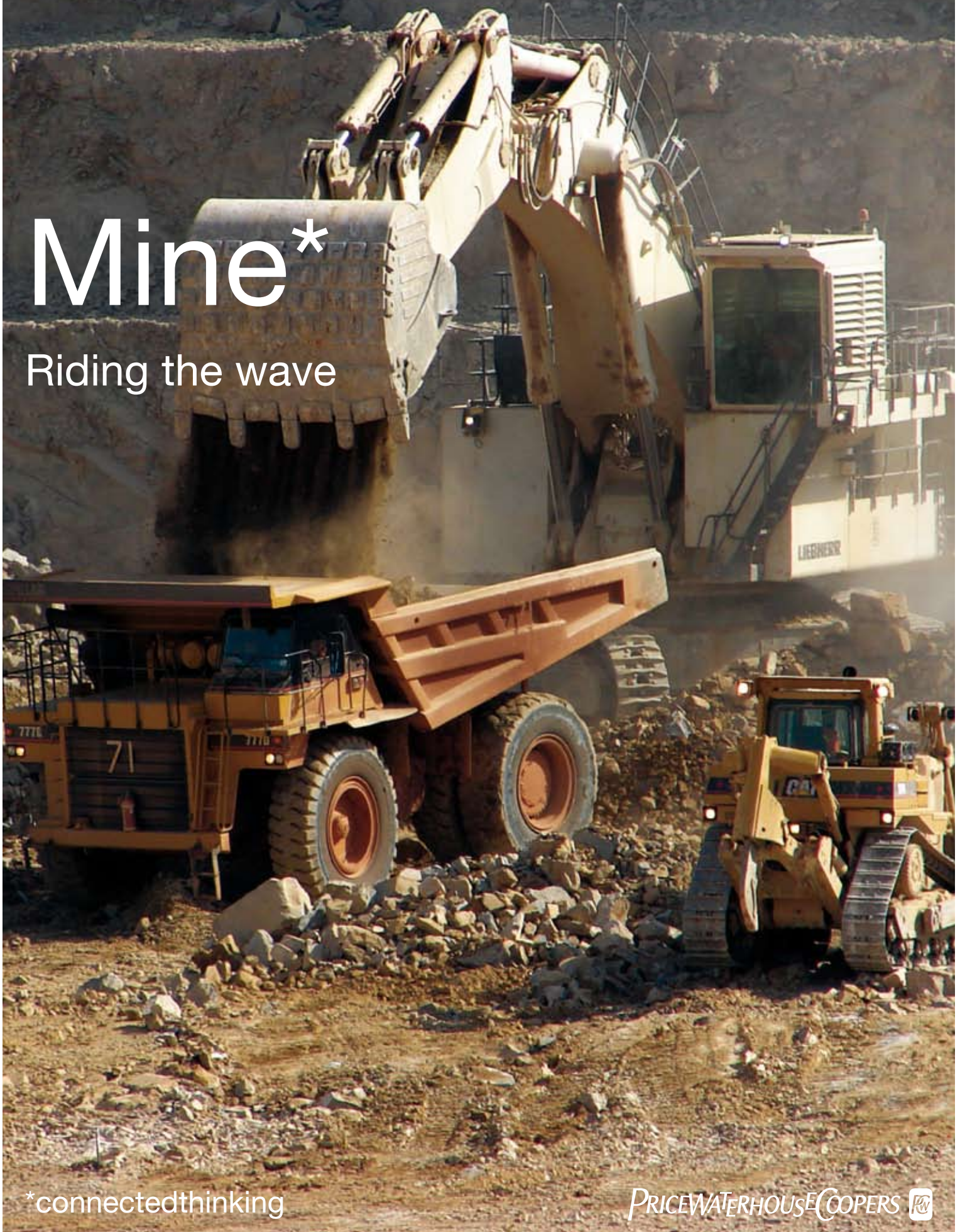


Metals and Mining

Review of global trends in the mining industry – 2007

Mine*

Riding the wave



*connectedthinking

PRICEWATERHOUSECOOPERS 

Foreword

Welcome to PricewaterhouseCoopers' annual review of global trends in the mining industry – *Mine*. These reviews provide a comprehensive analysis of the financial performance and position of the global mining industry.

2006 was another spectacular year for the global mining industry, as forecast in last year's edition *Mine – Let the good times roll*. Once again, we predict that 2007 should bring with it both record financial results and further consolidation within the industry. The industry leaders continue to spread out from their geographical homes to operate assets globally.


Building on our knowledge and experience from previous publications, this year's report, *Mine – Riding the wave*, provides an aggregated view of the global mining industry in 2006, represented by 40 of the world's largest mining companies. As faithful readers of *Mine* will note, the companies in our Top 40 list have changed significantly since the first publication, and in this edition we look back and see what happened to the companies we analysed as part of the inaugural publication.

The 40 mining companies included in *Mine – Riding the wave* represent over 80% of the global industry by market capitalisation. The results aggregated in this report have been sourced from publicly available information, primarily annual reports. Our analysis covers major mining companies from across the globe based in 14 countries.

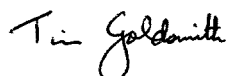
We have expanded our series of discussions with industry CEOs, which are compiled in our "View from the Top" article, but have complemented this with "View from Around", a snapshot of other stakeholder opinions on the industry as a whole, with particular emphasis on high commodity prices and the social responsibilities of the industry.

For the first time we have included a section by an external party, the International Council on Mining and Metals ("ICMM"). ICMM Chairman Leigh Clifford has authored an article discussing the Council's new reporting and assurance framework as a tool for increasing the accountability of the industry through more transparent reporting on a wider range of non-financial information.

We trust you will find this year's publication informative, and encourage you to send us your feedback.



Hugh Cameron
Global Mining Leader
PricewaterhouseCoopers



Tim Goldsmith
Mining Leader – Asia Pacific
Mine Project Leader
PricewaterhouseCoopers

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There are many reasons for this. One is that the population of the world is growing so fast that the number of people who are illiterate is increasing. Another reason is that the quality of education is so poor that many people who are literate are unable to read and write.

There are many ways to improve literacy. One way is to provide more schools and teachers. Another way is to provide more books and reading materials. A third way is to provide more training for teachers and students.

It is important to improve literacy because it is the key to economic development and social progress. People who are literate can read and write, and they can learn new skills and knowledge. They can also participate in the political process and make their voices heard.

There are many organizations that are working to improve literacy around the world. One of the most famous is the United Nations Educational, Scientific and Cultural Organization (UNESCO). There are also many private organizations that are working to improve literacy.

It is important to continue to work to improve literacy. There are still many people in the world who are illiterate, and we need to find ways to help them. Literacy is the key to a better future for all of us.

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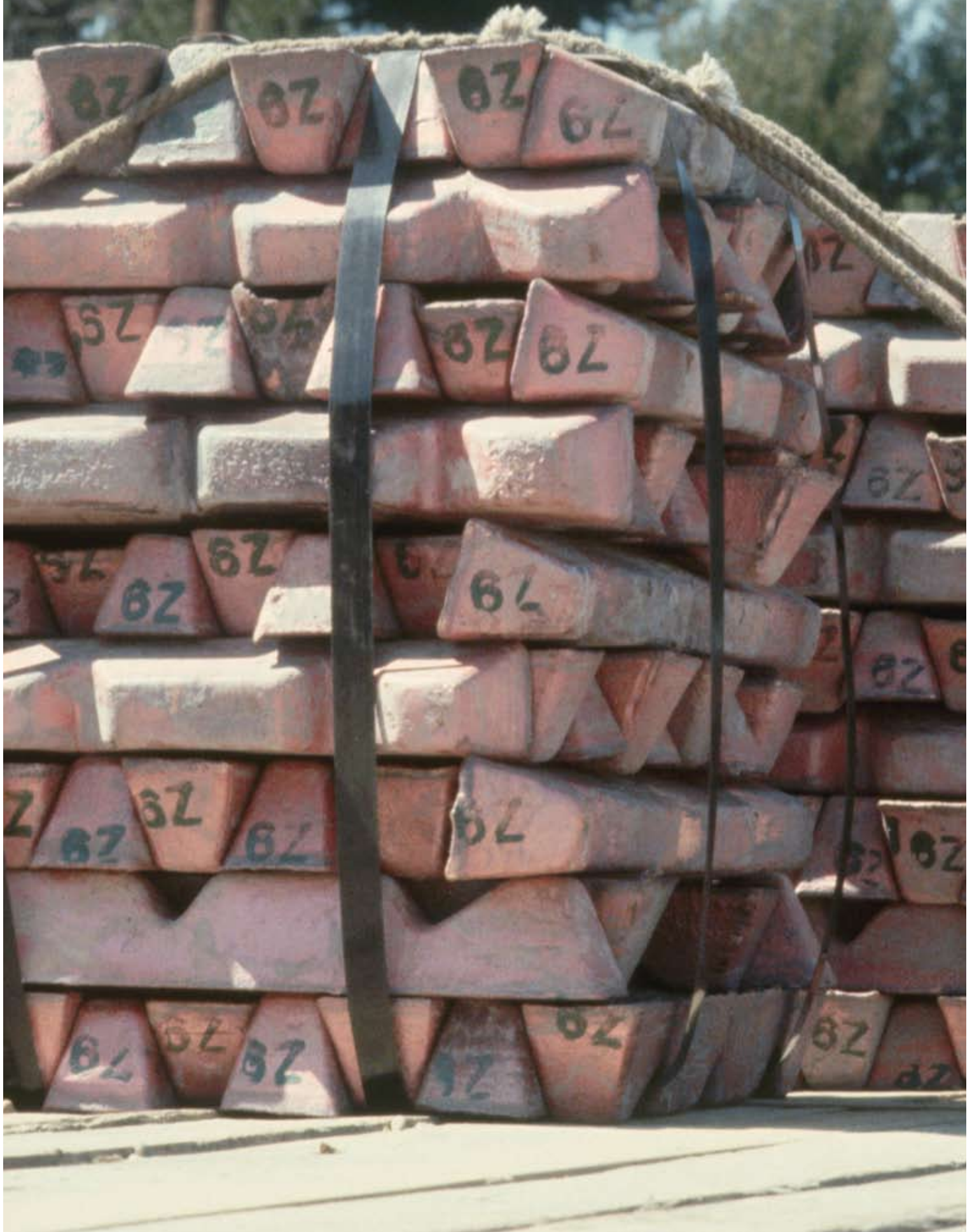
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01 Financial highlights



Financial highlights

Key financials	2006 \$ billion	2005 \$ billion	% Change
Revenue	249.0	181.5	37%
EBITDA	108.4	66.8	62%
Net profit	67.0	40.8	64%
Net operating cash inflows	76.7	54.7	40%
Capital expenditure	37.2	28.2	32%
Net debt	42.5	24.5	73%
Distributions to shareholders	26.1	15.7	66%

Key ratios	2006	2005
EBITDA margin	44%	37%
Net profit margin	27%	23%
Effective tax rate	28%	26%
Return on capital employed	23%	13%
Return on equity	33%	26%
Gearing ratio	15.2%	12.5%

02 Executive summary



During 2006, the global mining industry witnessed some dramatic events. Takeover activity picked up from its rapid pace in 2005. Consolidation and expansion through acquisition of new assets remains a cornerstone of these cash-rich companies. A number of “mega-deals” were sealed in 2006, with CVRD leading the way, moving abroad to purchase Inco and becoming one of the world’s leading nickel producers.

For the companies analysed:

- net profits increased by 64% compared to 2005 and are now 1,423% higher than their 2002 level;
- return on equity reached 33% compared to 26% in 2005; and
- net cash inflow from operating activities was US \$76.7 billion, an increase of 40% compared to 2005.

High commodity prices continue to drive improved results across a range of key performance indicators for the industry.

Improvements in profitability mask substantial increases in operating costs, which have occurred due to supply side constraints. Operating expenses have continued their increase, rising by 23% over 2005, as has exploration expenditure, up 30% over last year’s figure. However, profit margins are expected to remain high for the near future, driven by exceptional demand sustaining the current commodity price levels.

Indeed, we live in interesting times. Unprecedented demand, primarily driven by Asia, continues. New supply is coming on stream for many commodities,

but is struggling to catch demand, partially as a result of under investment in the 1990s.

There remains confidence that demand will exceed supply, leading to the continuation of high commodity prices for the time being.

Industry CEOs believe that current results are extremely positive and should be repeated, at least in the short term. The prospect of takeovers of companies of all sizes means that CEOs must remain focused, both on moving their companies forward and managing their position, in the current environment of mega-mergers: hunt or be hunted.

Complementing our *View from the Top*, *Mine* also spoke to a broader range of stakeholders that were not as positive on the performance of the industry, and questioned its commitment to applying the record profits to the benefit of the communities where the industry operates, including its employees.

Although only in its fourth year, the companies listed in the *Mine* Top 40 have changed dramatically:

- one third (13 companies) are no longer featured on the list; and
- of these 13, nine have been acquired by one of the remaining 27.

Not only have company names changed, but the sheer value of industry participants has also grown enormously. The market capitalization of the lowest ranked company on our Top 40 list has increased by a remarkable 2.9 times since the first list was published in 2003.

Hedge funds continue to be active in the industry and have impacted transactions and commodity prices due to the positions they take. This transaction activity is often hostile and no one is immune to their attentions. High cash flows and easily accessible funds mean that this trend will continue. There are growing indications of potential for private equity funds to share in the returns from the industry.

With rising commodity prices, acquisitions that are cash funded lead to a rapid payback and 69% of major acquisitions in 2006 were funded this way. Apart from using their surplus cash to fund acquisitions, mining companies are examining other ways to leverage positive cashflow to benefit shareholders.

Cash is also being used to fund organic growth. The Top 40 increased their spending on investment activities by 83% in 2006. This growth is not as fast as that experienced by smaller companies due to input problems such as a shortage in skilled labour and materials.

The lack of good quality projects in “safe” areas is leading to exploration and development efforts in jurisdictions that have until recently been considered marginal. The possibility of significant changes to the legislative regimes that companies operate under, after agreements have been signed, is real, and the political risk exposure has increased accordingly.

Governments require taxes to be paid to compensate for the removal of resource bases and tax regimes may also be changed on a whim. But pure “taxes” are only part of the story, and a more accurate picture of the total contribution to government and the community

by industry participants needs to emerge for the real position to be understood. Companies pay a myriad of fees, duties, royalties and other payments, and also contribute sizeable amounts of infrastructure in establishing or expanding projects. Companies must fully understand these payments before they can begin to optimise their overall tax position, while remaining compliant in the various countries where they operate. Responsibility for ensuring amounts collected are used equitably for the benefit of the country rests with various levels of government.

The spectacular numbers reported in this year’s *Mine* tell only part of the story. Traditional financial indicators remain a key measure of the performance of a company, but in an industry such as mining, they cannot be the only measure. The mining industry is amongst the global leaders in terms of increased reporting on a whole range of equally important non financial indicators, which can often directly impact the company’s bottom line and market value. Despite the understanding of their importance, there is still a great deal of inconsistency as to how these indicators are measured, reported and assured. New standards and guidelines have been developed and introduced recently, and the mining industry continues to be at the vanguard in this area with a series of new initiatives.

Although challenges remain with cost control and supply shortages, the industry has entered 2007 on a very high note and companies’ fortunes will depend on how they ride the wave.

the 1990s, the number of people with a mental health problem has increased in the UK (Mental Health Act 1983, 1990).

There is a growing awareness of the need to improve the lives of people with mental health problems. The Department of Health (1999) has set out a vision of a new mental health system, which will be based on the following principles:

- (i) People with mental health problems should be treated as individuals, with their own needs and wishes.
- (ii) People with mental health problems should be given the opportunity to participate in decisions about their care.
- (iii) People with mental health problems should be given the opportunity to live in their own homes and communities.

