

Where are we in the mining cycle?

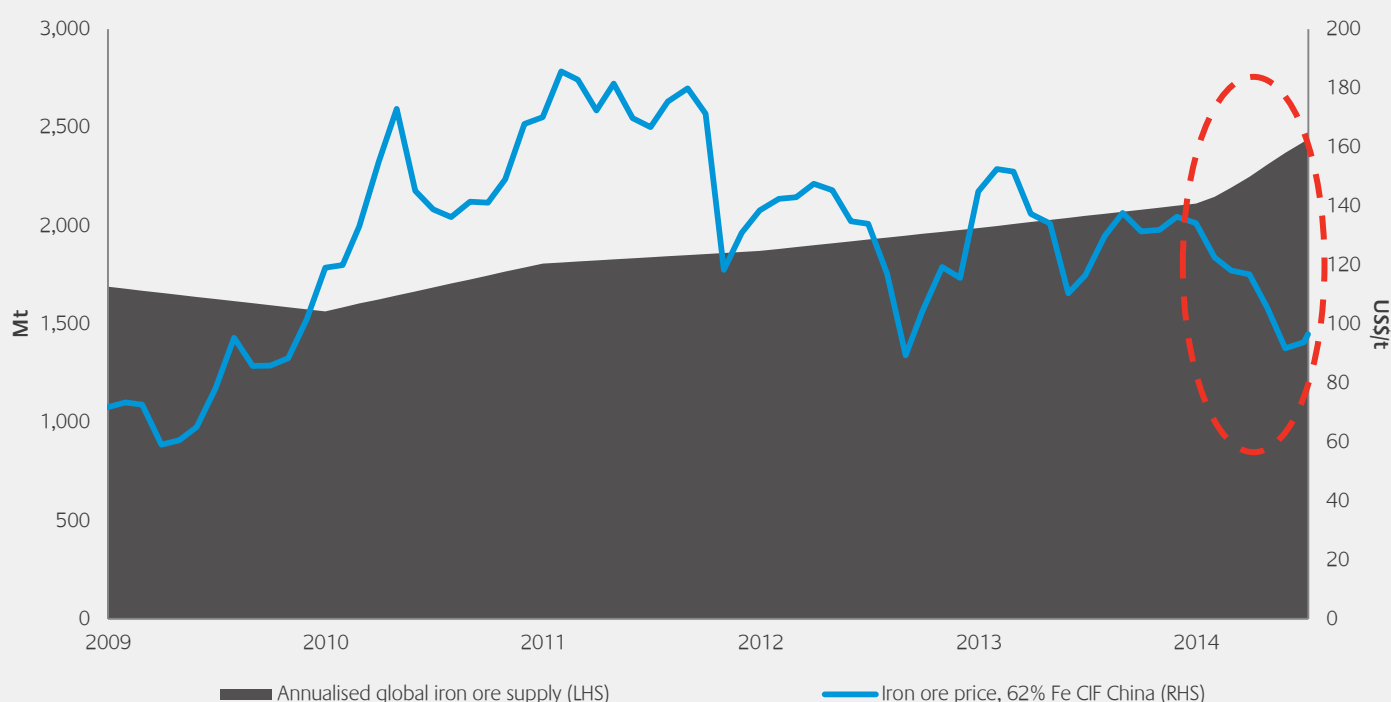
Asset Class Update

July 2014

For many investors the mining sector is characterised by ‘boom’ and ‘bust’. The boom phase of the cycle is fuelled by demand outstripping supply, which drives commodity prices higher and higher. This incentivises new production, but in many cases it comes from high cost operations that can only survive while prices are excessive. The peak of the boom is characterised by an acceleration in supply, a lack of capital discipline and often an M&A frenzy.

A boom inevitably leads to bust. The flood of supply eventually overwhelms demand, even if demand is growing. Commodity markets are pushed into surplus and prices fall. High cost operations become unprofitable. Over the last three years this has occurred in thermal coal, coking coal, nickel, aluminium and most recently iron ore. Chart 1 shows the strong correlation between iron ore supply growth and price decline.

Chart 1: A wave of iron ore supply this year has driven a price correction



Source: Bloomberg, UBS Research, RBC Capital Markets, data to 4 July 2014.

The cycle then traditionally sees mining companies rein in production and capital spending as prices fall. Higher cost producers become loss-making and, after a period of denial, capitulation takes place and operations are shut. More broadly within the industry, investment in new projects is postponed, as only the most compelling brownfields expansions continue to attract capital. The seeds for the next boom are laid in this phase of the cycle. The lack of investment in exploration and project development means supply will struggle to replace the natural decline rates of existing operations, let alone respond to the next surge in demand. It can take more than 10 years for a new mine to move from discovery to first production. Indeed, the largest copper discovery of the last cycle – Oyu Tolgoi in Mongolia – was discovered in 2001 but didn’t produce its first copper until 2013.

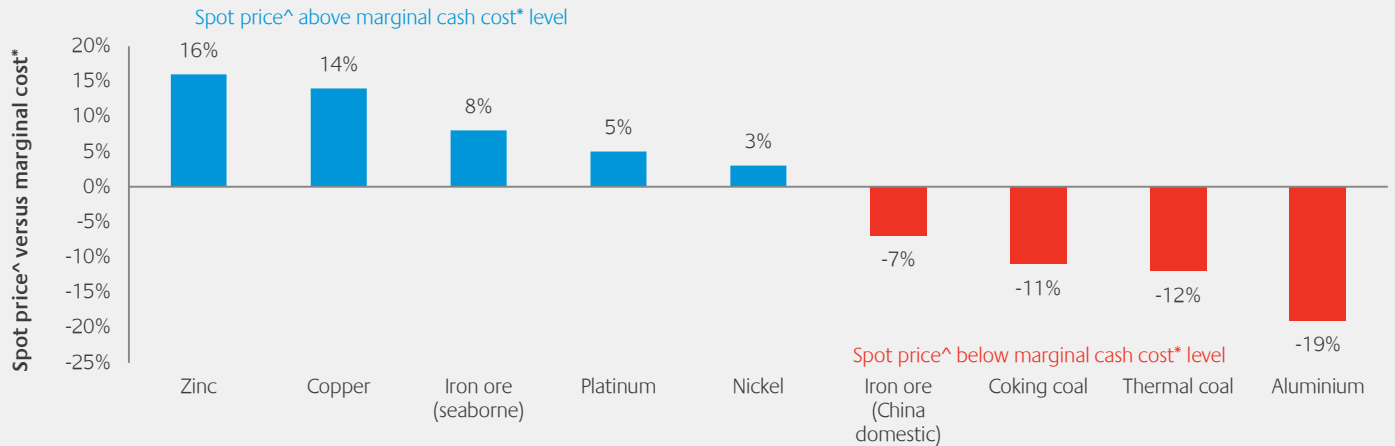
Each commodity is at a slightly different point in cycle, but we believe that, in general, the mining sector can be classified as being close to the bottom of the cycle. Chart 2 shows that a number of commodity prices have fallen below the marginal cost of

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production. This is defined as the level at which 10% of global supply is loss-making. We are already seeing production cuts and mine closures in some sectors, most notably thermal coal and coking coal. The appetite for M&A and capital investment has diminished, as shown in Chart 3. Debt and equity markets have withdrawn their support for the sector, illustrated in Chart 4.

The commodities that have been the most resilient are those geared to consumer demand growth in developed economies, rather than those geared to earlier stage emerging market infrastructure and property growth. The exception is aluminium, which is likely to remain in structural oversupply for some time, due to capacity increases in China, Russia and the Middle East.

