore).

Gold

- Entities with a primary interest in gold were still the most sought after targets by volume in 2011 representing 31.4% of deal volume, though the value of gold transactions dropped to 12.8% in 2011 from 31% in 2010. In comparison to 2010 where three of the top ten deals were in the gold sector, the first half of 2011 has seen only one of the top ten deals in the gold sector. (Newmont Mining Corp.'s \$2.21 billion acquisition of Fronteer Gold Inc.)
- Consistent with historic precedent, the majority of gold targets were junior mining projects, valued at less than \$100 million, resulting in an average deal value of \$54 million, nearly half of the average value observed in the broader mining sector (\$104 million).
- Buyers from Canada, the US and Australia were the most acquisitive in the first half of 2011, representing 51%, 15% and 13% respectively of total transaction volumes in the gold sector. 25 countries were behind the remaining 21% of transactions by

volume. Companies headquartered in the traditional geographies of Canada, the US and Australia were also the most highly targeted as they represented 36%, 15% and 11% respectively of target transaction volume, although appreciating currencies in each of these jurisdictions made gold acquisitions extremely expensive.

- Gold remains a sought after commodity amidst the global sovereign “balance sheet” crisis in the west and inflation pressures in emerging markets. Demand in the gold market this year continued both from gold-backed ETFs and Central Banks.
 - The World Gold Council reported that gold-backed ETFs added 45.6 tonnes (2.2%), the largest gain since Q2 2010. This brought the collective holdings worth \$104.3 billion to 2,155.3 tonnes of gold.
 - Central banks continued to be net buyers of gold through 2011. The most notable new sovereign buyer was South Korea, which purchased gold for the first time since the Asian financial crisis of 1997-1998. The Bank of Korea stated that it acquired \$1.24 billion of gold in order to diversify reserves away from the dollar.
- The potential for QE3 and the recent downgrade of the credit rating of the United States of America bode well for the price of gold, which, in turn, bodes well for M&A in the gold sector. As a sign of the times, as we neared print, the World Gold Council announced that gold would be accepted as collateral in Europe. Gold M&A may also be on the horizon in light of the fact that gold equities have been lagging the price of gold itself. A trend that many expect will not last.

Gold as collateral

In recognition of gold's growing relevance as a high quality liquid asset, the World Gold Council announced the European Parliament's Economic and Monetary Affairs Committee has allowed gold to be accepted as collateral. Natalie Dempster at the World Gold Council said “With the ongoing world economic difficulties further eroding the credit worthiness of other forms of collateral, we expect to see increasing demand by clearing houses, exchanges and investment banks to use gold as collateral.”

Copper

- Copper has perennially been one of the more coveted base metals for its broad range of uses and continued shortage of supply. 1H 2011 points to a continuation of this trend. M&A deals involving copper as a primary resource accounted for 13% of transaction volumes (down from 19% in 2010) and 21% of aggregate dollar values (up from 13% in 2010). The disconnect between volume and value during 2010 is attributable to the acquisition of Australia's Equinox Minerals by Canada's Barrick Gold for C\$7.3 billion. The offer trumped Minmetals Resources C\$6.3 billion offer for Equinox and was the second largest mining transaction in the first 6 months of the year.
- Overall, copper assets were targeted in 29 countries on six continents with more than 67% of transactions in the traditional copper belts of Australia, Canada, Chile and the US. Of those, copper entities headquartered in Canada were the most sought after targets, accounting for more than 39% of all targets. Suitors were, however, expanding acquisition horizons as Botswana, Finland, Guinea, Kazakhstan, Malaysia, Namibia, Nicaragua, Romania, Serbia and Slovakia registered at least one transaction during the first half of 2011.

Zinc

- Zinc is a newcomer to our list of top five targeted resources. Seven M&A deals in 2011 involving zinc as the primary resource represented 6.5% of the aggregate dollar values but only 0.7% of the transactions by volume.
- As was the case with copper, Canadian and Australian buyers were most acquisitive in the first half of the year by volume, accounting for almost 59% of

all buys by volume. Of note is that both Canadian and Australian acquirers stayed close to home in their search for targets. Canadian entities were the targets in 76% of transactions involving a Canadian buyer and Australian miners were targets in 83% of the transactions involving an Australian buyer. Outside of Australia and Canada, the majority of the remaining targets were based in Europe (Finland, Ireland, Macedonia, Russia and Serbia), Asia (China and Kazakhstan) or Latin America (Mexico and Peru).