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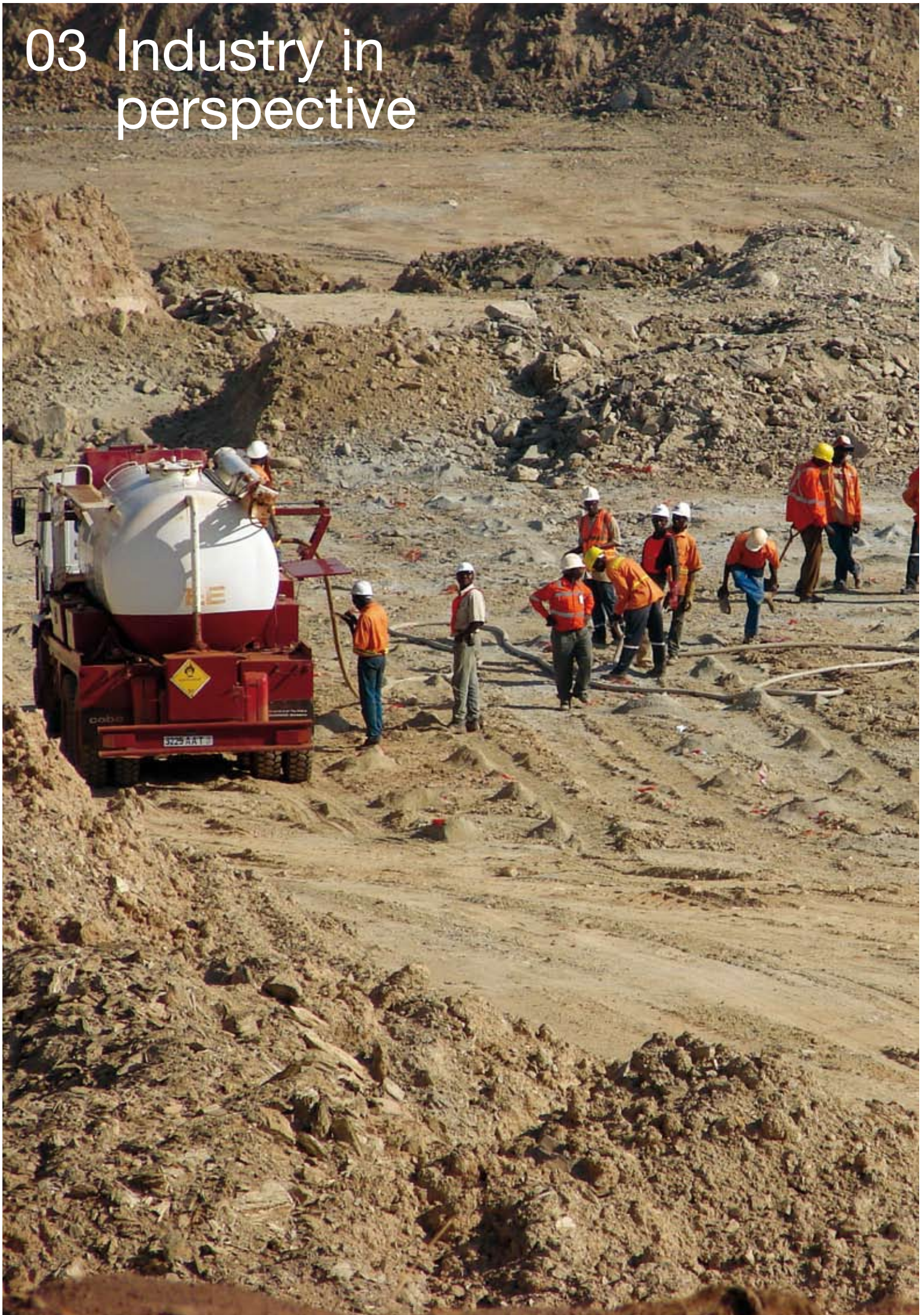
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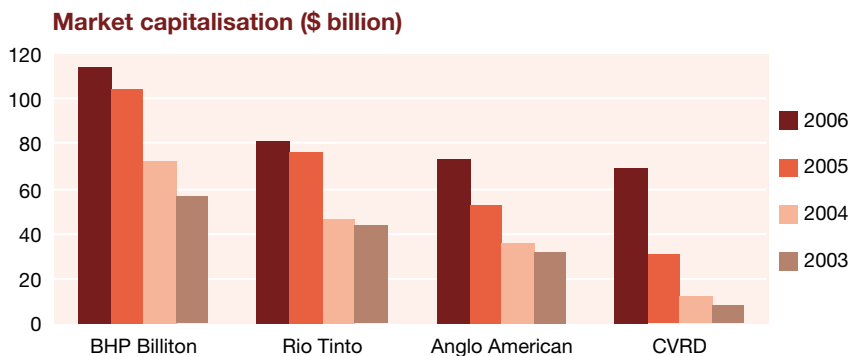
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03 Industry in perspective





Source: Datastream

Market capitalisation

The total market capitalisation of the global mining industry grew strongly in the year ended December 2006, rising by 22% to \$962 billion. This is an outstanding result in light of the stellar growth rate of 72% recorded in the prior year.

The top four by market capitalisation (“Top 4”) continued to dominate the sector. Some noteworthy points are:

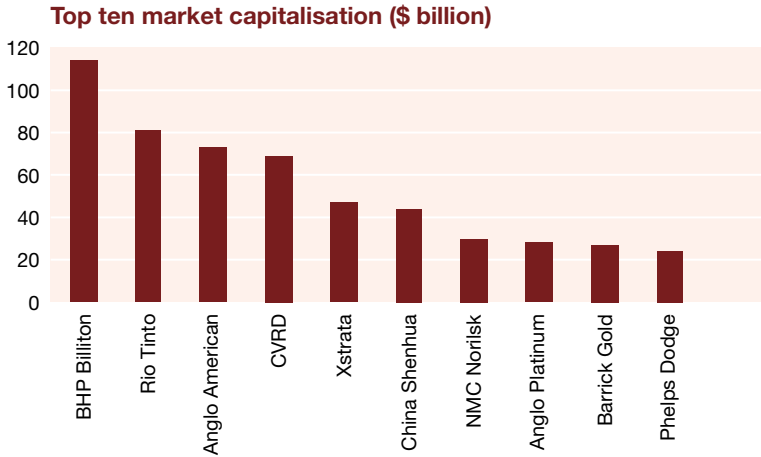
- CVRD recorded the fastest growth of the four, with an increase in market capitalisation in the 2006 year of 56%. This was driven largely by the market’s favourable perception of the acquisition of Inco;
- prior year growth by BHP Billiton, Rio Tinto and CVRD was driven largely by growth in iron ore prices, which moderated this year;
- Anglo American’s increase in platinum group metal production enabled them to move ahead strongly; and

- continuing last year’s trend, the Top 4’s share of total market capitalisation fell again slightly, down to 35% from 38% at December 2005. Further listings, especially in the junior exploration sector, grew the total industry market capitalisation, countering the slower growth of the Top 4.

Newmont was absent from our list of the ten largest companies this year, having moved from fifth in last year’s rankings to twelfth.

Xstrata moved from ninth position to fifth, as the acquisition of Falconbridge provided profitable exposure to increases in nickel and copper prices.

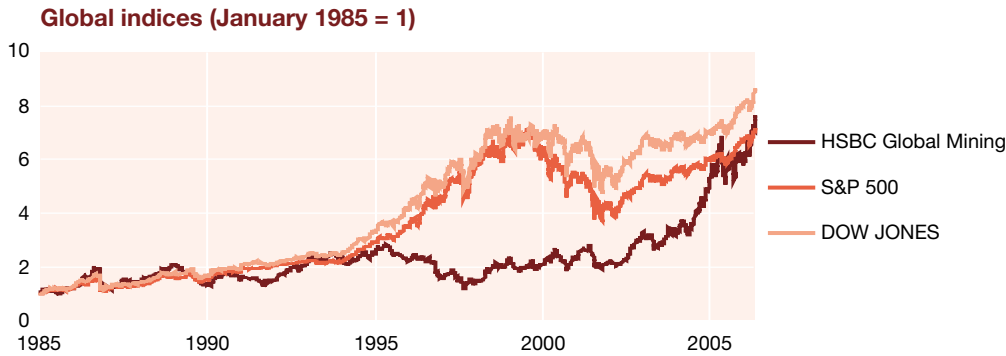
Phelps Dodge forged ahead and is a new entrant into the top ten, with market capitalisation moving up by 67% during the year to \$24.4 billion. The rise in Phelps Dodge market capitalisation was assisted by a takeover offer made by Freeport McMoRan in November 2006. The acquisition was completed in March 2007.



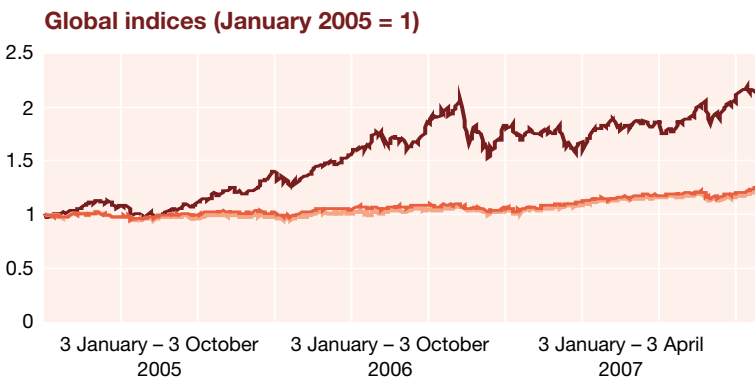
Source: Datastream

The HSBC Global Mining Index underperformed against the S&P 500 and the Dow Jones Indices from 1985 to 2003. However, since 2003 the gap has narrowed as a result of the commodity price boom.

Taking a closer look at 2006, the HSBC Global Mining Index peaked in May, with an easing off in the second half. Looking at performance since 1 January 2007, the index continues to rise, with growth accelerating ahead of the other indices.



Source: Datastream



Source: Datastream

Industry performance

The average annual price growth for selected commodities is reflected in the table below.

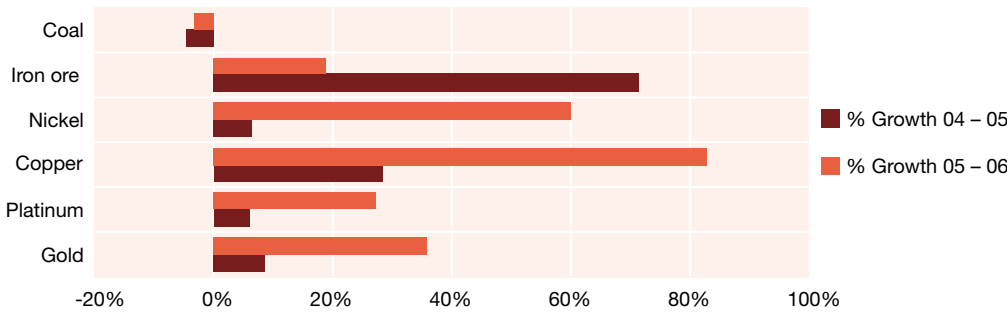
Some marked variation in price growth arose between the various commodities in 2006. Growth in copper and nickel prices were a stand out, with percentage increases similar to that experienced for iron ore in 2005.

Price negotiations for coal during 2006 resulted in a moderate fall in prices, although overall the market remained strong.

The average prices on prior year have also increased for other commodities such as silver (58%), aluminium (34%), cobalt (84%), uranium (106%) and zinc (138%). The significant increase in the zinc price resulted in the inclusion of Zinifex in the Top 40 for the first time this year. After the extraordinary price growth of molybdenum in 2005, it stabilised at lower levels in 2006, which are still significantly higher than historical long-term average prices.

Gold and platinum production increased marginally as new projects were brought online. Base metal production remained relatively static year on year. For further discussion refer to page 45.

Commodity price growth



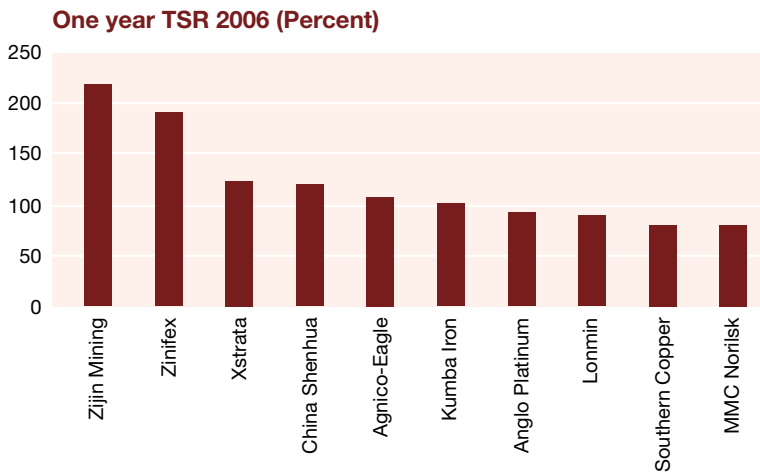
Source: AME outlook, Johnson Matthey, World Gold Council

Total shareholder return (“TSR”)

The average one year TSR to December 2006 for companies included in the survey was 55% compared to 63% for the prior year. The current year TSRs ranged from a high of 220% to a low of negative 15%. Six companies in the Top 40 had a one year TSR greater than 100%, and only three companies had negative TSRs.

Corporate activity

The pattern of industry consolidation continued in 2006; see discussion thereon in *Optimal capital structures* on page 57.



Source: Datastream

04 A view from
the top



In *Mine – Let the good times roll*, issued in June 2006, we presented an article that summarised the view of a select group of CEOs in the mining industry about the future outlook of the industry. In the past year we have continued this series of interviews and report the findings.

In general terms, the views expressed are similar to those recorded in the prior year. The main findings are:

- the mining boom experienced over the last few years has some way to go. Urban migration and Asia's appetite for commodities, along with demand from other developing countries, point to strong demand;
- whilst each commodity has specific fact patterns, in general terms supply has not yet caught up to demand and is struggling to do so;
- mine supply has many issues such as lack of skilled workers, equipment shortages and years of above nameplate capacity are impacting input costs;
- mine developments take a long time and the cost of development has risen rapidly; and
- health and safety remain key issues to manage.

Much of today's situation emanates from years of under-investment in exploration during the industry's dark years in the 1990s. Whilst exploration expenditure is back with a vengeance, it is a long-term process and arguably there have been few recent world-class finds. This is likely to change as exploration activity increases; however, the timeframe to bring new projects into operation can easily be ten years. New projects coming on today were typically identified many years ago.

The key to success in the mining industry will continue to be long life, low cost operations. As in the past, technological improvements will continue to be

made, leading to cost changes. Indeed, cost structures remain a vital ingredient to successful mines and the focus on managing costs has not been lost, albeit that maximising production is the current strategy in a high price environment.

A healthy rejuvenation of the industry is well under way. Whilst mergers and acquisitions have seen many of the historic mid-tier miners disappear, there is a new breed of companies globally that are making their mark. Watching their progress over the years to come will be of great interest.

There are significant amounts of capital and debt available to the industry and how this is managed will be key in determining how long the industry can hold its high investment appeal. The potential arrival of private equity as holders of major mining projects will also be of interest as they come to grips with the cyclical nature of the industry.

Managing stakeholder expectations in the industry remains a challenge. High profitability is not ignored by governments, workers, NGOs, local communities or anyone else. Wanting to ensure that they achieve their fair share is merely human nature; however, it often has long-term repercussions. This is particularly true for "new" mining countries that do not have a history to point to that reflects a fair and equitable outcome.

In summary, the supply/demand fundamentals are strong. Arguably, pricing assumptions have been too conservative and much upside resides in the industry. Having said that, many short-term profits have been made by investors in the industry in recent years and they will continue to try to do so. This will exacerbate volatility and will lead to market corrections. However, these are expected to be short lived while fundamentals stay strong.

The view of CEOs is that the industry is performing well and their immediate challenge is how best to continue riding the wave.

05 Financial review



Income statement

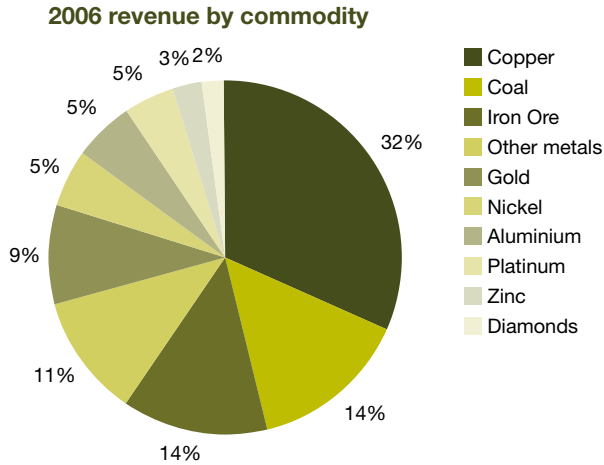
	2006 \$ billion	2005 \$ billion	Change %
Revenue	249.0	181.5	37
Operating expenses	(140.6)	(114.7)	23
EBITDA	108.4	66.8	62
Depreciation and amortization	(11.6)	(9.1)	27
PBIT	96.8	57.7	68
Net interest costs	(3.2)	(2.2)	45
PBT	93.6	55.5	69
Income tax expense	(26.6)	(14.7)	81
Net profit	67.0	40.8	64

Top line

The Top 40 companies reported a 37% increase in total revenues in 2006, compared to a 25% increase in 2005. This growth continues to be predominantly price driven and the Top 4 companies by revenue remain unchanged, with Anglo American and BHP Billiton maintaining their position at the head of the industry and CVRD closing the gap.

Revenue	2006 \$ billion	2005 \$ billion	Change %
Anglo American	33.1	29.4	13
BHP Billiton	32.8	27.0	21
Rio Tinto	22.5	19.0	18
CVRD	19.7	12.8	54

These Top 4 companies account for 43% of total revenue and 47% of profit before interest and tax, largely consistent with 2005 and 2004.



Source: Top 40 analysis

Looking at the top line by commodity copper dominates, with revenue up 120% from the prior year to a total of \$68.4 billion. This represents 32% of commodity revenues compared to 22% in 2005. In terms of percentage share of revenue, other commodities remain largely consistent year on year with the exception of coal, which despite a 10% increase, has seen total revenue share fall from 19% to 14%.

Total revenue by customer location continues to show that China and India are key markets, with each country contributing 8% of revenue. However, Europe and North America continue to dominate, accounting for, in total, 37% of revenue.

Margins

The Top 40 companies have enjoyed a 17% increase in net profit margins despite the continued rise in operating costs. Operating expenses are up 23% year on year with major drivers being higher material, energy, labour, transportation and contractor costs.

Delivery lead time delays for plant and mobile equipment have also had a significant impact on production volumes and operating costs.

Empirical evidence on the cost of inputs is not consistently presented by the Top 40. The clear picture that does arise, however, is that operating costs have increased significantly and are unlikely to decrease in the short term, while shortages of inputs such as labour, infrastructure, energy and tyres continue. While initially there was a large variable cost element in these cost increases, there have more recently been fixed cost increases such as higher wage levels, which will be more challenging to remove if the commodity price cycle changes.