Chart 2: Some commodities are now trading well below marginal cost of production

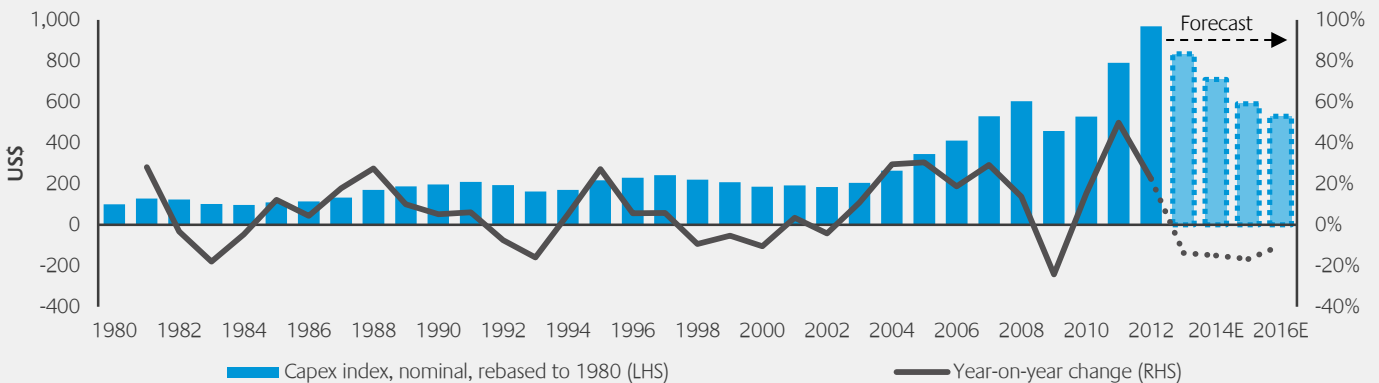


^Spot prices as of 13 June 2014.

*The cash costs of the 90th percentile producer on the 2013 supply curve. Cash costs calculation is based on the sum of direct cash costs and indirect costs excluding maintenance capex. Indirect costs include royalties, front end taxes and revenue based taxes (excluding income and profit-related taxes), research and exploration attributable to the operation, corporate and divisional overheads attributable to the operation.

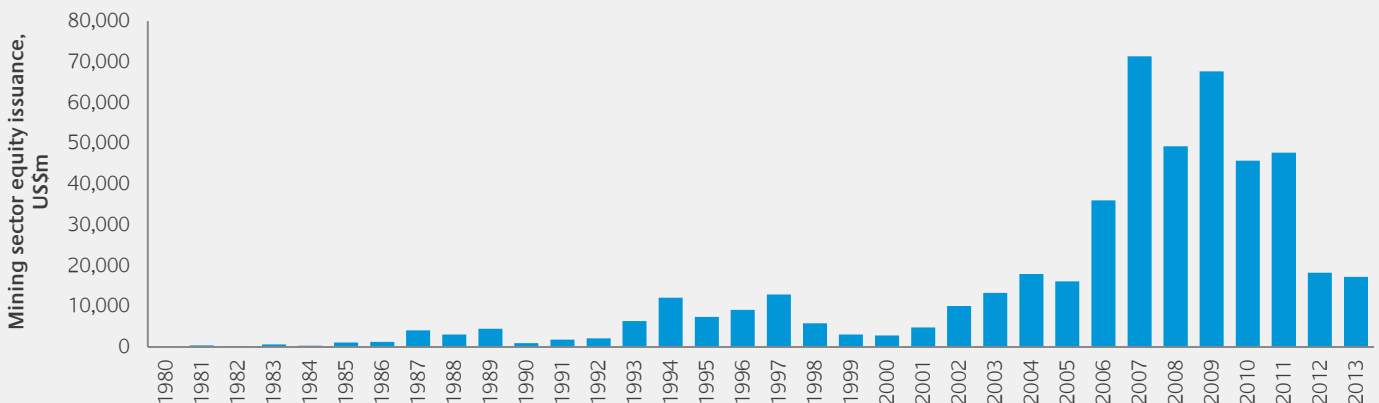
Source: Morgan Stanley Research, Woodmac, Datastream, CRU, data to 13 June 2014.

Chart 3: Capital investment in the mining industry peaked in 2012



Source: UBS Research, MICA, data as of 3 July 2013.

Chart 4: Equity issuance in the mining sector has dried up



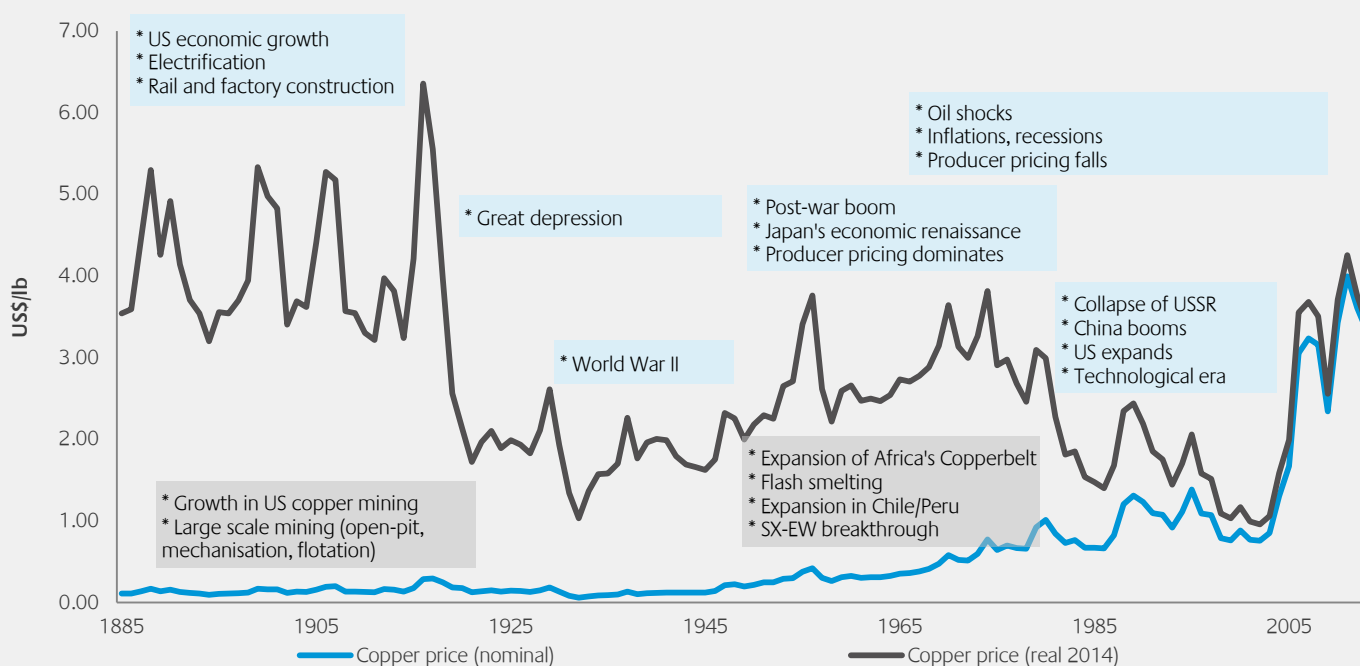
Source: UBS Research, Thomson Reuters, data to 31 December 2013.

Mini-cycle within a super-cycle

The industrialisation and urbanisation of emerging markets is far from complete. Both the Organisation for Economic Co-operation and Development (OECD) and McKinsey & Company estimate that three billion additional people will enter the middle class by 2030.

The best historical comparisons to the current structural growth cycle are the industrialisation of the United States (1880 through to World War I) and the rebuild of Europe and Japan post-World War II. Both these cycles lasted decades, as the long-term copper price profile in Chart 5 shows. The current cycle is only 10 to 15 years old. We anticipate the cycle will rotate from early-stage growth commodities used in steelmaking (including iron ore and coking coal) to more consumer demand-orientated commodities. These include energy products (like thermal coal and oil), copper, nickel and zinc. As the economic recovery starts to take effect commodities such as platinum and palladium that are directly correlated to the automotive sector will benefit.

Chart 5 – Copper price from 1885 to present exhibits mini-cycles within cycles



Source: UBS Research, Platts, USGS, Bloomberg, data to 31 December 2013.

Within each cycle there are mini-cycles, which is clearly visible in Chart 5. We believe we are near the trough of a mini-cycle, however, it could be short lived. Severe capital reductions could crimp supply growth and push commodity markets back into deficit faster than in previous cycles.

Large, well-financed mining companies have responded quickly to falling prices by tightening their belts. Capital expenditure and exploration budgets are being cut. High cost operators that are not producing positive cash flow are closing mines. Investment in ongoing maintenance is being deferred. Whilst we do not underestimate the tenacity of producers and their ability to lower costs while under duress in the short-term, this is often not a sustainable situation. Underinvesting in equipment, maintenance and sustaining capital can have serious long-term repercussions.