- The biggest deal driver in the zinc sector, like most resources, is resource demand from Asia. Going forward, more than 50% of zinc demand is expected to come from China and South East Asia (for use in the construction and automotive sectors). Expansion in demand is likely to be accompanied by supply shortages through to 2015/2016, which will serve to further exacerbate the race to secure zinc resources.

Notable activity in other commodities:

Uranium

- 2011 has seen only 33 transactions worth a combined \$284 million in the uranium sector, a notable decline over the same period in the prior year, which saw 45 transactions valued at \$754 million. The key driver of this decline was the nuclear tragedy that unfolded in Japan, a catastrophe that prompted many nations to question the future of nuclear power. Germany, for example, has already committed to a nuclear-free future by 2022 and other countries are expected to follow suit.

- While this trend does not bode well for uranium miners and producers in the short term, a sustained drop in prices could be a catalyst for continued consolidation among uranium producers. Further, some argue that long term fundamentals for uranium are strong (against a backdrop of an inevitable return to nuclear power). Should these analysts be correct, uranium miners represent one of few "value" buys in today's market.

Fertilizers

- The value of all transactions in the fertilizer mineral segment during 1H 2011 dropped to \$389 million from \$5.4 billion during the comparable period in 2010. Volumes, however, have nearly doubled.
- The data certainly suggests that mining majors favour acquiring small targets or simply pursuing organic growth. In June 2011, for example, BHP Billiton announced an investment of \$488 million in the Jansen Potash Project in Saskatchewan, Canada, bringing its total investment to \$1.2 billion. The project is expected to start production in calendar 2015. K+S, which completed its acquisition of Potash One in March 2011 is also working to on a new potash solution mine in Saskatchewan, which is expected to commence operations in 2015. A climate of political uncertainty, prompted by Canada's rejection of BHP Billiton's proposed takeover of Potash, is likely behind the absence of large transactions.

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A note on methodology

Our methodology for M&A analysis is set out below:

- M&A data includes announced mergers or acquisitions (including less than 100% acquisitions / divestitures). Cancelled, dismissed, expired or withdrawn deals are excluded from data (Often, however, deals can be cancelled post publication).
- The acquisition of rights, special warrants and convertible debt are not included in M&A statistics (unless utilized as equity sweeteners). Strategic partnerships which do not involve the acquisition/divestiture of an equity stake are also excluded from our analysis.
- The geography of a buyer is determined by its headquarters. The geography of a target is determined by the location of its major projects (when such information was available).
- Certain transactions involved buyers from more than one geography. As a result, for buyer by region analysis, we utilized appropriate weighting to arrive at aggregate figures.
- For M&A by resource, we classified targets by their primary disclosed resource where possible. In certain cases, a primary resource was not identified. These deals were excluded from our analysis.
- The main source of our data is Capital IQ. Capital IQ includes real estate and property deals in its data.
- Deal currency is US\$, historical rate, unless otherwise noted.
- Transaction value refers to total consideration to shareholders, calculated as:
 - Total Consideration to Shareholders
 - + plus Total Other Consideration
 - + Total Earn-outs
 - + Total Rights/Warrants/Options
 - + Net Assumed Liabilities
 - + Adjustment Size
 - + Total Cash
 - + Short-term Investments
- Mega deals are defined as transactions valued at > \$10 billion.
- Mining includes Anthracite Coal Mining, Bituminous Coal and Lignite Mining, Chemical and Fertilizer Mineral Mining, Diversified Metal Ores (Copper, Lead, Nickel, Radium, Tin, Titanium, Uranium, Vanadium and Zinc Ores), Gold, Precious Metals and Minerals, and Iron Ores

Sources

Sources include: The Associated Press, The AME Group, Bloomberg, Capital IQ, CIBC World Markets, China National Bureau of Statistics, The Economist, Eurasia Group, FAO, The Financial Times, The Globe and Mail, International Energy Agency, International Monetary Fund, National Post, New York Times, RBC Capital Markets, Scotia Capital, TD Securities, US Energy Information Administration, The Wall Street Journal, The Washington Post, World Gold Council, United Nations, The World Bank, Xstrata.

PwC also utilized various company press releases and public filings in regard to deal descriptions. Quotes were obtained from both company filings, as well as other matters of public record (newspapers, television interviews, etc.)