The key message on costs is that companies need strategies to address their cost position. The relentless focus on cost reduction and efficiency in the 1990s

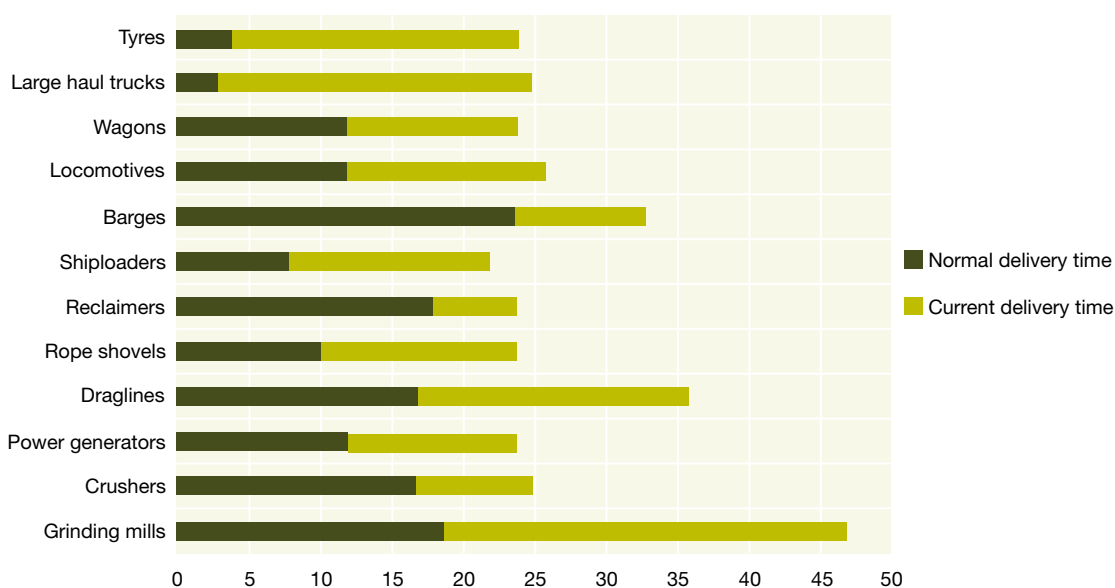
has eased in recent years as maximising production has become paramount. Those companies that effectively manage variable and minimise fixed costs will be well placed for any future downturn.

The demand for skilled labour and an expectation that employees should share in the excellent profits has resulted in a 9% increase in staff costs. Variable remuneration, including share incentive schemes, has also played a significant role in increasing these expenses, especially at the executive level.

Depreciation and amortisation expense increased by 27%. This is predominantly due to the impact of acquisitions, slightly higher production and higher cost projects coming on stream. The impact of the higher depreciation was offset by lower impairment charges, as would be expected in a high price environment.

For those companies that disclosed exploration expenses there was a 30% increase. It seems to be well accepted that the larger mining companies must conduct exploration, whereas in the past some saw it as value destroying. Exploration expense reported by the Top 40 may not necessarily be representative of the industry given that junior mining companies more aggressively pursue exploration.

Comparative delivery lead times (Months)



Source: *The Australian Financial Review*

Rising costs have been more than offset by revenue gains from increasing commodity prices, resulting in higher profitability and returns across all measured indicators including:

	2006 (%)	2005 (%)
EBITDA margin	44	37
Net profit margin	27	23
Return on equity	33	26
Return on capital employed	23	13
Operating cashflow margin	31	30

The top five EBITDA margin list shows four changes from the prior year with only Antofagasta maintaining its position with the highest margin of all the Top 40 companies. Agnico and Teck Cominco have benefited from the rising price of zinc whilst NMDC, an Indian-based iron ore producer, increased its margins with consistent operating expenses year on year.

EBITDA margins	2006 (%)	2005 (%)
Antofagasta	74	66
NMDC	72	54
Southern Copper	61	57
Agnico	58	27
Teck Cominco	58	49

Returns on equity and returns on capital employed (“ROCE”) have both increased from the prior year. The top five ROCE companies for 2006 are Zijin, Antofagasta, NMDC, Zinifex and KGHM Polska.

Interest

Net interest costs have risen by 45%. The increase was driven by higher interest rates and additional net borrowings to fund acquisitions.

Tax

Total tax expense at \$26.6 billion almost doubled from the prior year and total income taxes paid increased from \$10.5 billion to \$21.7 billion. The effective tax rate also increased from 26% to 28%.

Tax is an increasing cost in times of high profitability; ensuring strategies exist to manage that cost has never been more essential.

Cash flow

	2006 \$ billion	2005 \$ billion	Change %
Cash flows related to operating activities			
Cash generated from operations	92.8	62.7	48%
Taxation paid	(21.7)	(10.5)	107%
Other	5.6	2.5	124%
Net operating cash flows	76.7	54.7	40%
Cash flows related to investing activities			
Purchases of property, plant and equipment	(37.2)	(28.2)	32%
Purchases of investments	(42.0)	(14.4)	192%
Sales of investments	14.2	7.9	80%
Other net investment-related cash flows	(2.1)	(1.9)	11%
Net investing cash flows	(67.1)	(36.6)	83%
Cash flows related to financing activities			
Issue of shares	8.4	5.8	45%
Increase in borrowings	70.8	22.4	216%
Repayment of borrowings	(48.5)	(18.7)	159%
Distributions to shareholders	(26.1)	(15.7)	66%
Other	(0.7)	(1.2)	(42%)
Net financing cash flows	3.9	(7.4)	153%
Net increase in cash and cash equivalents	13.5	10.7	26%
Cash and cash equivalents at beginning of period	30.0	19.3	
Cash and cash equivalents at end of period	43.5	30.0	

Operating cash flows

For 2005, we described net cash flow from operations as “stunning”, but performance has improved even further in 2006 with total net operating cash flow of \$76.7 billion, a 40% rise primarily due to high commodity prices. Tax payments continue to rise and governments will reap additional benefits during 2007, as payments generally lag behind the tax expense and losses carried forward from prior years become fully utilised.

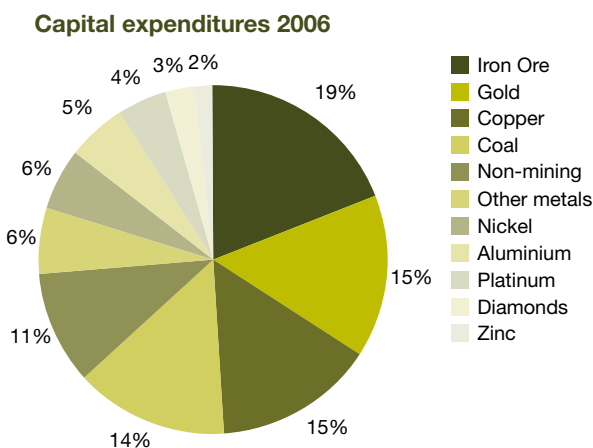
Investing cash flows

The \$37.2 billion of capital expenditures have grown from the prior year as developments are pursued to meet increased demand. The four largest companies account for approximately 49% of capital expenditures (2005: 43%). This shows that companies outside the Top 4 are investing at a slightly slower rate than the industry leaders.

Project development and expansion is not without its challenges. The shortage of labour, equipment and other inputs is probably more acutely reflected in developments than operating costs, with the cost of development substantially above what it was a few short years ago. The other challenge is to deliver on time and on budget: the increasing lead times referred to in the “Comparative delivery lead times” diagram on page 19, as well as a lack of skilled labour, make project execution ever harder. The need for strong project management skills has never been greater. While variances from cost or timetable are unfortunate, timely notification to stock markets can significantly impact on the confidence that markets have on revised targets being achievable.

Due to the acquisitions discussed in Section 3 – Industry in perspective, purchase of investments increased by \$27.6 billion to \$42.0 billion for 2006.

There has been a \$6.3 billion increase in proceeds from disposal of non-core assets, primarily by Anglo American (Highveld Steel), BHP Billiton (Tintaya copper mine) and Barrick Gold (certain Placer Dome assets).



Source: Top 40 analysis

Financing cash flows

Cash flows from financing activities have increased by \$11.3 billion to a net in-flow of \$3.9 billion. Net cash in-flows from borrowings have increased by \$18.6 billion, predominantly driven by the Inco and Falconbridge acquisitions. Also within financing activities, distributions to shareholders have increased by 66% from the prior year to a total of \$26.1 billion due to a combination of increased ordinary dividends, special dividends and share buy-back programs.

	2006 \$ billion	2005 \$ billion ¹	Change %
Current assets			
Cash	43.5	30.0	45%
Inventories	26.9	19.6	37%
Other	45.0	34.5	30%
Total current assets	115.4	84.1	37%
Non-current assets			
Property, plant and equipment	262.4	189.5	38%
Other	76.5	49.9	53%
Total non-current assets	338.9	239.4	42%
Total assets	454.3	323.5	40%
Current liabilities			
Borrowings	12.9	10.8	19%
Other	54.9	39.9	38%
Total current liabilities	67.8	50.7	34%
Non-current liabilities			
Borrowings	73.0	43.7	67%
Other	76.4	57.8	32%
Total non-current liabilities	149.4	101.5	47%
Total liabilities	217.2	152.2	43%
Total equity	237.1	171.3	38%
Total equity and liabilities	454.3	323.5	40%

1. Due to the manner in which the 2005 Top 40 companies' amounts are determined, all balance sheet increases were affected by the acquisitions of Falconbridge, Glamis Gold and Placer Dome during 2006. These companies, which were part of the 2005 Top 40, are not included in the 2005 amounts upon which the analysis was performed. The disposal of Highveld Steel by Anglo American during 2006 partially off-set these significant balance sheet movements.

Ratios	2006	2005
Gearing (%)	15.2	12.5
Current (times)	1.70	1.66
Quick (times)	1.31	1.27
Net debt (\$ billion)	42.5	24.5

Gearing

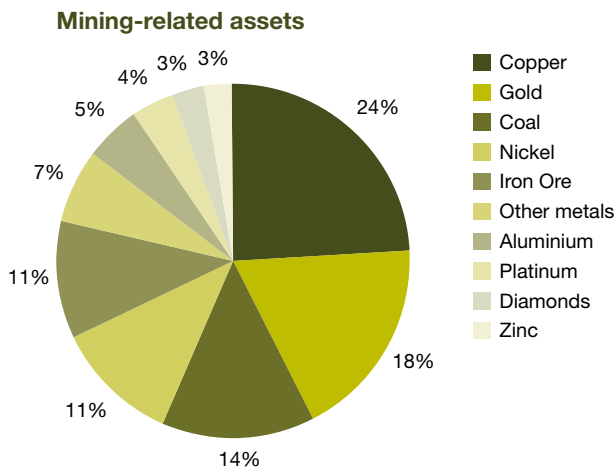
The gearing ratio increased primarily to fund cash purchases by CVRD and Xstrata of Inco and Falconbridge, respectively. Low gearing ratios provides ample opportunity for future distributions to shareholders and cash for acquisitions. Refer to page 57 for further discussion of optimal capital structures.

Non-current assets

More than half of the \$72.9 billion increase to property, plant and equipment values was acquisition driven. Assets purchased are recognized at fair value on acquisition, further increasing the carrying amount of property, plant and equipment, resulting in higher depreciation, depletion and amortization expenses.

The other non-current assets increased due to goodwill of \$17 billion recognised on acquisitions by CVRD, Barrick and others.

The total mining-related assets for the Top 40 are spread amongst the various commodities with a bias toward base metals.



Source: Top 40 analysis

Equity

Shareholders' equity grew by 38% in 2006. Increased dividend distributions, in the form of higher ordinary and special dividends, were less than the phenomenal current period earnings.

06 The rise of CVRD



Companhia Vale do Rio Doce has emerged as a full scale, integrated, diversified and successful global mining giant from a regional iron ore company. This article outlines the major events defining today's CVRD.

In the beginning (1909 – 1942)

CVRD's history is intimately related with Brazilian rail infrastructure. British engineers working on the construction of the Vitoria-Minas track were the first to discover the iron ore reserves present in the region. In 1909 the Brazilian Hematite Syndicate was founded by a group of foreign investors who began developing these reserves. In 1911 an American entrepreneur, Percival Farquhar, bought all of the Syndicate's shares and renamed it Itabira Iron Ore Company.

Farquhar had grand plans for his company, forecasting ambitious exports of iron ore to the United States. By using his own vessels, which would return to Brazil with coal, he would reduce his overall freight costs. This idea proved to be visionary when it was implemented upon building the port of Tubarão two decades later.

In 1942, after endless debate, Brazilian president Getulio Vargas nationalised the iron ore reserves and created CVRD as a state-owned company with the blessing of the United Kingdom and the United States under the "Washington Agreements". These agreements, signed during World War II ("WWII"), secured Brazilian government ownership of the company, constituting the foundation of the iron ore production and export industry in Brazil.

The early years (1943 – 1962)

Despite the vast Brazilian iron ore reserves, demand during this period was coming only from domestic steel mills. Production volumes were close to four million tonnes per annum, far from Farquhar's projections 45 years earlier. This situation continued into the early 1960s, when CVRD had its first big break. The Japanese economy recovered following WWII, fuelling a significant increase in demand for iron ore. Through its new divisions, the port facility at Tubarão and the Docenave ocean freight company, CVRD was able to meet this demand at more competitive prices than Australian suppliers. This competitive advantage translated into the signing of contracts with Japanese mills to supply 50 million tonnes of iron ore over a period of 15 years. By the end of 1964, CVRD produced 9.3 million tonnes per year, doubling the production it experienced in the late 1950's.

Growth and development (1963 – 1997)

The Company increased annual production from eight million tonnes in 1962 to 56 million tonnes in 1974, becoming the leading global iron ore exporter, which continues today. Logistics, such as ocean freight and railroad transport, were growing as fast as the iron ore production, setting the basis for CVRD to also become the largest logistics company in Brazil.

Another milestone occurred in the 1970s with the discovery of extensive mineral deposits in the Carajás region. The region was not only rich in high-grade iron ore, but also copper, manganese and gold.

The Company's investment in the Carajás project included building mine sites, a port facility in Ponta da Madeira and a railway to link the two. The project, which commenced operations in 1985, increased the Company's iron ore annual production to 90 million tonnes by 1989. Six years later the 100 million tonnes mark was reached.

In the 1980s, Brazil reformed its Constitution in the midst of an economic crisis. Negative bias towards state-owned monopolies in mining and energy paved the way for the privatisation of CVRD in 1997 when a local consortium won a bid for 42% of the Company's shares.

Consolidation (1998 – present day)

Focus on the core businesses became CVRD's new credo in the early 2000s, resulting in the expansion of the company's copper, alumina, aluminium, bauxite and coal businesses. Additionally, aided by a number of acquisitions, iron ore production volumes reached 255 million tonnes per annum.

In 2006, the corporate world and the mining industry witnessed CVRD's "coming-of-age," with its successful \$19.4 billion all cash offer to acquire Canada's Inco.

It is evident a new paradigm is upon us as CVRD, one of today's Top 4, is from South America, not the 'old world', the 'land of opportunity' or 'down under.' Additionally, CVRD is looking for more: developing new businesses, incorporating new companies, and creating value and strong relationships with communities in its areas of interest and neighbouring countries.

07 Five-year trends 2002-2006



Aggregated results of 40 of the largest mining companies in each year as explained on page 85.

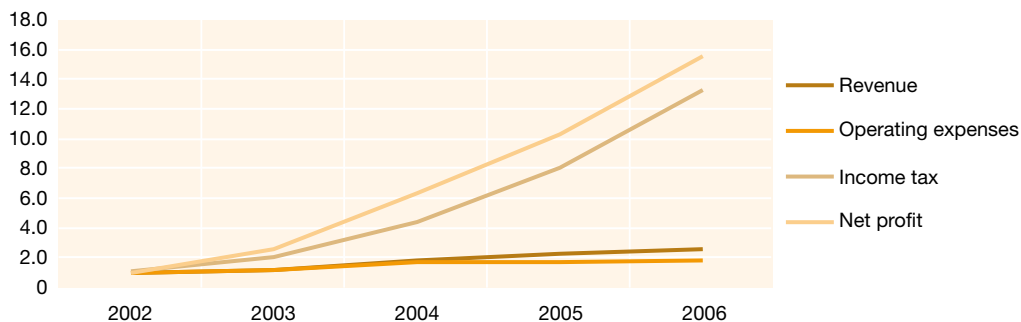
Aggregated income statement	2006 \$ billion	2005 \$ billion	2004 \$ billion	2003 \$ billion	2002 \$ billion
Revenue	249.0	212.9	178.3	114.1	95.3
Operating expenses	(140.6)	(133.8)	(125.3)	(85.2)	(75.4)
EBITDA	108.4	79.1	53.0	28.9	19.9
Amortisation and depreciation	(11.6)	(14.6)	(13.8)	(10.4)	(9.0)
PBIT	96.8	64.5	39.2	18.5	10.9
Net interest cost	(3.2)	(3.7)	(3.0)	(3.4)	(4.5)
PBT	93.6	60.8	36.2	15.1	6.4
Income tax expense	(26.6)	(16.1)	(8.9)	(4.1)	(2.0)
Net profit	67.0	44.7	27.3	11.0	4.4
Year on year increase in revenue	17%	19%	56%	20%	
Cumulative increase in revenue since 2002	161%	123%	87%	20%	
Year on year increase in net profit	50%	64%	148%	150%	
Cumulative increase in net profit	1,423%	916%	520%	150%	
EBITDA margin	44%	37%	30%	25%	21%
Net profit margin	27%	21%	15%	10%	5%
Aggregated cash flow					
Operating activities	76.7	57.5	42.9	21.9	
Investing activities	(67.1)	(37.5)	(26.6)	(20.4)	
Financing activities	3.9	(10.8)	(8.7)	0.9	
Aggregated balance sheet					
Property, plant and equipment	262.4	214.2	186.5	140.3	116.9
Other assets	191.9	141.4	115.9	84.7	72.3
Total assets	454.3	355.6	302.4	225.0	189.2
Total liabilities	217.2	170.6	143.5	113.6	101.7
Total equity	237.1	185.0	158.9	111.4	87.5
Return on equity	33%	25%	19%	12%	6%

Five-year trends 2002-2006

A number of the Top 40 companies in earlier years have subsequently been acquired. This results in a larger proportion of the industry being included in later years. Nonetheless, there are some striking trends:

- Revenue growth is in line with commodity price increases. Revenue in 2006 is at 2.6 times the 2002 level.
- Net profit has increased by more than 15 times since 2002. At present, the revenue growth for most commodities is still outstripping cost growth; however margins for the gold sector were weak relative to other metals.
- Net profit margin maintains its almost linear growth since 2002 and is now 27% compared to 5% in 2002.
- Individually, the net profit of each of the Top 4 in 2006 is higher than the aggregated net profit of the top 40 companies in 2002.
- The carrying amount of property, plant and equipment has increased by 125% since 2002. This increase reflects the significant reinvestment in the industry, but also incorporates fair value adjustments on merger and acquisition activities.