In the last few years, smaller companies have found it unusually difficult to attract debt and equity, as illustrated in Chart 4. In many cases lack of financing, combined with a lower commodity price outlook in the near-term, has completely stalled projects. The result is capex peaked for many commodities two to three years ago (see Chart 3) and the peak of supply is passing because the new mines have been commissioned.

Conditions are ripe for commodity markets to move back into deficit relatively quickly. The reduction in capital investment means there is a lack of new projects in the pipeline. In addition, mining companies must run very fast to stand still. Continual capital investment is required to combat declining grades and diminishing resource bases. However, capital investment is forecast to decline to historically low levels versus depreciation over the next few years, as illustrated in Chart 6 on the next page.

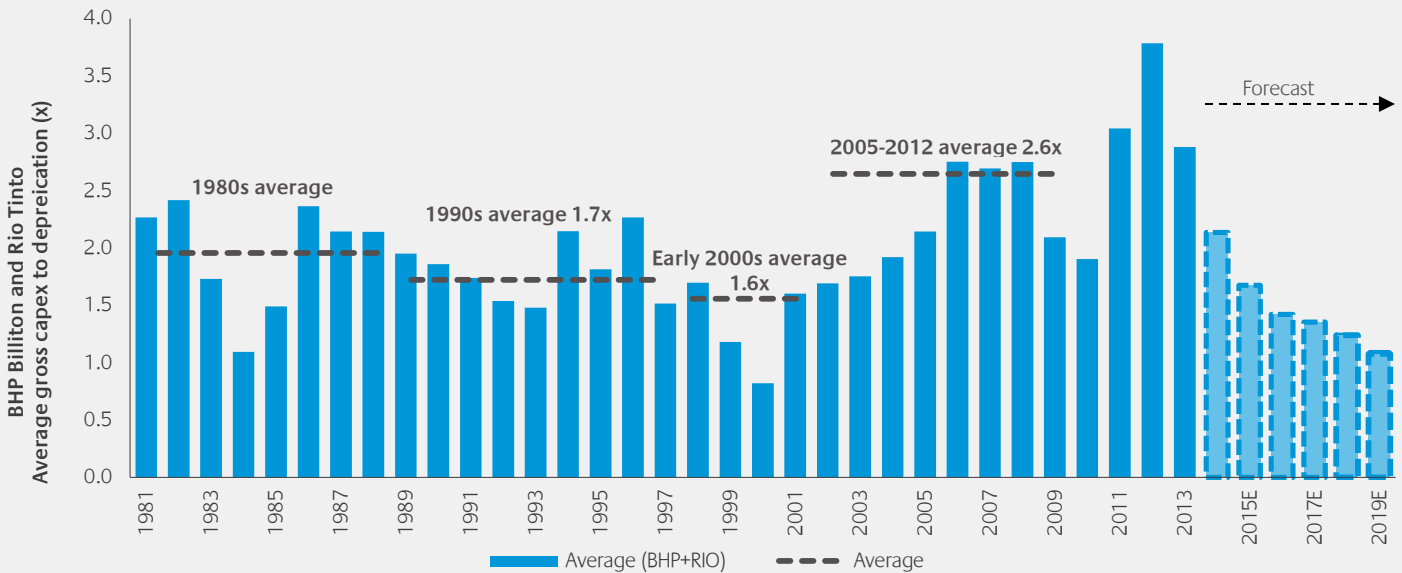
Delays in bringing on new production, combined with declining output from mature operations, could result in supply growth being outstripped by demand growth. This could push some commodities back into deficit. BMO Capital Markets estimates

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aluminium, uranium, platinum and palladium markets will be in deficit by the end of 2014. Citi Research estimates that iron ore, copper, nickel and thermal coal markets could all move back into deficit by 2017.

We also believe this downturn could be shorter than previous downturns because it has not been driven by a global or even a regional economic recession. Demand for most commodities remains quite robust; it has been the increase in new supply that has resulted in price weakness.

Chart 6: BHP Billiton and Rio Tinto's capital investment forecast to decline to historically low levels versus depreciation



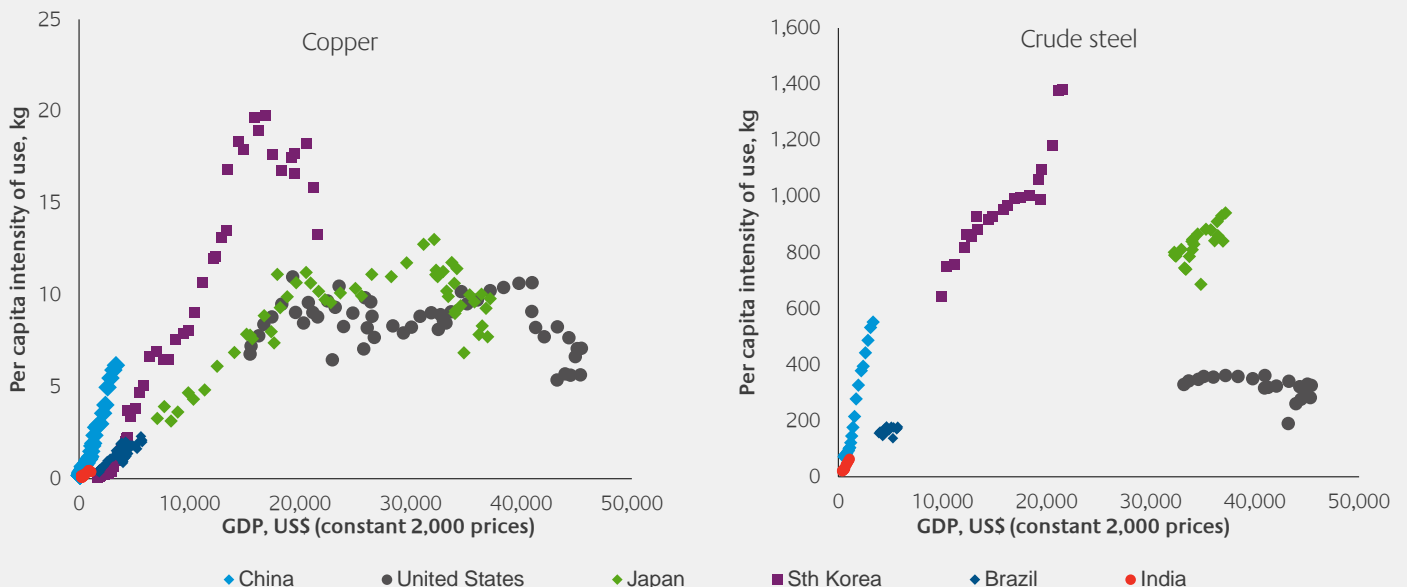
Source: Company data, Morgan Stanley Research estimates, data to 13 June 2014.

It's not just about China!

The decade-long, China-led materials-intensive growth cycle has entered a mature stage. However, intensity of metals use is still well below developed countries, as outlined in Chart 7 and 8. China's growth is not finished. We do expect growth rates will be moderate, but demand is coming from a very high base. BMO Capital Markets estimates China's copper demand is 40% higher today than it was 15 years ago, while its iron ore demand is 100% higher.

However, commodities demand is not just about China. While the market has been very focused on the impact of a subdued growth outlook for China, Europe and the US have been quietly recovering. We anticipate that pent up demand from these economies will start to flow through as economic confidence builds. This will provide broader support for commodities demand in the longer term.

Chart 7 and 8: China's metal intensity is still well behind that of developed nations

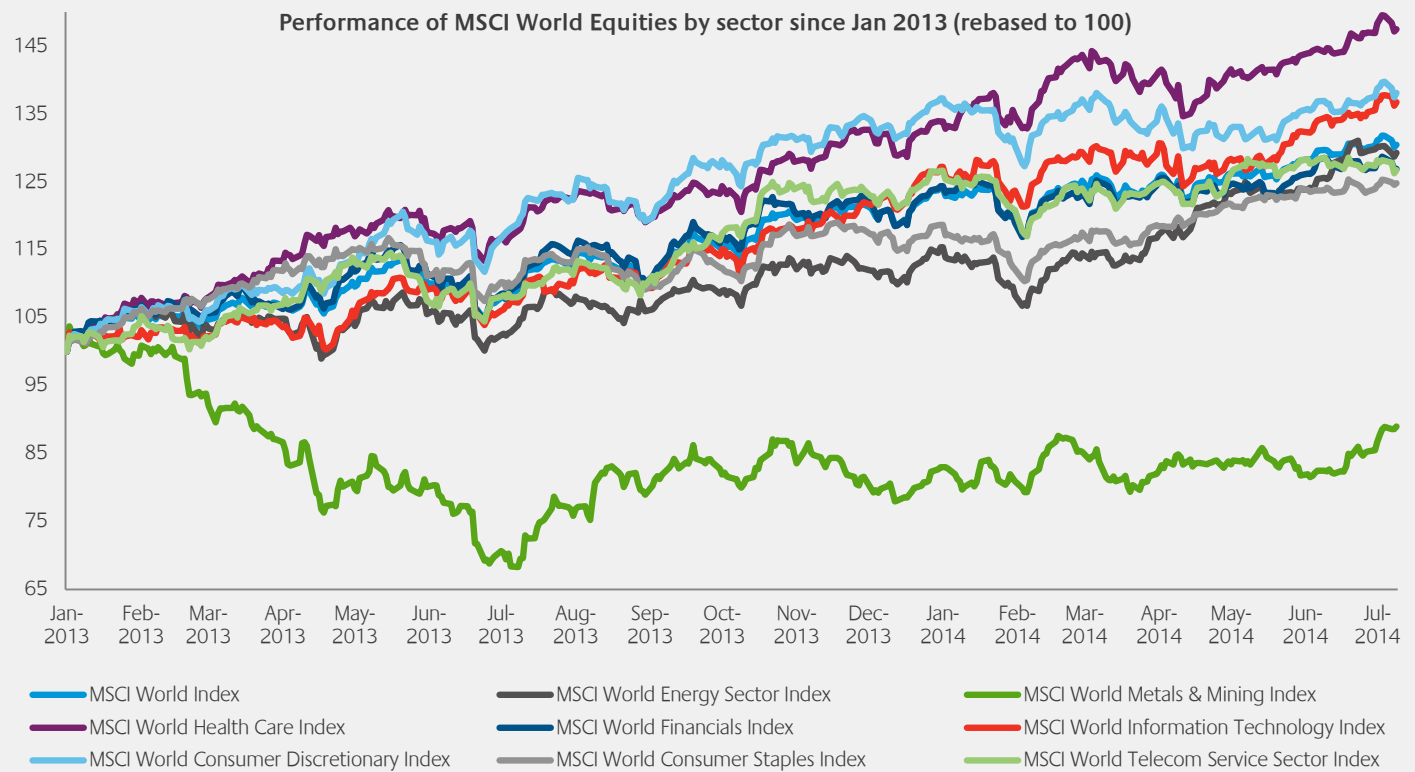


Source: UBS Research, Wood Mackenzie, CRU, Metalytics, data to 31 December 2012.

Mining equity valuations below long-term averages

Mining equities have suffered a significant correction over the last 18 months. The MSCI World Metals and Mining Index has underperformed the MSCI World Index by 31% since the start of 2013 and has underperformed every other sub-index, as shown in Chart 9.

Chart 9 – MSCI Metals and Mining Index has underperformed over the last 18 months



Source: Bloomberg, data to 9 July 2014.

Mining equities have also underperformed commodities, illustrated in Chart 10. The current period of underperformance is the lengthiest since 1985 and as severe as the Global Financial Crisis correction of 2008/09.

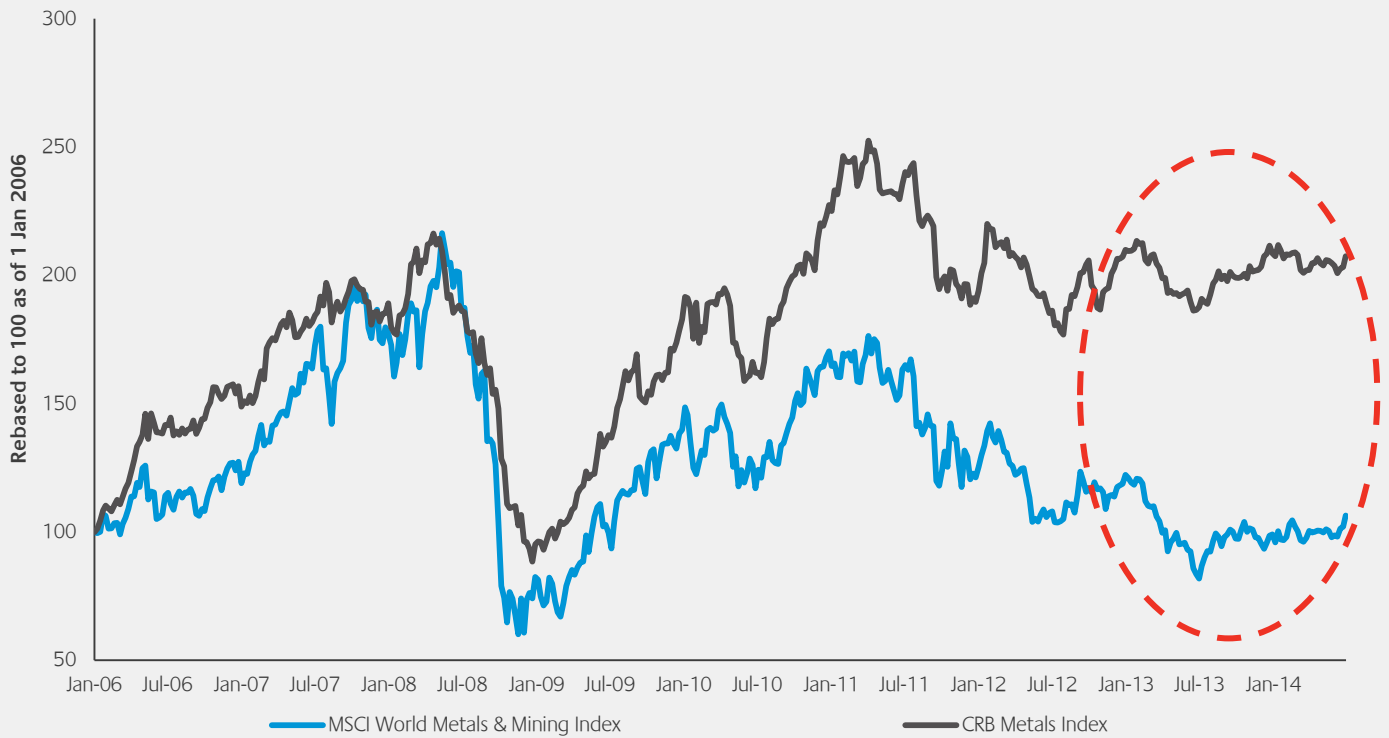
Chart 10 – Mining equities have significantly underperformed commodities recently



Source: Bloomberg, data to 1 July 2014.

Chart 11 shows that since de-rating in the first half of 2013 the sector has stabilised but still underperformed other asset classes.