Indexed growth for selected items



the 1990s, the number of people in the UK who are employed in the public sector has increased from 10.5 million to 12.5 million (12% of the population).

There are a number of reasons for this increase. One is that the public sector has become a more important part of the economy. Another is that the public sector has become more efficient. A third is that the public sector has become more attractive to workers. A fourth is that the public sector has become more diverse.

The public sector has become a more important part of the economy. In 1990, the public sector accounted for 10.5 million jobs, or 12% of the total workforce. By 2000, this had increased to 12.5 million jobs, or 14% of the total workforce.

The public sector has become more efficient. In 1990, the public sector spent £100 billion on providing services. By 2000, this had increased to £150 billion, but the number of jobs had only increased by 20%.

The public sector has become more attractive to workers. In 1990, the public sector was seen as a 'safe' place to work. By 2000, it was seen as a place where workers could enjoy a good work-life balance.

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08 M&A: What happened to the original Top 40?



M&A: What happened to the original Top 40?

Since the first *Mine* publication in 2003, the industry has experienced a period of significant consolidation, funded by commodity price increases. This has resulted in a number of interesting changes to the composition of the Top 40 companies and we expect this trend to continue.

Of the original Top 40 reviewed in 2003, only 27 remain on the 2006 list. Nine of the original 40 companies were acquired by the remaining 27. In addition Inco and Phelps Dodge, two of the 27, have been de-listed in 2007, subsequent to completion of their respective takeovers.

The market capitalisation of the Top 40 has shown exceptional growth. The 40th company in 2006 would have been 19th in 2003, based on its current market value. The lowest market capitalisation has increased by 2.9 times and that of the largest by 2.2 times.

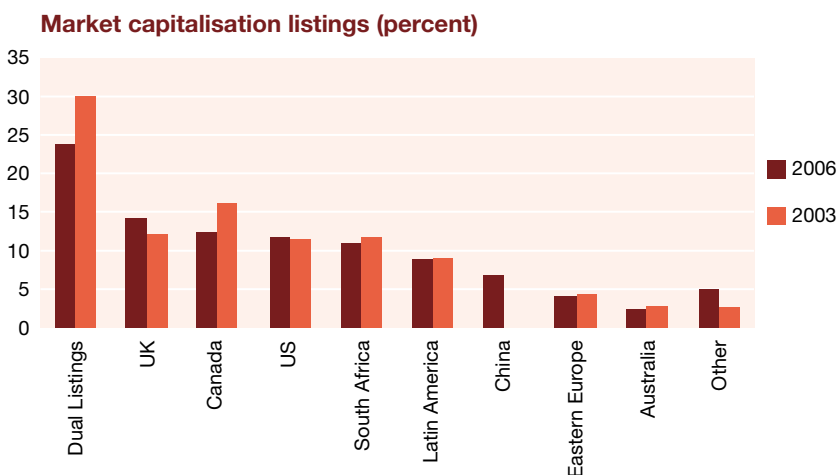
The most striking change in composition is the reduction in the number of Canadian companies, down from twelve to six due to acquisitions. This trend follows that experienced in Australia during the late 1990s as consolidation removed many of the mid-tier mining houses and led to larger global giants that could be headquartered anywhere, with assets spread throughout the world.

A look at the market capitalisations of the emerging mining groups headquartered in Australia shows that a rejuvenation of mid-tier mining companies is well under way. Companies such as Oxiana, Zinifex and Newcrest are now taking their place as significant participants in the Australian industry. Zinifex entered the Top 40 for the first time this year. As indicated in *Aussie Mine*, the mid-tier is alive and well.

This bodes well for the Australian market. Canada is also well positioned with its historically strong junior and mid tier sectors.

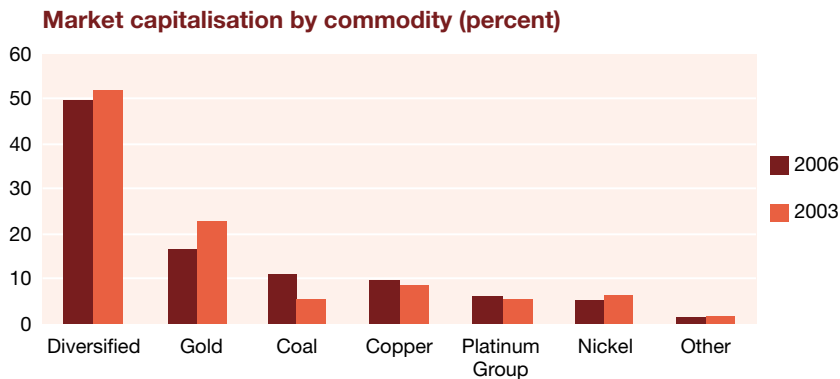
Even after excluding the dual listed entities (Rio Tinto and BHP Billiton), the United Kingdom has now surpassed Canada as the Top 40's primary access point for capital. It will be interesting to see whether AIM listed companies will graduate to the Top 40 and help strengthen this position or whether significant growth in companies on other exchanges will float them to the top.

The emergence of Asia is also worthy of note, as there are now four companies domiciled in Asia that are included in the Top 40, whilst in 2003 there were none. Many of these entities remain controlled by government and are therefore unlikely to be taken over in the short term.



Source: Datastream and Top 40 analysis

M&A: What happened to the original Top 40?



Source: Datastream and Top 40 analysis

By commodity, the interesting development is the reduction of the share of total market capitalisation of the gold producers. Despite the inclusion of Polyus, previously included in Norilsk Nickel, gold's share decreased from 23% to 17%. This reduction is driven by the gold price not increasing in line with other metal prices over the same period.

Indeed, the gold market capitalisation excluding Polyus grew in line with the increase in the gold price. This suggests little value was added by increasing production or long-term reserves and that investors may view the various gold electronic traded funds as an attractive alternative investment vehicle through which to obtain exposure to gold.

Other commodity-based movements in market capitalisation over the period are as follows:

- Coal – increase due to the listing of China Shenhua and the inclusion of Yanzhou Coal in the Top 40; and
- Copper – listings of Kazhakmys, KGHM and Polska Miedz offset by takeovers from diversified companies such as CVRD and Xstrata.

Apart from the obvious impact of mergers and acquisitions on the share of market capitalisation by commodity, the individual company share prices moved in line with increased profits, which was in turn driven by growth in commodity prices.

09 When a reserve is not a reserve



We highlighted in *Mine – Let the good times roll (2006)* and *Mine – Enter the dragon (2005)* that, while definitions of reserves had a degree of congruence around the world, there was no single global definition, which makes comparison challenging. Progress on convergence is being made, primarily through the Committee for Mineral Reserves International Reporting Standards (“CRIRSCO”), which is now allied to the International Council for Mining and Minerals (“ICMM”). We encourage this initiative, in parallel with the global harmonisation of accounting standards – the mining industry would benefit from consistent reporting of its major assets.

The definitions and reporting requirements will most likely provide minimum standards and, on the basis that they are in line with today’s requirements, will still require certain judgements and decisions to be made by the mining companies in terms of disclosure. To highlight this matter we have considered the reporting practices of the Top 4: Anglo American, BHP Billiton, CVRD and Rio Tinto. Whilst all report under a recognised code, their treatments of certain aspects of reporting are different:

	Anglo American	BHP Billiton	CVRD	Rio Tinto
Reporting framework	JORC & SAMREC	JORC (†)	SEC Guide 7	JORC (†)
Reserves disclosed	Proven & Probable	Proven & Probable	Total Reserves	Proven & Probable
Resources disclosed	Disclosed	Disclosed	Not disclosed	Disclosed
Comparatives	Current & Prior Year	Current Year	Current Year	Current & Prior Year
Ore reserve exhaustion date	Not disclosed	Disclosed	Disclosed	Not disclosed
Grade	Disclosed	Disclosed	Disclosed	Disclosed
Ownership interests	Disclosed	Disclosed	Disclosed	Disclosed
Mineralization type	Not disclosed	Disclosed	Not disclosed	Disclosed
Drill-hole spacing	Not disclosed	Disclosed	Not disclosed	Not disclosed

† for BHP Billiton and Rio Tinto’s SEC reporting in accordance with SEC Industry Guide 7, differences in certain mineral reserve amounts are noted from their annual report amounts, as well as other subtle differences in overall disclosures.

This highlights that the uninitiated reader may not be able to compare reserve information between the major miners. The lack of consistency, which goes beyond the Top 4 companies, highlights the challenge of comparison. Whilst all the information may be accurate, it is not comparable.

Reserves analysis

As a result of the variety of detail in public disclosures, it is not possible to accurately analyse the total reserves for the Top 40 companies. For those companies in the Top 40 that have publicly disclosed their reserves for 2006 and 2005, we have analysed the following aggregate figures by commodity.

Continuity of reserves	Gold (million oz)	Platinum (million oz)	Copper (million tonnes)	Zinc (million tonnes)	Coal (million tonnes)	Iron Ore (million tonnes)
Number of companies	10	3	14	6	8	4
2005 reserves	445	166	387	51	32,545	8,802
- Depletion	(34)	(5)	(13)	(2)	(1,012)	(590)
+ Acquisitions	62	-	3	-	500	343
+ Other net additions/ (reductions)	68	18	15	-	161	144
2006 reserves	541	179	392	49	32,194	8,699
% change	22%	8%	1%	(4%)	(1%)	(1%)

Gold

Our analysis excludes Freeport McMoRan, which views itself as a copper company. Freeport produced 1.7 million ounces of gold in 2006, which would have made it the 6th largest global gold producer.

Total gold reserves increased by 96 million ounces. The primary causes of this increase included:

- 62 million ounces from acquisitions by Barrick, Goldcorp and Harmony;
- 44 million ounces from increases in reserves along with 24 million ounces from Polyus, as these were not included in the opening balance (Polyus was spun out of Norilsk Nickel during the year); and
- 34 million ounces of depletion from production.

The increase in reserves appears to be largely due to the utilization of a higher price in the reserve determination, which allows for the expansion of the original pit shell design and the inclusion of other lower grade material that becomes economically feasible at the higher prices.

Consistent with findings from our 2006 Global Gold Price Survey Results, the price assumptions used by these top gold producers ranged between \$400 and \$550 per ounce with an average price utilized of \$475 per ounce. This compares with an average price of \$396 per ounce based on a range of \$375 to \$406 per ounce in the prior period. The average grade has decreased to 1.36 g/t from 1.39 g/t.

Platinum

Platinum reserves increased by 13 million ounces, primarily due to Anglo Platinum's conversion of 18 million ounces of resources to reserves, offset by 5 million ounces of production. Production increased by 10% as these companies tried to meet the growing demand for platinum group metals ("PGM").

The increase in PGM prices have brought a number of new juniors to the fore who are aggressively exploring and proving up resources and reserves in the Bushveld complex. This is likely to increase reserves in the future. Recent takeovers of African Platinum by Impala and Afriore by Lonmin will result in an increase in reserves for these entities, while the South African new order mining right legislation is forcing Anglo Platinum to either develop their properties or free them up for development by others.

Copper

Copper reserves increased marginally as reserves converted at Southern Copper were offset by overall production.

Zinc

Zinc reserves decreased marginally as a direct result of the current year's annual production, with no significant expansions of reserves being noted.

Coal

Coal reserves decreased by 351 million tonnes, primarily due to depletion of 1,012 million tonnes, partially offset by 500 million tonnes from acquisitions by Peabody,

Iron Ore

The total iron ore reserves decrease of 103 million tonnes, is explained by:

- the delineation of 343 million tonnes of reserves at the Rio Tinto Hope Downs iron ore project;
- net increases of 144 million tonnes in reserves reported, relating to Anglo American's increased efficiencies of blending its previously stockpiled materials and drill defined expansions of reserves reported by BHP Billiton; and
- 590 million tonnes of depletion from production.

Production

Production levels remained relatively static year on year as the industry struggled to take full advantage of high metals prices while coping with shortages in skilled labour, equipment, and input materials. Overall, life of reserves for those Top 40 companies analysed fell as reserves mined were not replenished.

Commodity (quantity)	No. of companies	2006		2005	
		Production	Remaining life (yrs)	Production	Remaining life (yrs)
Gold (Moz)	10	34.0	16	31.4	14
Platinum (Moz)	3	5.1	35	4.7	35
Copper (Mt)	14	12.8	31	12.6	31
Zinc (Mt)	6	2.4	20	2.4	21
Coal (Mt)	8	1,011.9	32	915.8	35
Iron ore (Mt)	4	590.0	15	540.1	16

Conclusion

Apart from the 22% increase in gold reserves, other metals remained relatively static. The increase in gold was not as a result of exploration successes, but rather predominantly through acquisitions and the use of higher price assumptions. This general lack of exploration based growth by the Top 40 drives a model that relies on the acquisition of junior or mid-tier exploration companies.

10 Political risk



Political risk is wide ranging and encompasses national and local government actions, land owner issues, organised crime, official corruption, civil unrest, media scrutiny and NGO pressures. It continues to become more relevant as mining companies expand globally in search of replacements for depleting reserves.

Although it was well known for the existence of vast mineral deposits, investing in the Democratic Republic of Congo (“DRC”) was previously considered too risky, due to political instability and civil war. Encouraged by improved stability and high commodity prices, projects in the DRC have become more feasible. Examples include significant undertakings by Tenke Mining and Katanga. Freeport McMoRan, in partnership with these companies, are developing large, high grade copper/cobalt projects.

Barrick Gold has experienced significant delays in developing Pascua Lama, its Chile-Argentina project, not only because of having to deal with environmental authorities in both countries, but also because of NGOs opposing the project. Communities, land owners, water rights owners and provincial governments all want their share of the expected current and future benefits. NGOs have played an important role in pushing forward landowner rights and environmental stewardship, and will continue to do so. For NGOs to remain credible, it is important for them to heed their own calls for transparency and governance that they have been asking for from companies and governments. In some countries or situations, NGOs may promote a narrow issue, not necessarily consistent with the overall best interests of all stakeholders.

Tax and regulatory changes, for example in Mongolia, Zambia and Uzbekistan, may raise second thoughts on industry investment in these regions. The imposition or proposal of royalty structures in various mining countries has raised the level of political risk to a point where a number of companies may reconsider investment decisions made previously. This uncertainty has caused delays and deferrals of projects that were, in some cases, already in the start-up phase. It would not be surprising if the industry experiences more cases like these, as companies venture into higher risk regions. Legislation in those areas might be either obsolete or non-existent, with insufficient backing from the judicial system.

Even though the situation has improved in this past decade, “red line” countries still remain in Central and South America, Africa and Asia. Social and political instability make the investment prospects far less attractive or feasible, despite the promising resources.

Most mining companies apply strict ethical policies, which also make operating in corrupt jurisdictions challenging. Countries with a history of organised crime and corruption will not benefit from new mining investment from the industry leaders until such time as they create a business environment based on sound legal principles.

Many variables need to be considered when factoring political risk into project models. These are valuable indicators that need to be regularly monitored throughout a project’s life.

Today’s world calls for companies that are willing to invest around the globe managing not only technical risks, but also constantly considering political risk as a broader concept.

11 The impact of hedge funds on the mining industry



Although hedge funds have been in existence for more than 40 years, their impact on the mining industry has been dramatically felt in the last two years. This impact is two-fold:

- the direct investment in commodities (physical holdings and derivative positions) has exacerbated volatility, and
- their active role as shareholders in companies that have been subject to consolidation.

Volatility and direct investment in commodities

Since the strengthening of Chinese demand, base metals markets have tightened and small changes in supply, demand or inventory levels have caused significant price swings. Volatility is the friend of hedge funds, as it provides the opportunity for short-term gains. It also increases the downside risk as experienced by Red Kite Metals LLC, a metals hedge fund. In January 2007 it contributed to a one day decline of 9% in the price of zinc, the largest single day decline in 18 years.

The most challenging question about the direct investment of short-term profit-takers in commodities is whether it is possible to forecast metal prices based solely on supply, demand and inventory levels. This estimate is an essential consideration in determining project feasibilities and development decisions, let alone day-to-day operations.

The rapid rise in metal prices has created quick returns for investors. The Red Kite example will not be the only time that losses will be realised.

Impact on mergers and acquisitions

Hedge funds have also been investors in equity markets for years. Their impact has been growing in recent years and was particularly evident in the protracted battle for Falconbridge and Inco where it was estimated that more than 50% of these companies' shares were held by these funds. For example, Phelps Dodge failed in its bid to acquire Falconbridge and Inco when its largest shareholder, a hedge fund, publicly spoke out against the proposed transaction. This ultimately led to both friendly deals collapsing. A hostile bid for Inco by Teck Cominco also failed when Teck Cominco was unable to quickly raise sufficient cash to compete with the all cash offer from CVRD that was favoured by hedge fund investors.

Ultimately, Falconbridge and Inco were acquired in initially hostile, all cash takeovers, while Phelps Dodge was later acquired by Freeport McMoRan, a company with a market capitalisation less than half the size of Phelps Dodge when the acquisition was first announced. Inco and Falconbridge were both highly complex and long winded transactions with many twists and turns. Both transactions were eventually won with cash bids, whilst similarly valued scrip bids were rejected. This gives great insight to the mind of the hedge fund and in particular, the preference for short-term cash gains.

Involvement by hedge funds is not limited to mega deals. For example, Afplats's largest shareholder, a hedge fund, forced changes to Afplats's Board and voiced its displeasure with a proposed capital raising transaction with Impala Platinum. This fund subsequently supported a bid by Impala Platinum for the entire issued share capital of Afplats.

Long-term value created?

Does the short-term outlook of hedge funds make them unwelcome investors and are they acting in the best long-term interests of the industry? It is difficult to answer this question, although it is a challenge to cope with investors that have differing expectations of short and long-term value creation. In the three deals mentioned above, shareholders were handsomely rewarded. Shareholder returns from deal announcement to closure were 103%, 65%, and 37% for Falconbridge, Inco and Phelps Dodge respectively. Had friendly transactions occurred for Inco or Falconbridge there may have been greater shareholder returns in the form of medium-term synergies but it would have required investors willing to hold on and say “no” to short-term cash.

Impact on directors

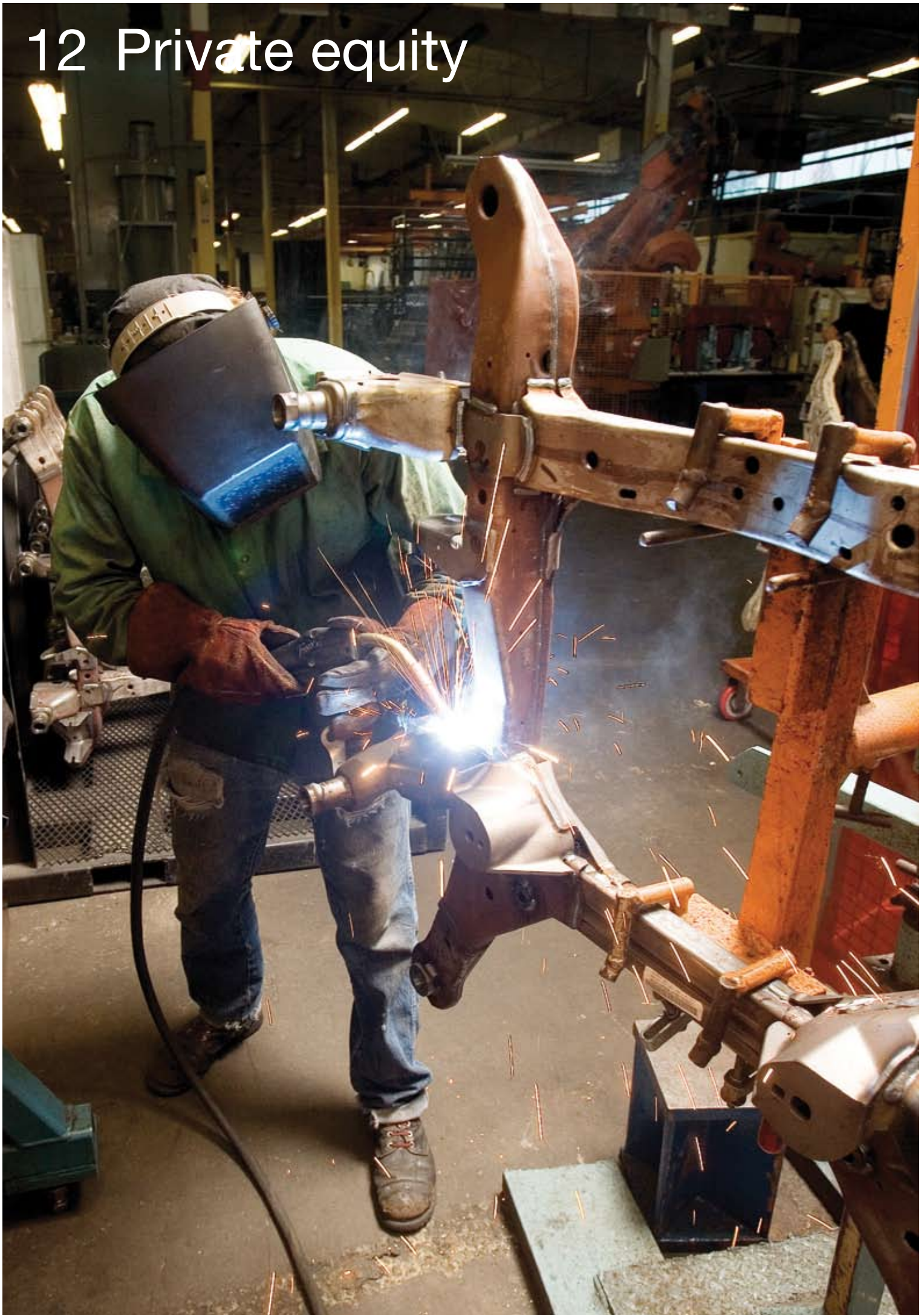
Some believe hedge funds provide quick discipline to the companies in which they are invested. The responsibility of the directors is to represent all shareholders. In a takeover scenario, this can become increasingly difficult given the differing objectives of the various shareholders. In a litigious environment such as North America it makes the directors’ role even more challenging. When multiple offers near the deemed fair value are in play, a definitive cash offer represents lower risk.

Conclusion

Hedge funds have had a significant impact on the mining industry given their involvement in metal trading activities and the volatility this creates in commodity prices. They have also had significant influence in takeover-related activity, acting as a catalyst for transactions.

While hedge funds are interested in short-term profits that can be made from engaging in commodity trading and taking positions in takeover targets, their impact is no different from other industries. The most significant challenge in this industry is the impact hedge funds can have on metal prices during cycle changes. A number of significant derivative or physical positions may result in metal markets being destabilised due to fund failures.

12 Private equity



In contrast to the hedge funds' desire for short-term profits, many industries have seen the advent of takeovers by private equity, who seek to add value to companies over the medium term. Whilst usually not hostile, they have caused many companies to rethink strategies and priorities. Large private equity deals have yet to infiltrate the mining sector, presumably due to the cyclical nature of commodity prices and the unique risk/reward yardsticks of the industry, particularly in relation to exploration activities. This may not always be the case, particularly as the world becomes more comfortable with the sustainability of demand from China, India and other growth areas, and private equity continues to attract substantial sums of money for future investment opportunities.

The traits of investment opportunities that are of interest to private equity include:

- inefficient balance sheets – the ability to leverage the balance sheet with cheap debt is attractive and many mining companies have little or no debt and could easily become targets;
- corporate structures that drive high costs – private companies do not have the same need for extensive corporate governance expenditures that are required by listed entities, nor the need to disclose executive emoluments. Costs of compliance, particularly for US registrants, can be extremely high and can be dramatically reduced by private owners; and
- individual asset values exceeding the total value – although less concerning for the industry given the recent major increases to market capitalisation of mining companies. This clearly depends on the view of long-term commodity prices. If private equity is comfortable with higher long-term prices they may see many potential opportunities.

Barriers to private equity acquiring mining companies include:

- private equity arrangements result in significantly higher debt levels in acquired companies, which might not be sustainable should a downturn of the commodities cycle occur;
- private equity may deem mining company valuations to be high, providing limited upside to those investing;
- with little past experience in the mining industry and the unique nature of mining, there is not a “one size fits all” approach to improving efficiency in a particular mining company’s operations; and
- significant capital requirements, coupled with long lead time for development of new projects, implies returns may be pushed too far into the future to attract private equity to such entities.

The relative lack of investment by private equity in the mining sector does not mean it is not having an impact on the industry:

The recently announced acquisition of TXU, a large Texas utility, by private equity firms KKR and TPG came with the condition that TXU abandon the development of eight of its planned 11 new coal-fired power plants. While TXU seemingly readily agreed to this change, it is less clear as to how the needed power generation will be met if the coal fired plants are not built. There is some speculation that the need might be met through new nuclear power plants. Putting aside the US's reluctance to issue permits for nuclear power plants over the past three decades, if new nuclear plants are approved there would certainly be an impact on the supply of uranium. So, even without investing in mining, private equity appears to be impacting two segments of mining: coal and uranium. As an aside, the price for uranium has spiked in recent years and the investment by hedge funds in yellow cake, produced from uranium, is believed to be a significant factor impacting higher prices.

Opportunities for private equity to acquire mining companies include:

- significant investment funds with an estimated \$500 billion per year being invested in private equity funds (with leverage, this figure is closer to \$3 trillion) will require such funds to continue to seek out strong companies, regardless of the industry in which they operate. Mining companies are currently highly profitable with further upside potential if the current metal prices are sustained longer than investors in the industry anticipate; and
- ability to hedge future production revenues to lock in future cash flows, which can be used to repay debt obligations incurred as a result of increased leverage in the business or to distribute future profits to investors. A downside to this is a significant number of investors in mining companies have invested to be exposed to future commodity prices and thus private equity may not be able to offer a significant premium to succeed in a takeover attempt.

The recently announced \$1.15 billion acquisition by Apollo of Xstrata's aluminium assets would appear to support the view that a number of facets of the industry exist that may make it attractive to private equity in the future. The low debt levels, in particular, will be of interest to private equity. However, the volatility of commodity prices reduces the proportion of debt that can be raised, calling on greater equity investment than typically seen in private equity transactions.

The ever increasing funds moving into private equity, on the other hand, means that no sector is immune and we would not be surprised to see private equity emerging in the future mining world. Further, the size of recent private equity deals topping \$40 billion means that few companies in the mining industry would be excluded if private equity turned its investment attention to this industry.

the 1990s, the number of people in the world who are illiterate has increased from 1.1 billion to 1.5 billion.

There are many reasons for this. One is that the population of the world is growing so fast that the number of people who are illiterate is increasing even though the percentage of illiterate people is decreasing.

Another reason is that the quality of education is poor in many countries. Many children who go to school do not learn to read and write.

There are also many people who are illiterate because they do not have access to schools. In many rural areas, there are no schools or the schools are very far away.

It is important to reduce the number of illiterate people in the world. This will help to improve the quality of life for many people and will help to reduce poverty.

There are many ways to reduce the number of illiterate people. One way is to improve the quality of education. This can be done by training teachers and providing better teaching materials.

Another way is to provide more schools in rural areas. This will help to give more children access to education.

It is also important to provide literacy training for adults. Many people who are illiterate are adults who did not have access to schools when they were children.

There are many other ways to reduce the number of illiterate people. It is important to find ways that work in different cultures and countries.

Reducing the number of illiterate people is one of the most important goals of the United Nations. It is a goal that we should all work towards.

Let us all work together to reduce the number of illiterate people in the world. This will help to create a better world for everyone.

Thank you for reading this article. I hope you have learned something new about the problem of illiteracy.

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13 Optimal capital structuring: the call on cash

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Capital structure refers to the way a corporation finances itself through some combination of equity, bonds and loans. A company's optimal capital structure, if one exists, refers to the particular combination of financing that maximizes value.

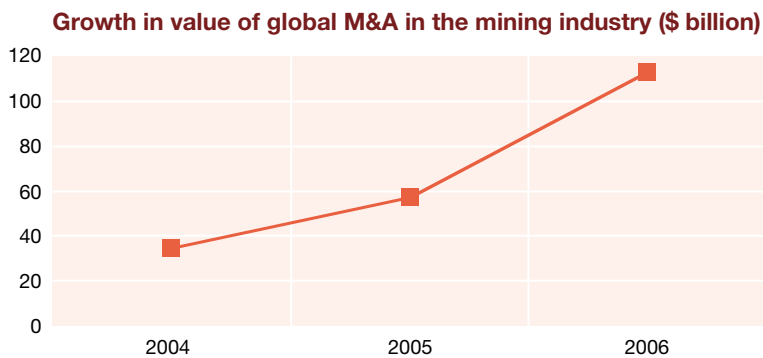
Mining companies are currently generating high levels of cash. This has given rise to the enviable problem of deciding what to do with the surplus cash and how companies should manage their capital structure. They have responded by spending the cash (on acquisitions or by accelerating organic growth), by returning cash to shareholders (through share buybacks or dividends) or by repaying debt.

As would be expected, gearing ratios have been decreasing across the industry over the last five years. However, over the last 12 months this trend has been reversed showing an increase for the consolidated Top 40, from 12.5% to 15.2%. Debt funding of the Inco acquisition by CVRD evidences its confidence in the industry. The gearing ratios for the Top 4 could be seen as indicators of their perception of the future.

Gearing ratio	2006	2005	2004	2003	2002
Anglo American	11%	23%	23%	27%	25%
BHP Billiton	25%	21%	21%	43%	53%
CVRD	45%	9%	10%	19%	26%
Rio Tinto	13%	13%	13%	18%	26%

Optimal capital structuring: the call on cash

While these numbers appear low, they are in fact higher than those seen in the oil and gas industry. Nevertheless, these ratios suggest that debt repayment across the industry may now be “job done” and would not necessarily be a preferred option. Strong operating cash flows and the availability of cheap debt have given companies the confidence to take on more debt within their financing mix, principally in relation to the financing of mergers and acquisitions. There has been extensive merger and acquisition activity in the mining sector; between 2004 and 2006 the value of transactions increased by 227%.



Source: Financial Times, 22 February 2007

Some of the largest transactions include:

	Acquirer	Acquiree	Structure of consideration
2006	CVRD	CAEMI	100% equity
	Xstrata	Falconbridge [†] (remaining 80%)	100% cash
	CVRD	Inco	100% cash
	Freeport-McMoRan ⁴	Phelps Dodge	70% cash, 30% equity
	Eurozinc	Lundin	100% equity
2005	BHP Billiton	WMC Resources	100% cash
	Noranda	Falconbridge	100% equity
	Xstrata	Falconbridge [†] (20%)	100% cash
	Barrick Gold	Placer Dome	12% cash, 88% equity

[†]Following its acquisition of Falconbridge, Noranda was subsequently renamed "Falconbridge"

Recent acquisitions have been largely cash-funded. Based on an SG Equity Research survey of major mining deals that took place in 2006, 69% were cash funded.

Funding deals using shares is an alternative approach. In this way, the upside and downside risk of prices is shared between the acquirer and acquiree shareholders. In the event that prices decline, share prices will also decline, thus the value of the acquisition will also decline in money-terms.

In addition to active management of debt, cash is also being returned to shareholders in the form of share buyback schemes or special dividends. The largest of these schemes is BHP Billiton's \$10 billion share buy-back.

Returning cash to shareholders has historically been perceived negatively by investors, as it indicated a lack of organic investment opportunities or, potentially worse, a lack of imagination by management. For the biggest companies in the industry, acquisitions need to be of sufficient scale to justify the transaction costs. By returning cash to shareholders individual investors are given the choice of where to reinvest their funds.

Consequently, good communication of the capital management strategy is important, as buybacks may be viewed positively when portrayed in terms of increased yield and robust confidence in the outlook of the company. However, there is a limit to how often a special dividend will remain special and how far a company may go in buying back its shares. As a result, the pressure to spend the cash will return in the medium-term.

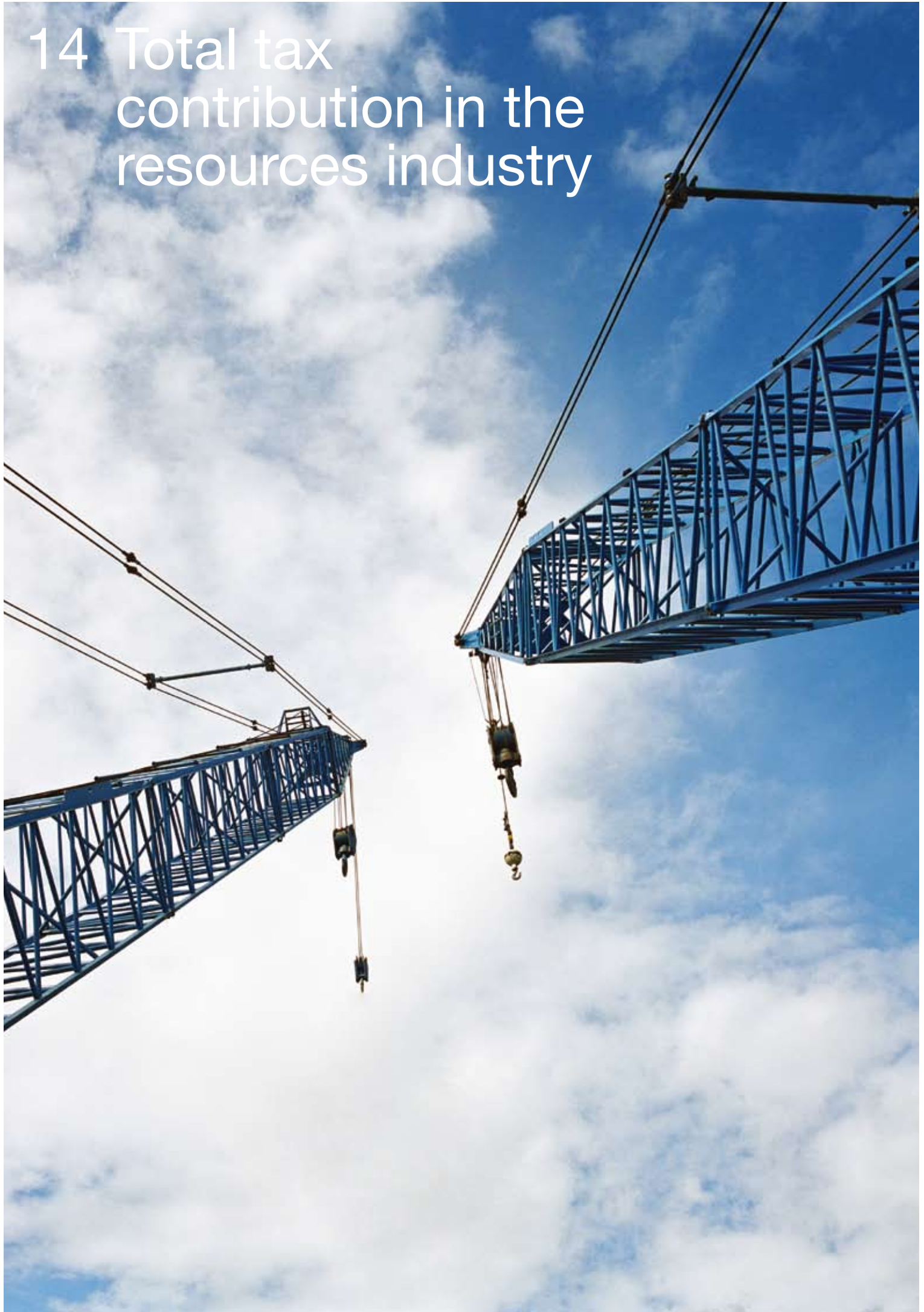
⁴ The Freeport-McMoRan / Phelps Dodge deal was announced in 2006 but only consummated in 2007.