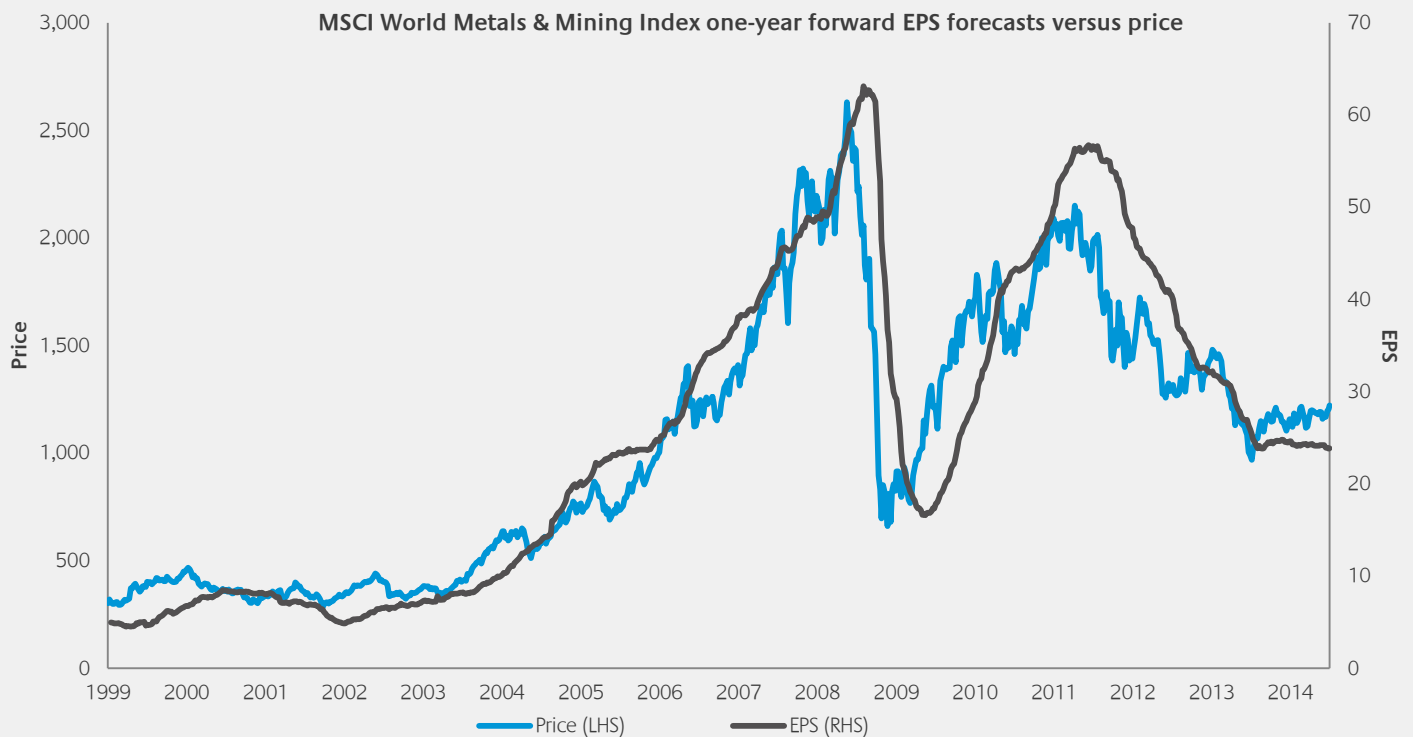
Chart 11: Big disconnect has developed between mining equities and commodities



Source: Bloomberg, data to 10 July 2014.

The sector has been through a sustained period of earnings downgrades, driven by continual reductions to commodity price forecasts. However, as Chart 12 illustrates, the downgrade trend appears to be losing momentum.

Chart 12: Earnings downgrade cycle appears to have bottomed

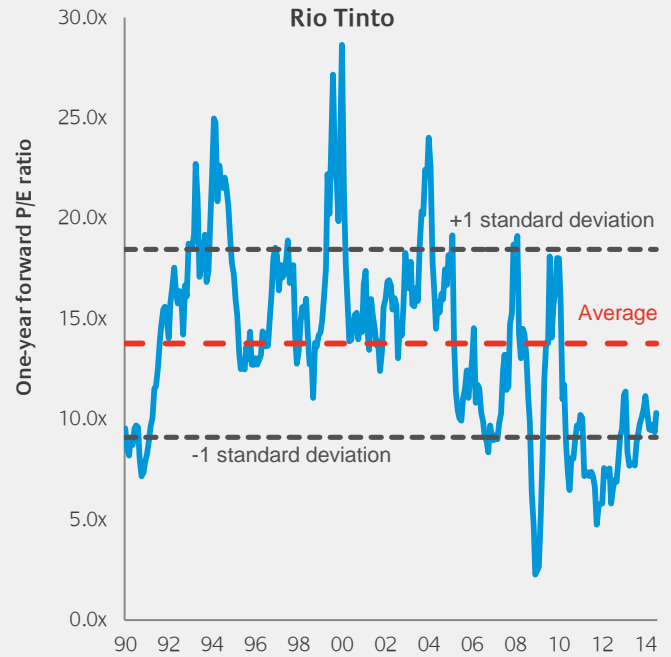
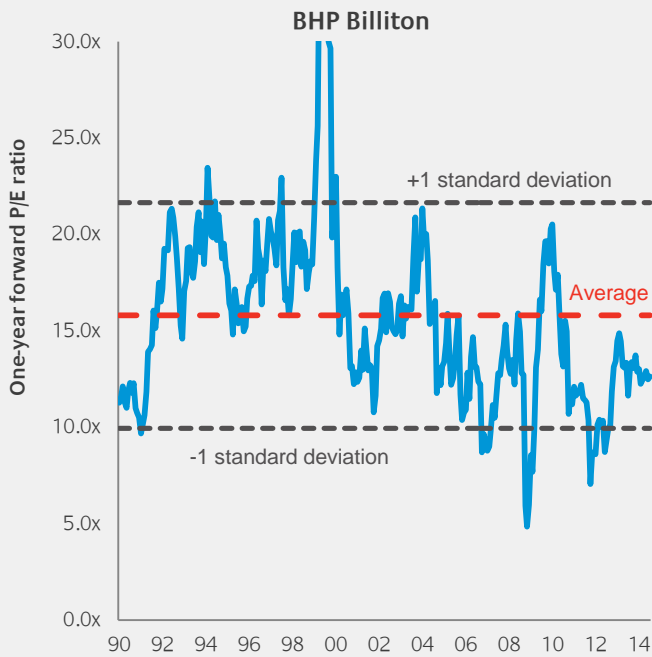


Source: Jefferies Custom Product, four week moving average, data to 1 July 2014.

The result is that mining equity valuations are below historical averages on both an absolute and a relative basis.

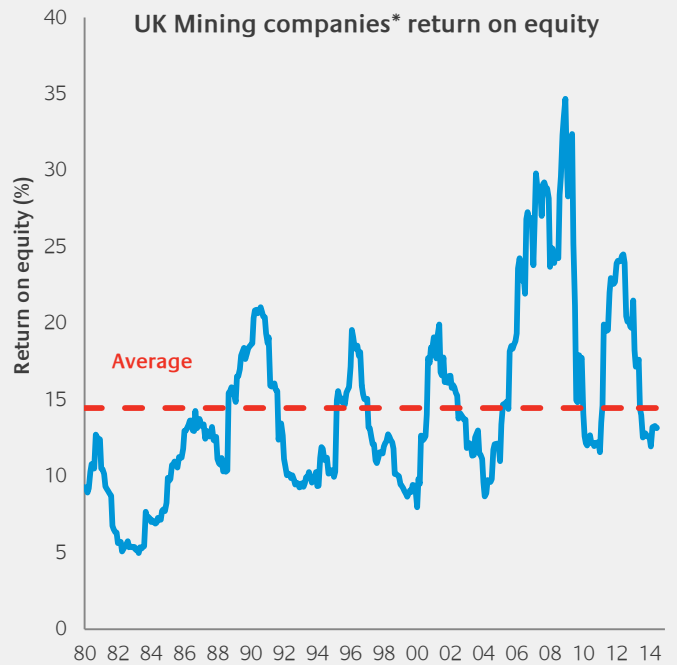
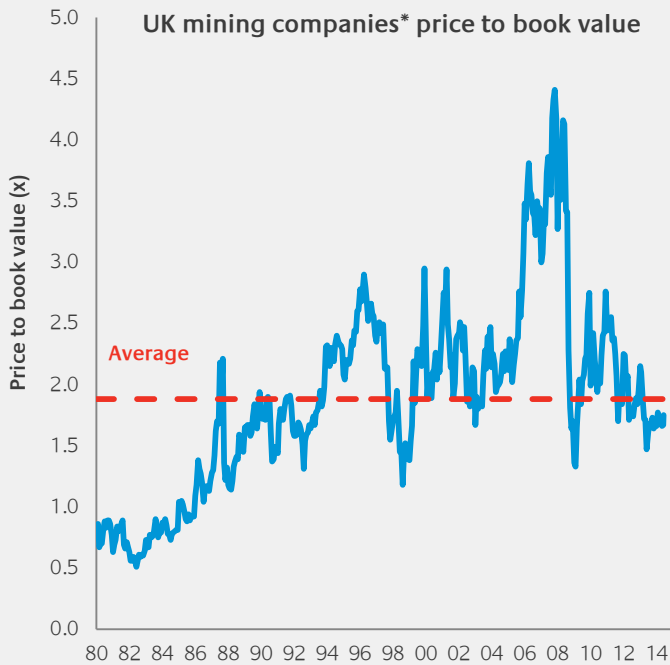
Charts 13 through to 18 shows that mining equities are trading at valuations that are below historic averages on price to earnings, return on equity, price to book value and price to net present value metrics.