Conclusion

Using cash to accelerate organic growth is a good way of adding value to the business if projects are available. Using the cash for inappropriate expansions, however, is how the historic boom/bust cycle of the mining industry has occurred, so acquiring assets through more share-based deals may be a better alternative for mining companies to add value to their business rather than using cash to fund acquisitions.

The capital structure issue highlights the low levels of gearing, which is a feature of the mining industry. Surplus cash reduces gearing, perhaps to below a target range, which results in lower returns on equity. Determining the appropriate capital structure is not straightforward. There is no silver bullet solution; we believe that each company needs to make a long-term determination as to its desired structure and ensure it is clearly and consistently communicated to all stakeholders. This will enable transparency and appropriate decisions to be made by capital markets. While there is no suggestion of an optimal capital strategy across the mining industry, the warning is that decisions today may haunt tomorrow.

14 Total tax contribution in the resources industry



The definition of “tax” in Black’s Law Dictionary includes:

“any contribution imposed by government ...whether under the name of toll, tribute, tallage, gabel, impost, duty, custom, excise, subsidy, aid, supply, or other name.”

The TTC framework

During 2006 PricewaterhouseCoopers, in conjunction with the World Bank, successfully developed Total Tax Contribution (“TTC”), an objective, cross-border approach to measuring taxation obligations. The TTC work focused on accurate comparisons of overall taxation costs (including compliance costs), across 175 jurisdictions. It gained momentum from concerns that stakeholders (including government) adopt a misleading, overly simplistic view of tax, particularly when they focus solely upon the taxes reported below net income in an income statement.

Many of the taxes that are borne by an enterprise are invisible or are not readily identified as a tax by readers of financial reports. The TTC framework is unique in that it provides a yardstick for identifying a taxpayer’s overall tax contribution by assessing the impact of more than 25 direct and indirect taxes and other payments to governments.

Expanding the TTC approach to the mining industry

“Tax” means much more than corporate income tax, but for resource industry participants tax (or tax-like) obligations stretch even further again. Mining companies often pay governments amounts that are unique to the industry.

Understandably, governments around the globe seek to tightly regulate the extraction of valuable natural resources from their territories. Examples of this regulation include minimum levels of local ownership and the use of a proportion of local labour. Their goal is to maximise the financial benefits that accrue for the community from a national resource that can only be exploited once.

The nature of mining often requires a business to be started in an area with minimal infrastructure and the costs of developing that infrastructure are often met directly by the mining company itself, rather than indirectly via a levy imposed by governments. We refer to these obligations as “in lieu” taxes.

How does one accurately and objectively measure total “tax” paid by a mining group operating in a given jurisdiction?

What does “tax” actually mean in a resources industry context?

Contrasting approaches by government

Mining

In August 2006, Peruvian Prime Minister Jorge del Castillo announced a “voluntary payment” of \$757.5 million would be asked of private mining companies operating in Peru. The funds, to be contributed to an “equality fund”, are earmarked to fight poverty in Peru, a country where around half the population lives below the poverty line.

The Peruvian government made it clear that, following negotiations with the mining companies, the total payment was based on ongoing lucrative commodity prices. The Peruvian Minister of Energy and Mines stated that:

“If prices keep rising, the amount of the total payment will probably increase too.”

Manufacturing

Typically, an automobile manufacturer choosing a location to construct a new plant is besieged by national and/or local governments, with offers of tax breaks and other incentives. Existing public infrastructure is made available, or offers to construct new assets are put forward in an auction to win the hearts and minds of management. The use of local roads, railways or other utilities is generally a given. Should these not meet the standards required by the manufacturer, public funds are often committed to upgrades.

Analyse the range of taxes typically paid by a mine operator and the list might include:

- ongoing royalty or severance payments;
- quarantined income tax deductions/losses resulting from up-front exploration costs, which in many cases are never able to be utilised;
- construction and contribution of significant infrastructure – including community infrastructure;
- land and property taxes;
- profit sharing with indigenous communities or workers;
- enforced state or local ownership; and
- non-recoverable, or slowly recovered, VAT paid on the importation of equipment.

Who would use this broader analysis of mining company taxes?

There are several stakeholder groups that might benefit from a broader analysis of mining company taxes. These include:

- local and national governments – in comparing the level of incentives provided to, or the burden placed upon, new or existing mine operators, as well as the overall burden placed on mining versus other industries;
- the community – to accurately gauge social responsibility levels in the industry;
- management – in establishing accurate hurdle rates for use in project selection and in the comparison of projects across jurisdictions; and
- shareholders – in comparing the overall tax efficiency of industry participants as part of their investment decisions.

How can total taxes be measured in the mining industry?

The accurate measurement of “above the line”, “below the line” and “in lieu” taxes in the resource industry is a challenge, but it must be attempted to gain a clearer picture of the mining industry’s overall contribution to the communities where it operates. The challenge includes the identification of tax contributions which are absorbed in the expense lines of the income statement or are capitalised to the balance sheet, including infrastructure which is contributed outright to the community.

From a disclosure point of view, it could be argued that stakeholders must not only be given a clearer understanding of the total tax contributed by mining companies, they should be provided with a yardstick to measure that contribution, thereby facilitating valid comparisons across industries and between mining industry participants.

The challenge

We intend to work with some industry participants in the coming year to tackle this challenge. We intend to publish the results of this work in next year’s edition of *Mine* – look for it next year!

the 1990s, the number of people with a mental health problem has increased in the UK (Mental Health Act 1983, 1990).

There is a growing awareness of the need to improve the lives of people with mental health problems. The Department of Health (1999) has set out a strategy for mental health care, which includes a commitment to improve the lives of people with mental health problems. This strategy is based on the following principles:

- People with mental health problems should be treated as individuals, with their own needs and wishes.
- People with mental health problems should be given the opportunity to participate in decisions about their care.
- People with mental health problems should be given the opportunity to live in their own homes and communities.

The Department of Health (1999) also states that people with mental health problems should be given the opportunity to live a full and meaningful life.

The Department of Health (1999) has also set out a number of key objectives for mental health care. These objectives are:

- To improve the lives of people with mental health problems.
- To reduce the need for hospital care.
- To improve the effectiveness of mental health services.

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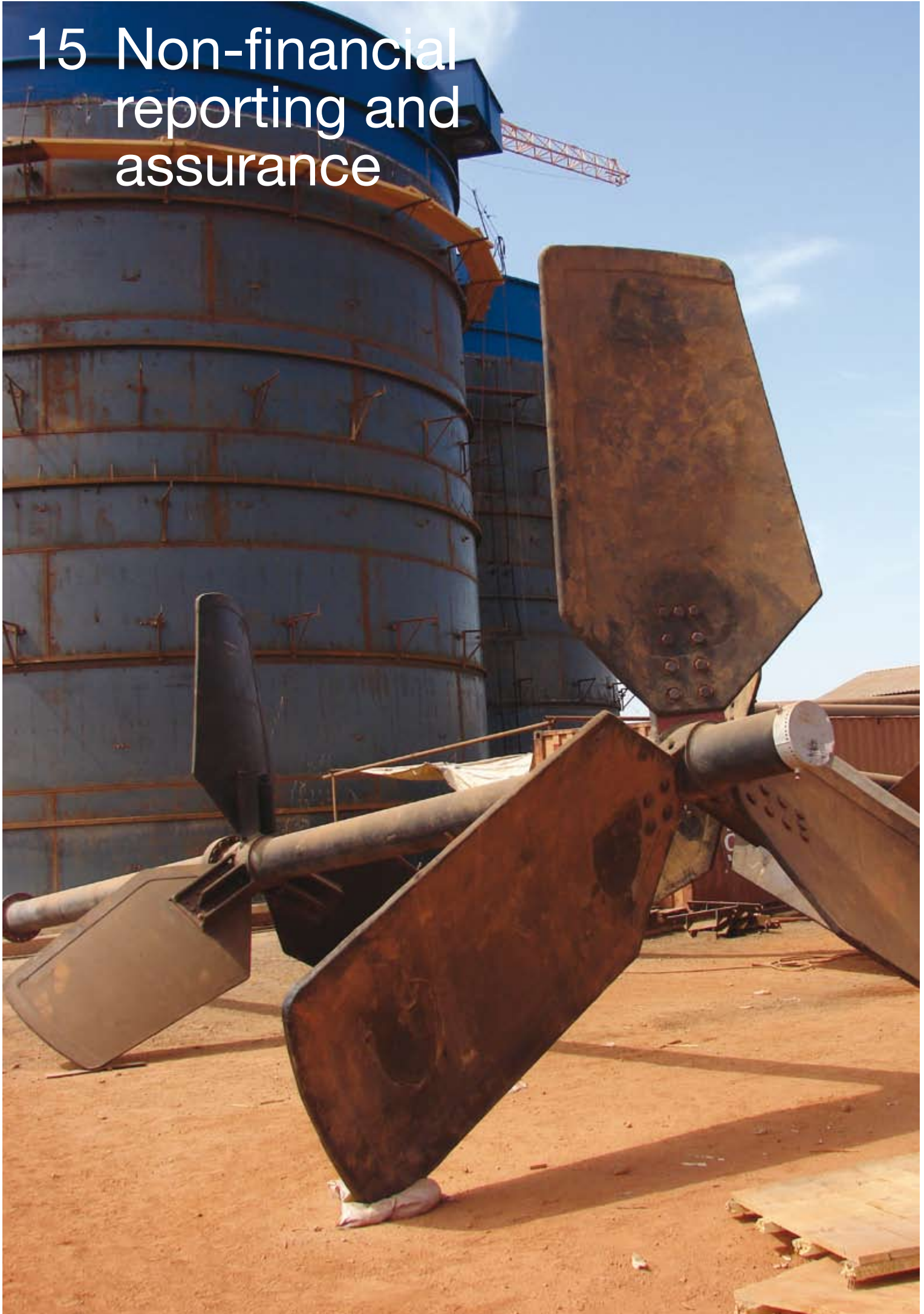
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15 Non-financial reporting and assurance



Health and Safety

A main indicator of any mining company's performance is in health and safety. Most mining companies spend a great deal of resources trying to attain zero fatalities. Despite this universal KPI, there is no globally consistent approach to measuring and reporting on health and safety performance. This makes comparisons extremely difficult, and will require an agreement by industry to report using a common framework before meaningful comparisons can be made.

Financial statements of a company only give one part of a picture as far as future value is concerned. In a mining context, solid cash flows and high levels of production today may not lead to a strong pipeline of projects and an ability to exploit new exploration areas tomorrow. In addition to physical assets and technical capabilities, a key factor in future viability is the "licence to operate." This "licence" will only be granted to those companies who demonstrate strong commitment to non-financial drivers of value and positive reputation such as effective governance and ethics, high environmental standards and a record of developing their workforce and supporting the communities in which they operate.

In today's age of ease of global communication, a dispute in a far-flung corner of the world over working conditions or environmental contamination can quickly erupt into scandal, disrupting operations and costing millions in legal fees and lost production. There are also untold costs in reputation, both for the company and the industry as a whole, and may make other countries or regions think twice before allowing companies to develop mineral deposits in their own backyard. Reporting on how companies, in all sectors, manage their key non-financial issues has been an emerging challenge for many years. Climate change and transitioning to a low-carbon economy is raising the stakes further.

An increasing number of companies provide non-financial reports. That said, there is little consistency between the information reported, even within the same industry. However, consensus and good practice is emerging: for example, the Global Reporting Initiative (GRI) guidelines for sustainability reporting provide guidance on preparing reports and how to measure performance. GRI also contains guidance on how to determine factors such as balancing completeness with materiality and defining an effective scope of reporting.

The confidence provided by the auditing of non-financial data is far from that gained from traditional financial reports. Financial auditors and accounting bodies have spent decades developing accounting and auditing standards. Currently there are wide ranging “assurance” products for non-financial data, which differ greatly in the opinion provided and in the robustness of the underlying methodology. This diversity leads to a lack of clarity over which information is assured and the quality of information reported. Assurance standards and consistent methodologies are needed, both by users of non-financial information (who are looking for assurance as to the accuracy of the information on which they want to base decisions) and for management (who are signing off on the reports and therefore need to ensure that they are not materially misstated).

To this end, the International Auditing and Assurance Standards Board (IAASB) has released a standard to deal with providing assurance on non financial information. This has been followed by countries, such as The Netherlands, developing more specific guidance for sustainability reporting. Other countries and regional accounting bodies are also actively studying the issue.

Although still very much in their early days, organisations such as ICMM, will play key roles in leading the convergence of financial and non financial reporting and contributing to the development of standards for non-financial assurance. The mining industry has more developed non-financial reporting and assurance than industries with fewer environmental and social impacts, or those that face less public scrutiny. The mining industry must continue to take the lead in this evolving arena.

Health and Safety

According to the World Bank, 3000 people die of malaria each day and a third of the world's population lives in malaria endemic regions. There are also a large number of mines in these regions. The most cost-effective interventions against malaria today are rapid diagnosis and effective treatment, the use of insecticide-treated bed nets, intermittent-presumptive treatment for pregnant women, and epidemic preparedness. The burden of malaria can be reduced significantly using existing preventive and treatment strategies.

With equipped mining hospitals and prevention strategies, mines are making a difference against malaria in the areas in which they operate.

ICMM's Sustainable Development Framework: an emerging model for industry accountability

By ICMM Chairman Leigh Clifford

As companies struggle with the challenge of making their social and environmental commitments credible, ICMM's Sustainable Development Framework (SDF) is establishing itself among the most advanced industry-based corporate accountability initiatives. It commits ICMM members to rigorous standards of performance, reporting, and assurance. The framework is at the centre of ICMM's commitment to continually improve the performance of its members on sustainable development.

Sustainable development issues have a fundamental influence over key drivers of profitability for mining companies. They help determine, for example, whether companies get access to additional resources, how acceptable their products will be to consumers and regulators in the marketplace and the terms for accessing capital and gaining competitive insurance rates. A recent analysis published by the public relations firm Hill & Knowlton, reporting on the views of 282 global investment analysts, noted that "companies failing to look after the reputational aspects of performance will ultimately suffer financially".

ICMM's Sustainable Development Framework applies to all 15 company members and was drawn up following ICMM's establishment in 2001. The roots of the framework go back further to a three-year multi-stakeholder review process known as the Global Mining Initiative, which was launched by the chief executives of nine of the world's largest mining and metals companies in 1998. They recognised that a mixture of strategic challenges was threatening the mining and metals sector. There was a growing recognition that the performance of mining companies on social and environmental issues has a major influence on a number of long-term corporate success factors, including access to resources, markets for products, skilled and motivated employees, and reasonable terms for finance and insurance. A good example here is the issue of access to large scale mineral deposits are increasingly difficult to find, especially in developed countries. This has led to a shift to investment in developing countries, where mineral deposits are often located in weakly-governed, environmentally sensitive areas. Reputational risks are heightened in these circumstances, particularly for high-profile international companies. Perhaps more critically, shareholder value can be compromised in cases where local communities actively oppose development and cause significant operational disruption and delays.

Such considerations led to the establishment of the Mining, Minerals and Sustainable Development (MMSD) project: a two-year international multi-stakeholder initiative which sought to obtain the views of governments, indigenous peoples' organizations, non governmental and labour organizations and others on what are the sustainable development issues in the mining and metals sector and how various stakeholders should address these sustainable development challenges. During the MMSD process, executives at the highest levels of the industry recognised that a substantial cultural shift was needed if companies were to prosper in the future.

ICMM emerged from the MMSD process, as a CEO-led body with an explicit commitment to sustainable development in its mandate. Shortly afterwards, ten sustainable development principles were agreed upon, based on the MMSD findings and covering a range of issues including health and safety; human rights and community development; social, economic and institutional development; environmental and biodiversity protection; and materials stewardship. Performance against these ten principles is the basis, and the first of three elements, of the framework.

The second element is a commitment to public reporting of performance against the principles. ICMM worked with the Global Reporting Initiative (GRI) in order to produce a sector supplement, and in 2005 agreed to report at the most transparent level of the GRI – 'in accordance with' its guidelines. The sector supplement for mining and metals, which has since been translated into five languages, was produced in consultation with a twenty-member working group drawn from a wide range of organisations including the World Bank, Oxfam, and the National Union of Mine Workers of South Africa. To give companies time to review and update their reporting procedures, the 2005 agreement to report 'in accordance' with GRI gave companies two reporting cycles to comply – for most companies this meant the 2006 reports published this year. Five ICMM member companies met this commitment a year early.