Chart 13 and 14” Rio Tinto and BHP Billiton trading on historically low one-year forward price to earnings multiples



Source: Morgan Stanley Research, Datastream, Thompson Reuters, data to 1 July 2014.

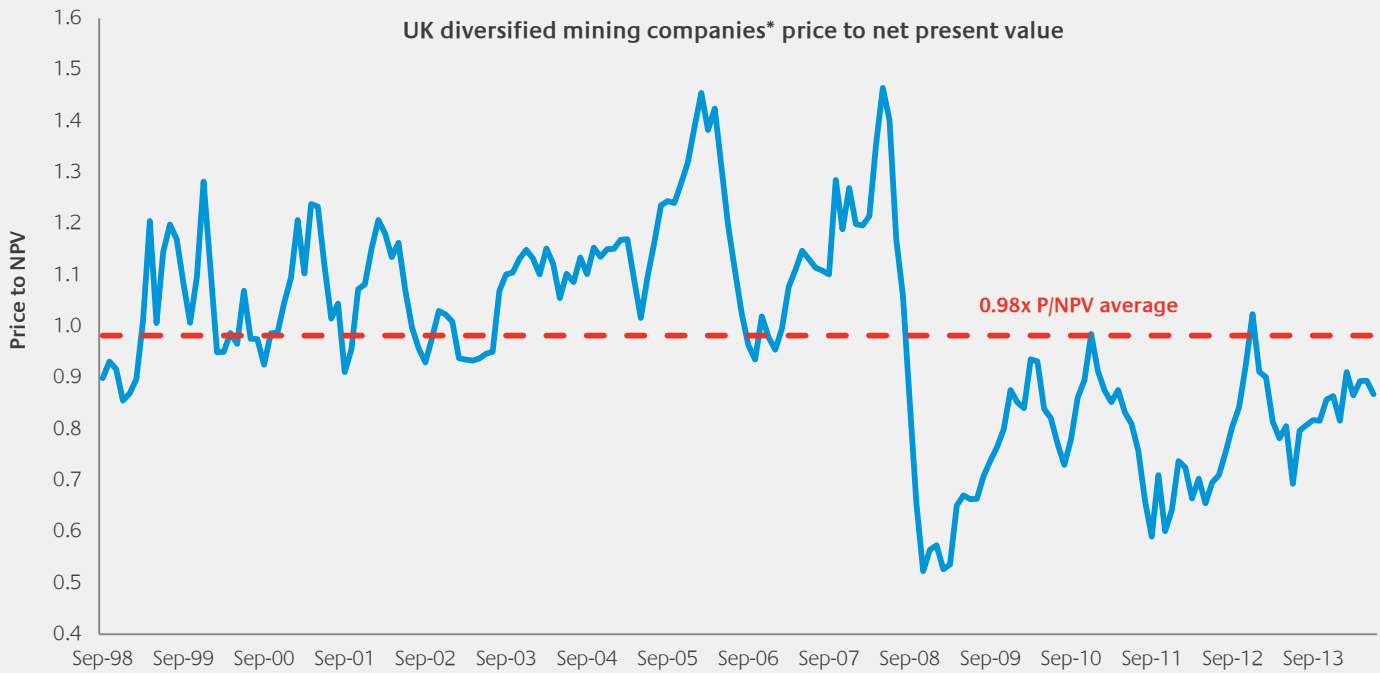
Charts 15 and 16: Mining equities trading below average on price to book multiples and return on equity



*UK mining companies including African Barrick, Anglo American, Antofagasta, BHP Billiton, Centamin, ENRC, Fresnillo, Glencore, Kazakhmys, Kenmare, Lonmin, NWR, Petra Diamonds, Polymetal, Randgold, Rio Tinto, Vedanta and several other smaller producers.

Source: Morgan Stanley Research, Datastream, data to 8 July 2014.

Chart 17: Mining equities trading below average on price to net present value multiples

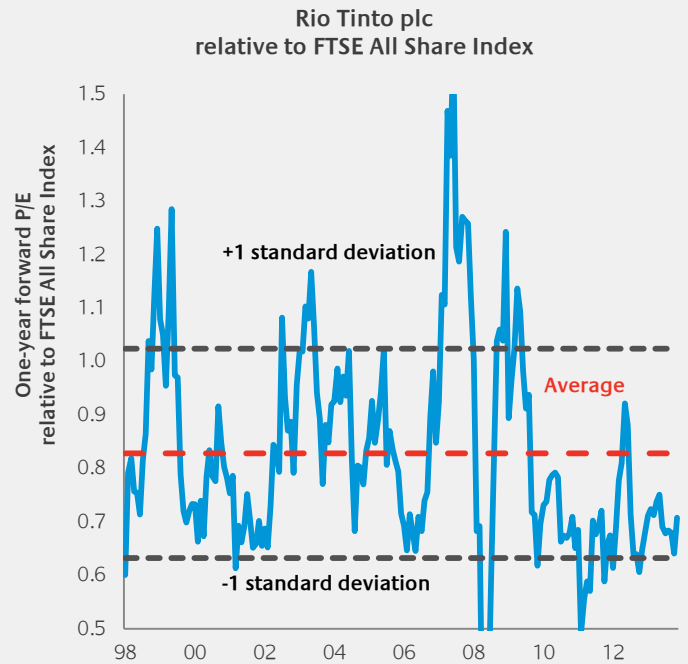
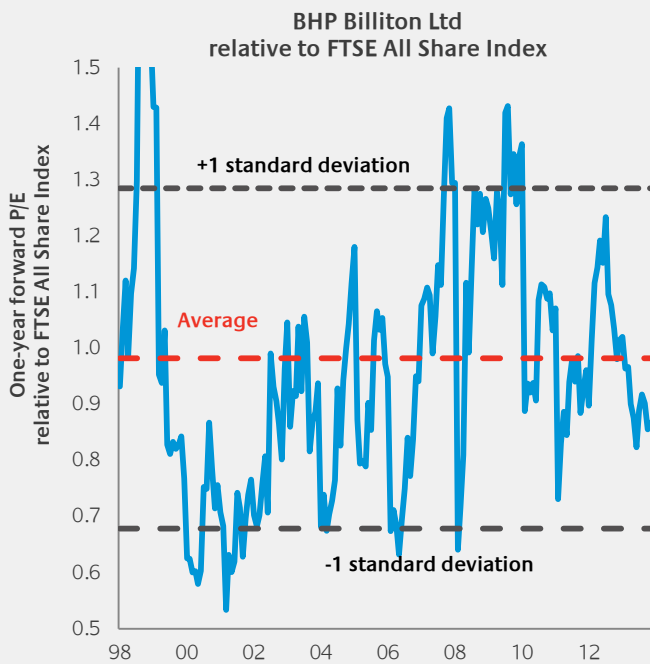


*UK diversified mining companies includes BHP Billiton, Rio Tinto, Anglo American, Glencore, Xstrata (prior to 2013 merger with Glencore).

Source: Citi Research, Bloomberg, data to 30 June 2014.

Mining equities also look attractive on a relative basis. BHP Billiton and Rio Tinto are trading well below average relative to the FTSE 100 All Share Index on one-year forward price to earnings, as shown in Charts 18 and 19.

Charts 18 and 19: BHP Billiton and Rio Tinto trading well below average relative to FTSE All Share Index on one-year forward price to earnings multiple

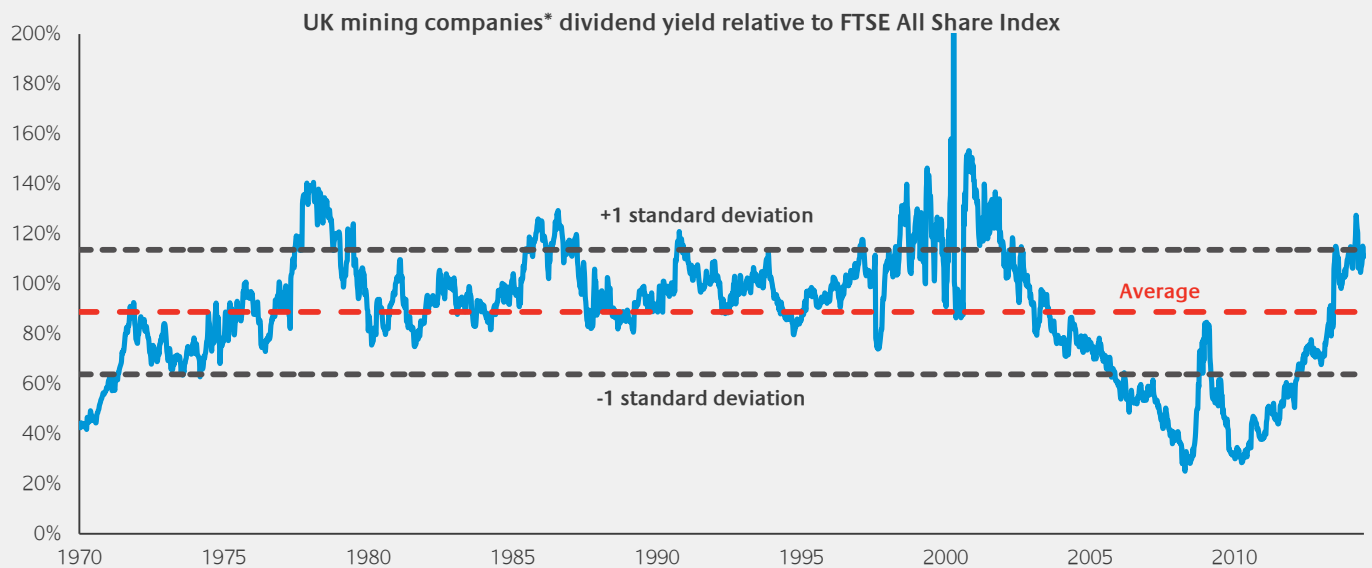


Source: Datastream, Citi Research, data to 1 July 2014.

Dividend yield provides downside protection

The mining equity correction has led to dividend yields rising to their second highest level in the last 30 years, exceeded only in the late 1990s just before the China boom began (see Chart 20). This is likely to provide downside protection for valuations.

Chart 20: Dividend yields near all-time highs



*UK mining companies includes BHP Billiton, Rio Tinto, Anglo American, Glencore, Vedanta, Antofagasta, First Quantum and other smaller companies.

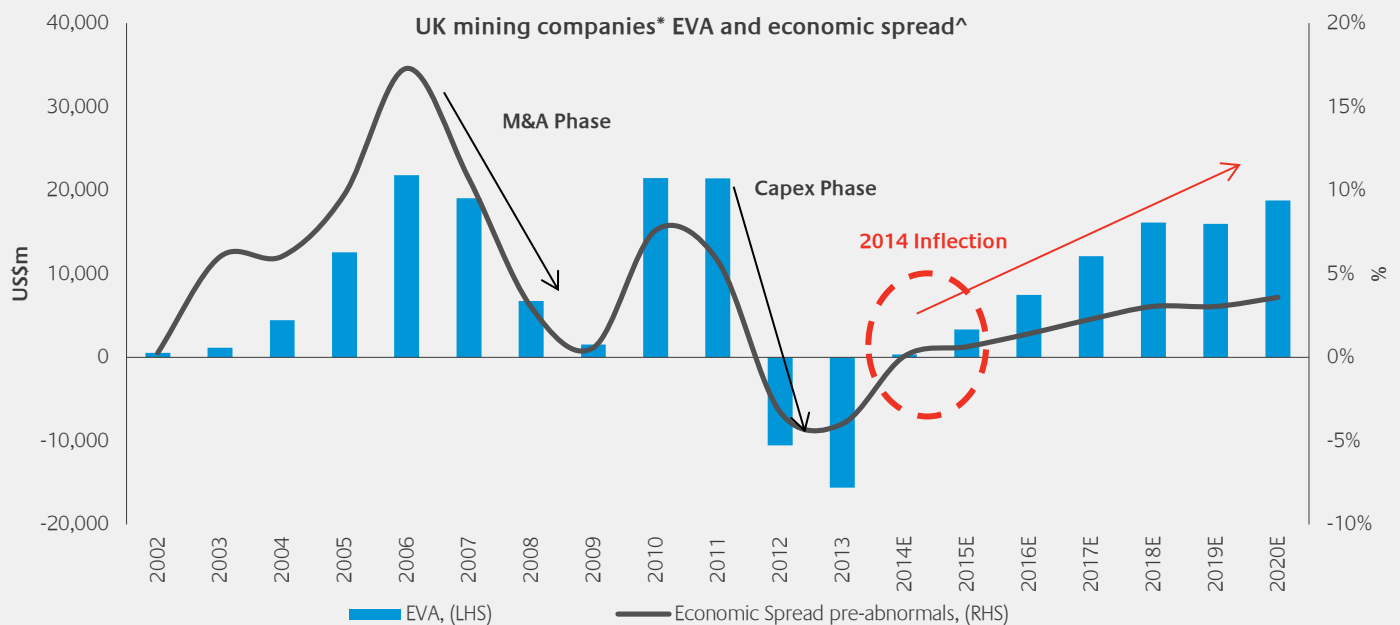
Source: Citi Research, Datastream, data to 26 June 2014.

Catalysts for recovery

We believe the mining sector is at an inflection point. Free cash flow generation is set to accelerate, driven by big cuts to capital expenditure, cost control and higher returns on invested capital.

Citi Research estimates that the sector will move from value destruction to value creation by 2015. This is driven by cost cuts coupled with higher returns from incremental capital investment, which should be realised because mining companies are investing only in their highest returning projects in the current environment. This is illustrated in Chart 21 which shows Economic Value Add (EVA) moving into positive territory in 2015. EVA is defined as net operating profit after taxes minus cost of capital, where cost of capital is invested capital multiplied by the weighted average cost of capital. In simple terms, it means companies generate a return in excess of their cost of capital.

Chart 21: Citi Research estimates the mining sector will move into positive Economic Value Add territory in 2015



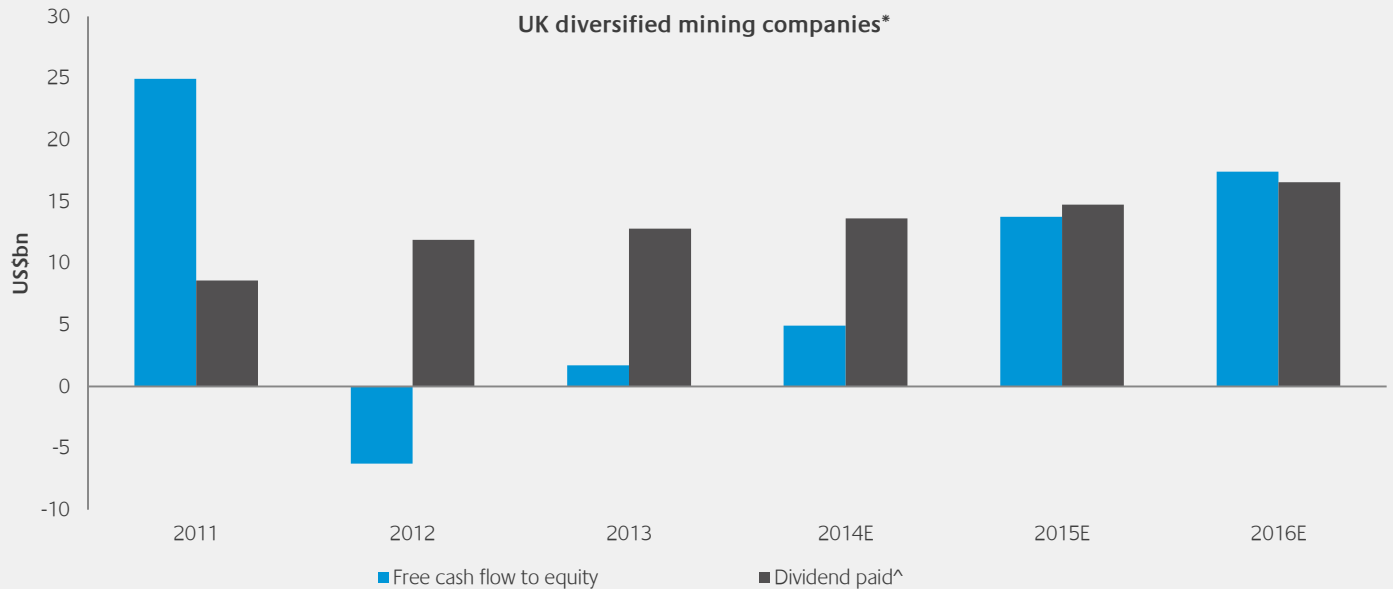
*UK mining companies includes BHP Billiton, Rio Tinto, Anglo American, Glencore, Vedanta, Antofagasta, First Quantum and other smaller companies.