The third – and most ambitious – element of the framework is the pilot assurance procedure, which was approved by ICMM's Council in May 2006. The procedure commits ICMM members to implementing independent, third-party assurance of both their performance against the principles, and the public reporting of this performance. This aspect of the framework is intended to demonstrate transparently

to the outside world that companies' sustainable development efforts are genuine and that progress is effective. The procedure, which is based on AccountAbility's AA1000 standard and the ISAE3000 standard (developed by the global accounting industry), requires all companies to implement assurance on corporate and operational activities, as well as impacts on key external stakeholders and key contract manufacturers and suppliers. Because ICMM members entered the process at different levels, the assurance procedure has been staged to allow staged implementation, as well as being designed to be used as part of companies' existing assurance activities – avoiding an additional layer of bureaucracy. The target date for all members to conform to the procedure is 2009.

An inclusive and wide-ranging engagement process has been a central part of each stage of the framework's development. Although ICMM is industry-led, it is constantly seeking to work with others, in the recognition of the fact that there is a clear limit to how much the industry alone can achieve on sustainable development. In some cases support is already evident, for example the Indian Government is planning to incorporate the principles of the framework into new national minerals legislations having recognised the need to raise standards among domestic companies so that they can compete on an international basis. In other cases progress is more difficult, with some civil society organisations refusing on principle to work with mining and metals

companies due to their perceived negative social and environmental impacts. Looking ahead, significant progress towards sustainable development in the mining and metals sector – including commitment to the framework – will only be possible with the active involvement of external stakeholders, particularly government and civil society organisations.

Now that the whole Framework is in place, it is important to remember why ICMM has made these commitments. Non-financial factors are of fundamental importance in the long term creation of shareholder value for mining and metals companies; performance in this area is becoming an increasing source of distinction and competitive advantage between companies. Many prospective mines are located in environmentally and socially sensitive regions. Community opposition can make developing these mines impossible, or disrupt their operations and we have seen this in recent times in a number of countries. ICMM companies believe that such pressures and opportunities mean leadership on sustainable development – through the Sustainable Development Framework – is vital to their long-term prospects.

About ICMM: ICMM members believe that the mining, minerals and metals industry acting collectively can best ensure its continued access to land, capital and markets as well as build trust and respect by demonstrating its ability to contribute successfully to sustainable development.

16 A view from
around



In addition to discussing the view of the future of the mining industry and the issues that matter with CEOs of mining companies, we have also held discussions with a number of other global stakeholders. These included government officials, labour groups, employee representatives, analysts and members of local communities where mining operations exist. While we would not represent that this is a comprehensive or all encompassing view, we do feel it gives some insight into the industry as a whole, and has identified certain trends that may warrant further consideration.

All stakeholders concur that high demand driven by the booming economies of Asia is resulting in record commodity prices and mining profits. There is also a general positive view that this will continue in the near to medium term. However, there are inconsistent views as to whether these benefits are being shared equitably with all stakeholders.

For some time, employment in the industry in terms of absolute numbers of employees has decreased. At the same time, average wages have increased, in some cases dramatically. These statistics exclude contractors. The unions interviewed noted a significant concern in the increased use of contractors and other service providers, which is not beneficial to their members who lose out on employment opportunities and fringe benefits associated with mining company employment. The unions also expressed concern that the safety of their members could be compromised, due to contractors and other service providers not sharing the same safety culture as their members. It was also noted that challenging working conditions and potentially extended periods away from home and family are not always viewed as being sufficiently compensated for.

The greater disposable income being earned by mining company employees has resulted in benefits to the communities where the miners live and spend their earnings. This has also resulted in unprecedented demand for community services and infrastructure, leading to higher inflation levels in these communities. The challenge faced by employees in locating affordable family housing is one example of this.

Lack of skilled labour is a key issue that is being felt globally with technological advancements and the growing complexity of deposits requiring innovative techniques in the industry. This shortage is exacerbated by growing demand for similar skilled labour in general construction and other infrastructure and extractive industries.

Small-scale mining is a part of the industry that most regulators, particularly those in developing countries, turn a blind eye to. Whilst it allows a large number of people to earn a living, it also brings with it a wide range of social and ecological problems that tarnish the reputation of the industry. Finding one voice to represent the diverse interests of small-scale miners is equally difficult. Despite the often conflicting interests, the large mining companies have been attempting to improve their relations with this group in recent years. However, this is definitely one area where the mining companies alone cannot address all the underlying issues. It will require action on the part of governments to address the social issues that are forcing this large group of people into dangerous small-scale mining operations.

The obligation of mining companies to support the local communities in which they operate is another key issue and one that mining companies are continually addressing. Apart from simply operating in an area, they have in many cases become part of the fabric of that society. As we discussed in *Mine – Enter the dragon*, how far-reaching this social responsibility should be remains a debate, especially in these days of record profits and cash flows.

Despite a strong industry commitment, many outside stakeholders such as unions and NGOs still view the industry's commitment to sustainable development with scepticism. It is not clear, however, nor is there likely to be a uniform view, of what is expected of mining companies. This is an issue that can really only be dealt with at a local level when considering the specific facts that impact on relevant stakeholders.

In short, a myriad of issues face the industry both on a local and global scale. The answer is to work together and engage in open dialogue with governments and communities to achieve what is needed.

17 Appendix A – Glossary



Current ratio	Current assets/Current liabilities
EBITDA	Earnings before interest, tax, depreciation and amortisation. A measure that is close to the underlying cash earning stream of the company before servicing the capital base.
PBIT	Profit before interest and tax
PBT	Profit before tax
EBITDA margin	EBITDA/Revenue
Gearing ratio	Net borrowings/Net borrowings plus shareholders' equity
Market capitalisation	The market value of the equity of a company, calculated as the share price multiplied by the number of shares outstanding
Net borrowings	Borrowings less cash
Net profit margin	Net profit/Revenue
Operating cash flow margin	Net operating cash flows/Revenue
Profit before interest and tax margin	Profit before interest and tax/Revenue
Quick ratio	Current assets less inventory/Current liabilities
Return on capital employed	Net profit/Average property plant and equipment plus current assets less current liabilities
Return on equity	Net profit/Average shareholders' equity
Top 40	40 of the world's largest mining companies
Top 4	Anglo American, BHP Billiton, CVRD, and Rio Tinto
TSR	Total shareholder return: as measured by dividends and capital gain in a given period over the opening share price.

18 Top 40 companies analysed



Top 40 companies analysed

Company	Country	Year end
Agnico-Eagle Mines Limited	Canada	31 December
Alrosa Company Limited	Russia	31 December
Anglo Platinum Limited	South Africa	31 December
Anglo American plc	United Kingdom	31 December
AngloGold Ashanti Limited	South Africa	31 December
Antofagasta plc	Chile	31 December
Barrick Gold Corporation	Canada	31 December
BHP Billiton Group	Australia / United Kingdom	30 June
Cameco Corporation	Canada	31 December
China Shenhua Energy Company Limited	China	31 December
Coal & Allied Industries Limited	Australia	31 December
Companhia Vale do Rio Doce (CVRD)	Brazil	31 December
Consol Energy Incorporated	USA	31 December
Corporacion Nacional del Cobre de Chile (Codelco)	Chile	31 December
Freeport-McMoRan Copper & Gold Incorporated	USA	31 December
Gold Fields Limited	South Africa	30 June
Goldcorp Incorporated	Canada	31 December
Harmony Gold Mining Company Limited	South Africa	30 June
Impala Platinum Holdings Limited	South Africa	30 June
Inco Limited	Canada	31 December
Kazakhmys plc	United Kingdom	31 December
KGHM Polska Miedz S.A.	Poland	31 December
Kinross Gold Corporation	Canada	31 December
Kumba Iron Ore Limited	South Africa	31 December
Lonmin plc	United Kingdom	30 September

Top 40 companies analysed

Company	Country	Year end
MMC Norilsk Nickel (OAO)	Russia	31 December
National Mineral Development Company Limited	India	31 March
Newcrest Mining Limited	Australia	30 June
Newmont Mining Corporation	USA	31 December
Peabody Energy Corporation	USA	31 December
Phelps Dodge Corporation	USA	31 December
Polyus Gold (OAO)	Russia	31 December
Rio Tinto Group	Australia / United Kingdom	31 December
Southern Copper Corporation (USA)	USA	31 December
Teck Cominco Limited	Canada	31 December
Vedanta Resources plc	India	31 March
Xstrata plc	Switzerland	31 December
Yanzhou Coal Mining Company Limited	China	31 December
Zijin Mining Group Co Ltd	China	31 December
Zinifex Limited	Australia	30 June

the fact that the number of observations is small, the use of the asymptotic normality of the maximum likelihood estimator is not recommended.

As an alternative to the maximum likelihood estimator, the method of moments estimator is used. The method of moments estimator is based on the fact that the first two moments of the distribution are known. The method of moments estimator is defined as the solution of the system of equations

$$\frac{1}{n} \sum_{i=1}^n x_i = \mu \quad \text{and} \quad \frac{1}{n} \sum_{i=1}^n x_i^2 = \mu^2 + \sigma^2 \quad (1)$$

where μ and σ^2 are the mean and variance of the distribution, respectively. The method of moments estimator is defined as

$$\hat{\mu} = \frac{1}{n} \sum_{i=1}^n x_i \quad \text{and} \quad \hat{\sigma}^2 = \frac{1}{n} \sum_{i=1}^n x_i^2 - \hat{\mu}^2 \quad (2)$$

The method of moments estimator is unbiased and consistent. The method of moments estimator is also efficient if the distribution is normal.

The method of moments estimator is also used to estimate the parameters of the distribution. The method of moments estimator is defined as the solution of the system of equations

$$\frac{1}{n} \sum_{i=1}^n x_i = \mu \quad \text{and} \quad \frac{1}{n} \sum_{i=1}^n x_i^2 = \mu^2 + \sigma^2 \quad (3)$$

where μ and σ^2 are the mean and variance of the distribution, respectively. The method of moments estimator is defined as

$$\hat{\mu} = \frac{1}{n} \sum_{i=1}^n x_i \quad \text{and} \quad \hat{\sigma}^2 = \frac{1}{n} \sum_{i=1}^n x_i^2 - \hat{\mu}^2 \quad (4)$$

The method of moments estimator is unbiased and consistent. The method of moments estimator is also efficient if the distribution is normal.

The method of moments estimator is also used to estimate the parameters of the distribution. The method of moments estimator is defined as the solution of the system of equations

$$\frac{1}{n} \sum_{i=1}^n x_i = \mu \quad \text{and} \quad \frac{1}{n} \sum_{i=1}^n x_i^2 = \mu^2 + \sigma^2 \quad (5)$$

where μ and σ^2 are the mean and variance of the distribution, respectively. The method of moments estimator is defined as

$$\hat{\mu} = \frac{1}{n} \sum_{i=1}^n x_i \quad \text{and} \quad \hat{\sigma}^2 = \frac{1}{n} \sum_{i=1}^n x_i^2 - \hat{\mu}^2 \quad (6)$$

The method of moments estimator is unbiased and consistent. The method of moments estimator is also efficient if the distribution is normal.

The method of moments estimator is also used to estimate the parameters of the distribution. The method of moments estimator is defined as the solution of the system of equations

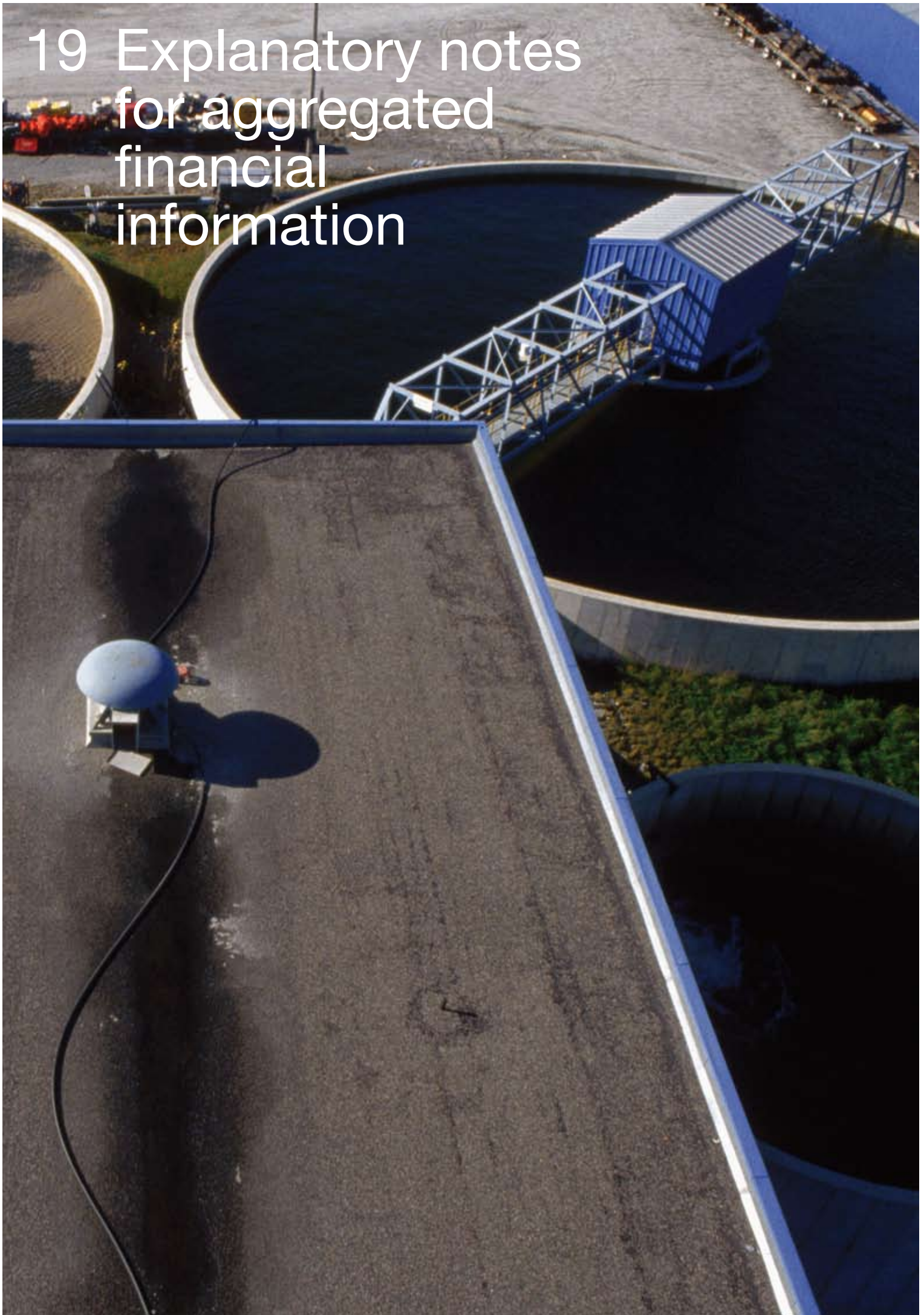
$$\frac{1}{n} \sum_{i=1}^n x_i = \mu \quad \text{and} \quad \frac{1}{n} \sum_{i=1}^n x_i^2 = \mu^2 + \sigma^2 \quad (7)$$

where μ and σ^2 are the mean and variance of the distribution, respectively. The method of moments estimator is defined as

$$\hat{\mu} = \frac{1}{n} \sum_{i=1}^n x_i \quad \text{and} \quad \hat{\sigma}^2 = \frac{1}{n} \sum_{i=1}^n x_i^2 - \hat{\mu}^2 \quad (8)$$

The method of moments estimator is unbiased and consistent. The method of moments estimator is also efficient if the distribution is normal.

19 Explanatory notes for aggregated financial information



We have analysed 40 of the largest mining companies, representing over 80% of the global industry by market capitalisation. Our analysis includes major companies in all parts of the world.

The results aggregated in this report have been sourced from publicly available information, primarily annual reports and financial reports available to shareholders. Companies have different year-ends and report under different accounting regimes. 23 of the 40 companies prepared their financial information under International Financial Reporting Standards (IFRS), nine under US Generally Accepted Accounting Practice (US GAAP), six under Canadian GAAP, one under Chilean GAAP and one under Indian GAAP.