^Economic Spread is WACC minus Return on Invested Capital (ROIC).

Source: Citi Research, dataCentral, data to 2 July 2014.

The ultimate outcome is capital returns to shareholders are likely to rise. Morgan Stanley estimates the UK Diversified Miners could increase dividend payments by more than 30% over the next three years (see Chart 22). Dividend yields are already at very high levels. If the mining sector can follow through with capital discipline and return excess cash to shareholders, investor confidence will grow and valuations should rise.

Chart 22: As free cash flow accelerates, dividends should rise



*UK diversified mining companies includes BHP Billiton, Rio Tinto, Anglo American, Glencore and Vedanta.

^to shareholders of the company from cash flow statement.

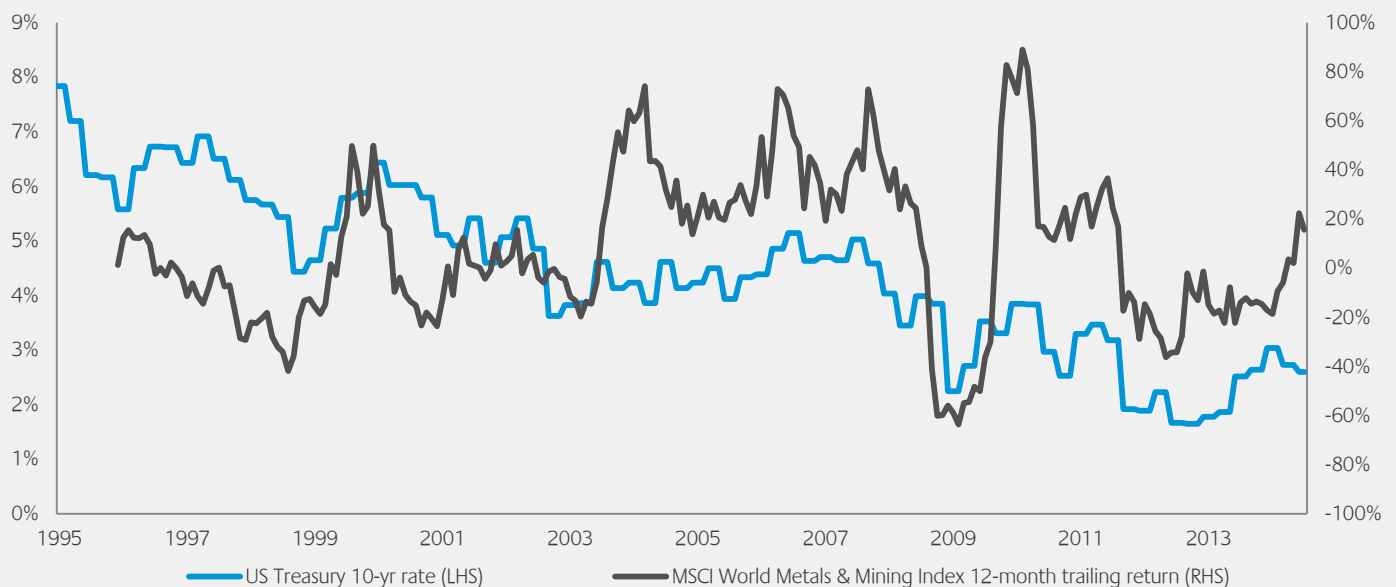
Source: Company data, Morgan Stanley Research estimates, data to 13 June 2014.

Mining equities in a rising interest rate environment

Increasingly positive economic data from the United States is leading the market to believe the Federal Reserve will raise interest rates at some point during 2015. This will be the first interest rate rise since mid-2006.

Mining equities have performed broadly positively in rising interest rate environments. Chart 23 illustrates this. It shows US Treasury 10-year bond yields versus MSCI World Metals and Mining Index trailing 12-month returns. In periods of interest rate weakness, mining equity returns have generally fallen. In periods of interest rate strength, mining equity returns have tended to be stronger.

Chart 23: Mining equity returns stronger in rising interest environment



Source: UBS Research, Datastream, data to 30 June 2014.

Quality performs through the cycle

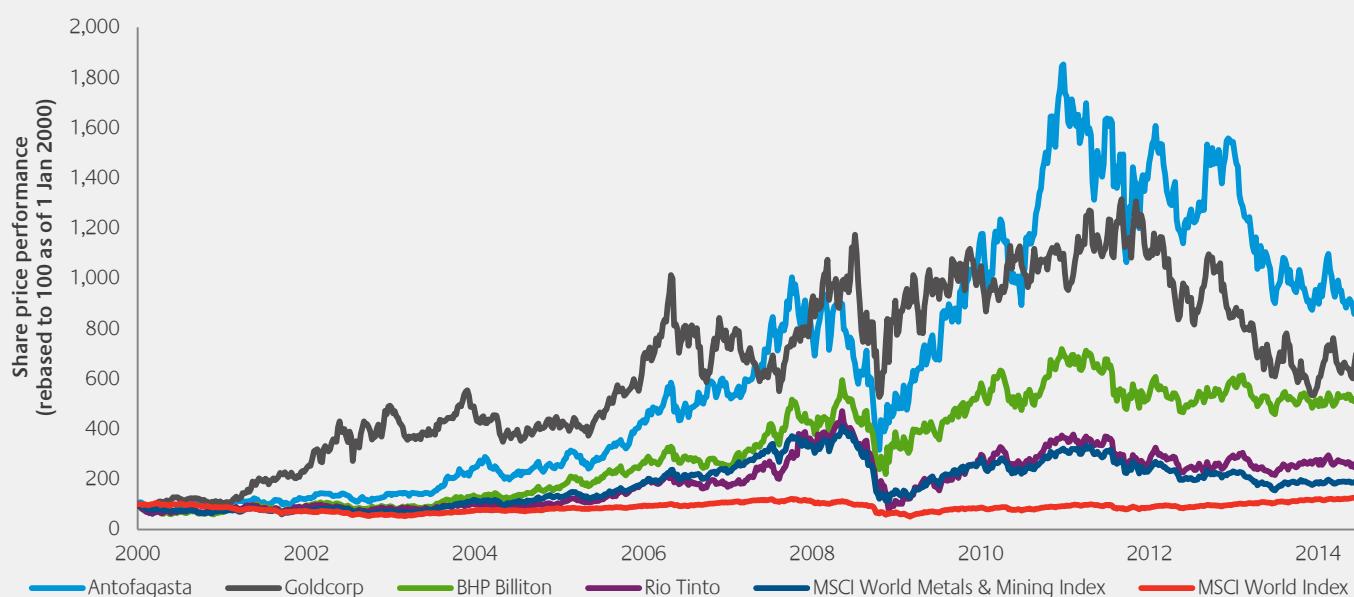
Global Resources strategies has a quality bias. We look for companies with long life assets that operate in the bottom half of the cost curve and have built-in growth options. Strong balance sheets and management teams with proven track records are also key investment criteria.

High quality companies have been proven outperformers through the cycle. As Chart 24 shows, BHP Billiton, Rio Tinto, Goldcorp and Antofagasta have outperformed not only the MSCI World Index but also the MSCI World Metals and Mining Index over the last decade.

We also look for the most promising early stage exploration and development companies that can create value through discovery and development. The best of the junior explorers and developers become the M&A targets for the mid-range and senior companies and can be meaningful contributors to the portfolio performance.

We believe that our approach of investing in ‘oak trees, saplings and acorns’ provides a mix of quality characteristics with enhanced growth that should generate superior returns through the cycle, without taking excessive risks.

Chart 24: Quality mining names have outperformed through the cycle



Source: Bloomberg, data to 4 July 2014.

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