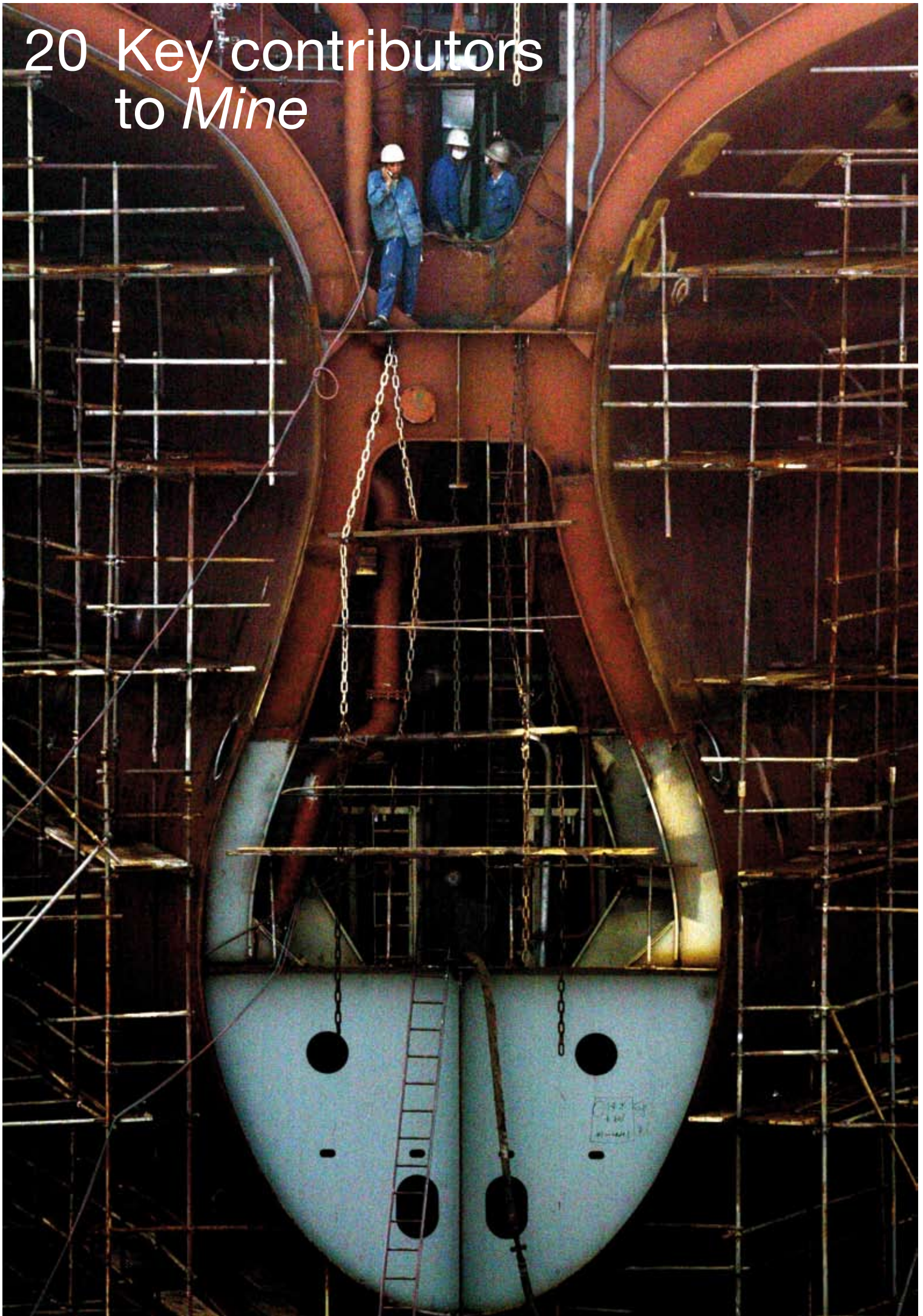
Information has been aggregated for the financial years of individual companies and no adjustments have been made to take into account different reporting requirements and year-ends. As such, the financial information shown for 2006 covers reporting periods from 1 April 2005 to 31 December 2006, with each company's results included for the 12-month financial reporting period that falls into this timeframe.

All figures in this publication are reported in US dollars, except when specifically stated. The results of companies that report in currencies other than the US dollar have been translated at the average US dollar exchange rate for the financial year, with balance sheet items translated at the closing US dollar exchange rate.

Some diversified companies undertake part of their activities outside the mining industry, such as the petroleum business of BHP Billiton. No attempt has been made to exclude such non-mining activities from the aggregated financial information.

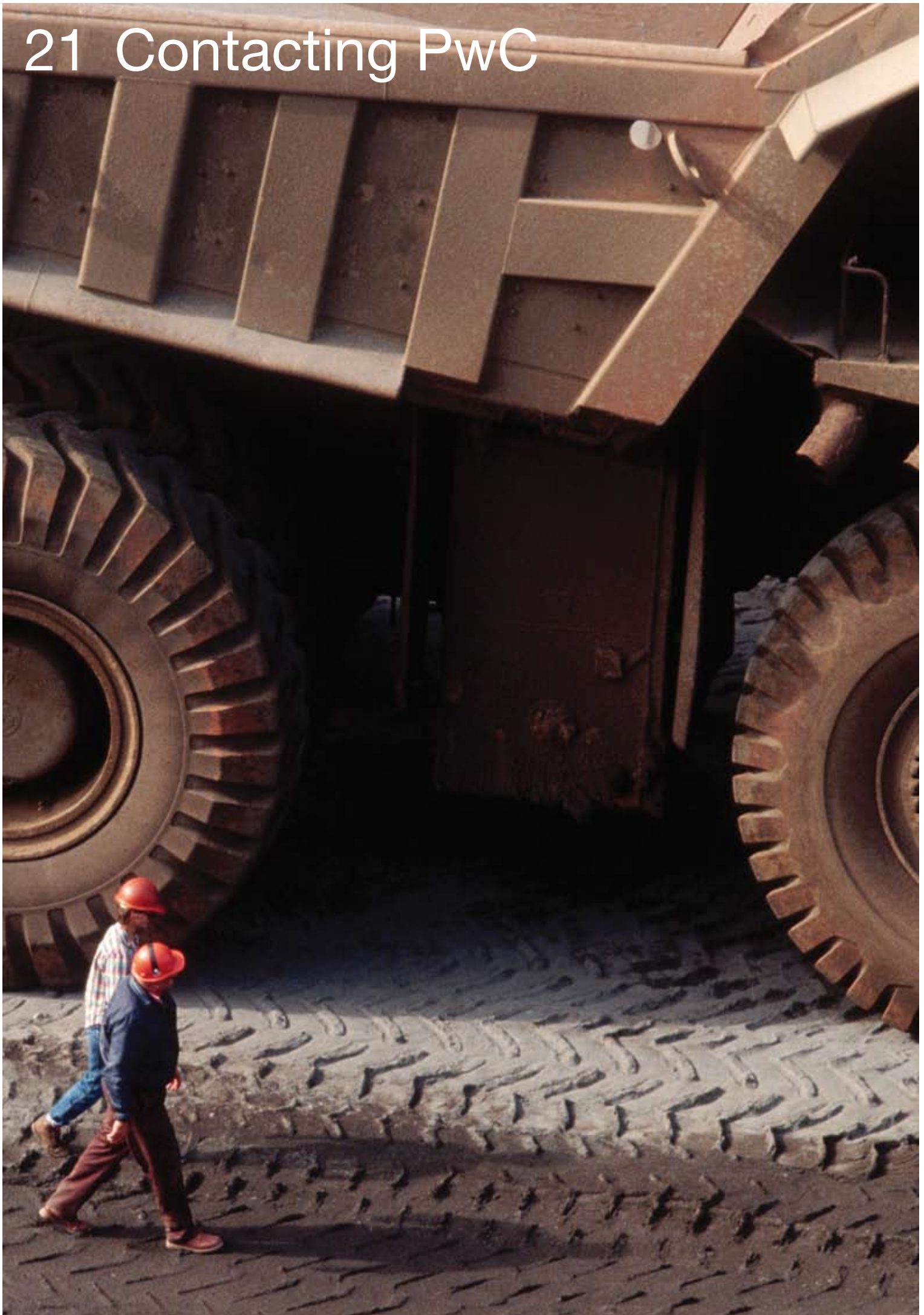
The five-year trend information (on page 33) differs from our main analysis as it includes the aggregated results of 40 of the largest companies in each of the years disclosed. As such, the 2005 financial information differs from the information included in the main Financial Review section in respect of 2005 as it relates to the 40 companies that were included in our previous *Mine* publication.

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PricewaterhouseCoopers (www.pwc.com) provides industry-focused assurance, tax and advisory services to build public trust and enhance value for its clients and their stakeholders. More than 140,000 people in 148 countries work collaboratively using connected thinking to develop fresh perspectives and practical advice.

PricewaterhouseCoopers is a leading adviser to the global mining industry, working with a wide variety of explorers, producers and related service providers to ensure we meet the challenges of the global mining industry into the future.

Our strength in serving the global mining industry comes from our skills, our experience, and our seamless global network of dedicated professionals who focus their time on understanding the industry and working on solutions to mining industry issues.

For more information on this publication or how PricewaterhouseCoopers can assist you in managing value and reporting, please speak to your current PricewaterhouseCoopers contact or telephone/e-mail the individuals below who will put you in contact with the right person.

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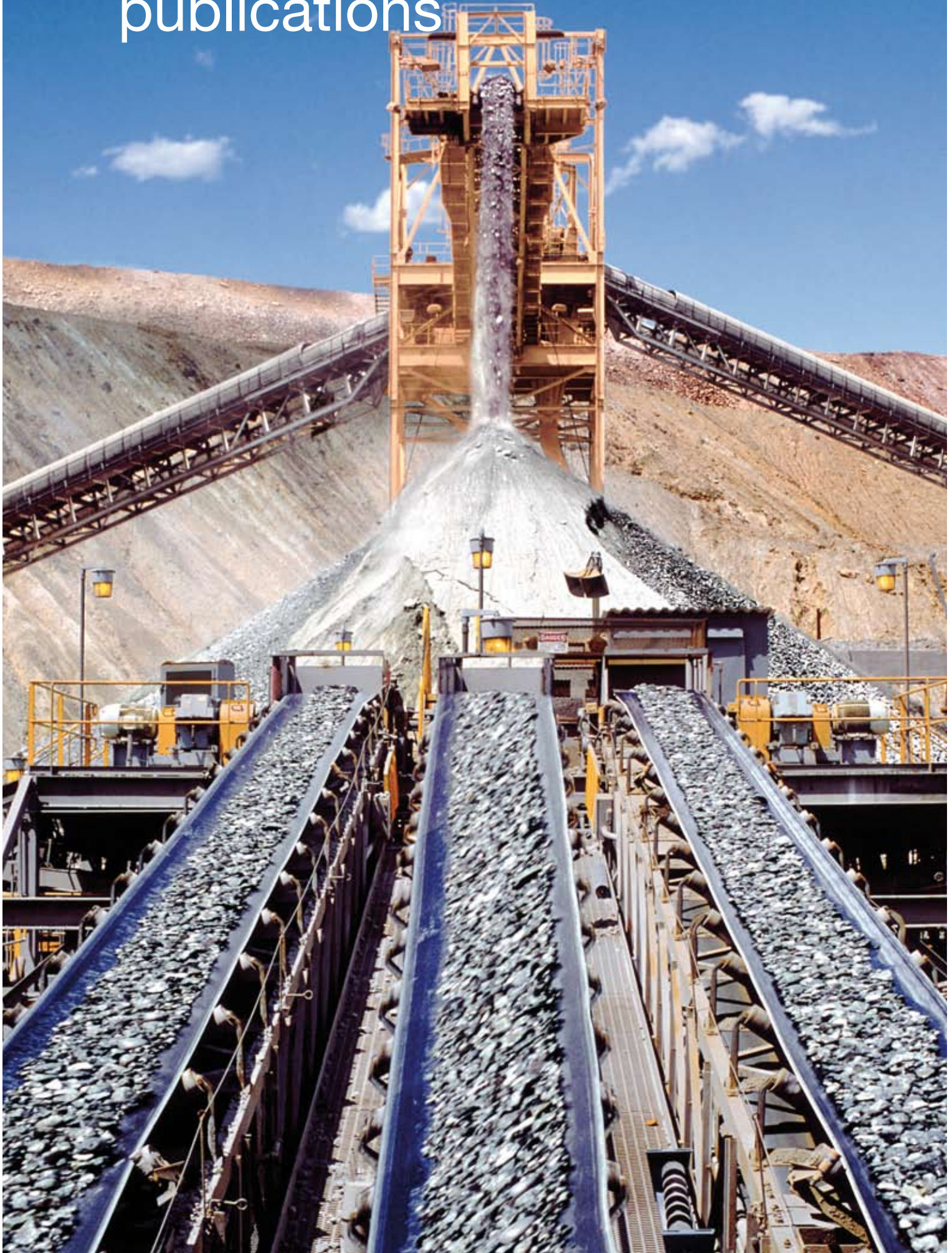
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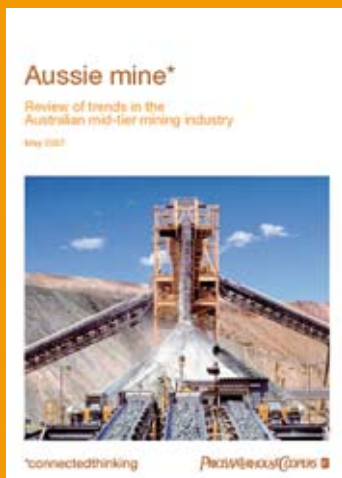
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22 Other PwC mining publications





Aussie mine*

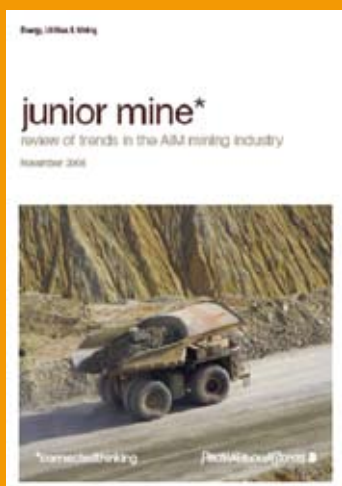
Aussie mine* aggregates the results of the largest 50 mining companies listed on the Australian Stock Exchange (ASX) with market capitalisation below AUD\$5 billion at 31 December 2006. It includes an analysis of the financial performance of the industry in 2006 using aggregated profit and loss accounts and cash flow statements and it also presents an assessment of the industry's financial position using an aggregated balance sheet.

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junior mine*

junior mine* is a must read for companies in the junior mining industry and for those with an interest in it. The publication provides a consolidated view of the AIM mining industry in 2005, as represented by 50 of the largest AIM mining companies.

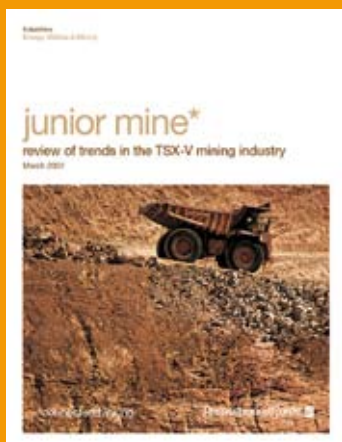
The companies covered by the report represent more than 80% of the AIM mining industry by market capitalisation. The report includes an analysis of the financial performance of the industry during 2005, using aggregated income and cash flow statements, and also presents an assessment of the industry's financial position using an aggregated balance sheet.

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junior mine*: Review of trends in the TSX-V mining industry

PricewaterhouseCoopers LLP's (PwC) inaugural report on Canada's junior mining industry — Review of Trends in the TSX-V Mining Industry. The recent success of junior mining companies in this prolonged boom cycle encouraged us to study the sector in detail. The report examines the financial position of the top 100 of the 967 junior mining companies on the TSX Venture Exchange (TSX-V) based on market capitalization as of September 30, 2006.

The 100 mining companies included in the report represent over half of the TSX-V mining industry by market capitalization, and so Review of Trends in the TSX-V Mining Industry will provide readers with a useful indicator of the health of the Canadian junior mining industry.

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2006 Global Gold Price Survey Results

This annual survey covers 24 gold mining and development companies with a reported expected production of 24 million ounces in 2006.

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Financial Reporting in the Mining Industry

This edition of “Financial Reporting in the mining industry” describes the financial reporting implications of IFRS across a number of areas selected for their particular relevance to the mining industry. The International Accounting Standards Board has formed an Extractive Activities working group; however, formal guidance on many issues facing mining companies is unlikely to be available for some years. Other developments taking place are the ongoing convergence with US GAAP and interest from the Securities and Exchange Commission in how US GAAP should be applied to the mining industry.

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Real Time: International Financial Reporting Standards in the mining sector

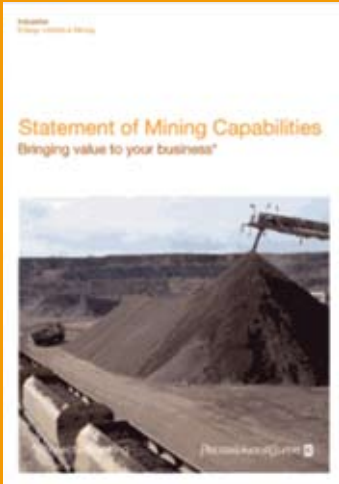
The mining sector faces a number of unique challenges in interpreting and applying International Financial Reporting Standards (IFRS) because of the specific characteristics of the industry and the absence of detailed industry guidance. Many companies around the world have now completed their transition projects, and have produced their first annual reports under IFRS. It is therefore a good time to reflect on some of the challenges that entities face in applying IFRS to the mining industry.

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Statement of Mining Capabilities

Volatile commodity prices, depleted mineral reserves, stringent environmental regulations and restrictions, rising operating costs and ever-intensifying competition have seen the mining industry reassess its strategies and become more global than ever in its focus. Our industry-leading specialists at PricewaterhouseCoopers (PwC) help our mining clients effectively identify and achieve synergies across a range of business issues.

PwC is the world's leading adviser to the mining industry, working with exploration, production and service companies to provide business solutions tailored to the mining sector. This publication discusses the key challenges mining companies face today and how PwC is helping them identify and implement solutions.

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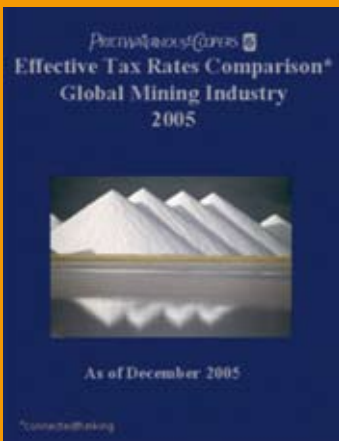
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Effective Tax Rates Comparison*: Global Mining Industry 2005

This edition of PwC's semi-annual comparison of effective income tax rates in the global mining industry covers 55 companies throughout the world that mine precious metals, base metals, industrial minerals (including cement) and/or coal. The companies included are headquartered in a variety of countries from every continent. This edition comprises: (1) commentary and analysis; (2) a sortable spreadsheet containing tax data from each of the 55 companies; and (3) a compilation of the tax footnotes from the financial statements of those companies.

We believe the real value in the comparison is analysing it to discern what the adjustments really mean and how they originated. Is a particular item 'typical' when looking at other mining companies in general or in the same segment or in the same country? Do similar companies have it? Should they? Is the item likely to repeat next year? Might there be a similar/mirror item going the other way next year (creating a valuation allowance this year, will it reverse next year)? Your local PricewaterhouseCoopers mining tax professionals would be happy to meet with you and determine if an effective rate study might be of benefit to your company.

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