3 July 2013 │ 24 pages

Metals & Mining (Citi)
Global

Metals & Mining

Diversified Debate 6 – Mining Rehab

- **Simplicity and efficiency…** — We have analysed the miners' track records based on a number of efficiency criteria 1) safety; 2) labour productivity; 3) volume growth; 4) revenue per employee; 5) cost control; 6) EBITDA per employee and 7) Capital allocation.

- **.....drive share price performance** — Our analysis shows there is a strong historical correlation between our efficiency score and share price performance (correlation 73%) over the past 5 years. Companies such as Kumba, BHP Billiton and Exxaro which all score well have been consistent outperformers while the gold and platinum industries have been chronic underperformers.

- **Bigger doesn't seem to be better** — The old adage that that bigger is better doesn't appear to hold true in our analysis; the more assets the company has to manage and the more operationally complex these operations are, generally the less efficient the company is. We conclude that, for most miners, 80% of their 2013e EBITDA will be derived from top 10 operations, leaving them with a string of assets which arguably don't move the earnings needle but can soak up considerable management time.

- **They want me to go to mining rehab, but I say No No No** — In our opinion, certain mining CEOs have been reluctant to accept that they need to go into "mining rehab" to kick their M&A and capex addictions, and investors appear concerned that they are not reacting fast enough. In our view, the sector still needs a step change in the mentality of the mining companies; with ~80% of earnings being derived from the top ten assets, we think the companies would benefit from being aggressive in slimming down, cutting capex and improving operational performance. Glencore-Xstrata and BHP Billiton appear to be leading the drive.

- **Spin, Shrink Grow** — The outperformers in the sector are likely to **spin** off underperforming assets, **shrink** the companies and **grow** from a lower base. We continue to believe that mining companies with lower cost assets, efficiency gains and value accretive capital allocation are likely to outperform in a flat to declining commodity price environment. On this basis, our most favoured alpha play remains Rio Tinto with our least favoured play Anglo American and, while Glencore-Xstrata and BHP Billiton are leading this drive, their premium valuations, in our opinion, more closely reflect this outcome.

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Simplicity and efficiency…

- We have analysed the miners' track records based on a number of efficiency criteria 1) safety; 2) labour productivity; 3) volume growth; 4) revenue per employee; 5) cost control; 6) EBITDA per employee and 7) Capital allocation. The results of this analysis are detailed in the summarised in the table below.

Figure 1. Results of Citi's 2012 mining company efficiency analysis (1 = best, 17 = worst)

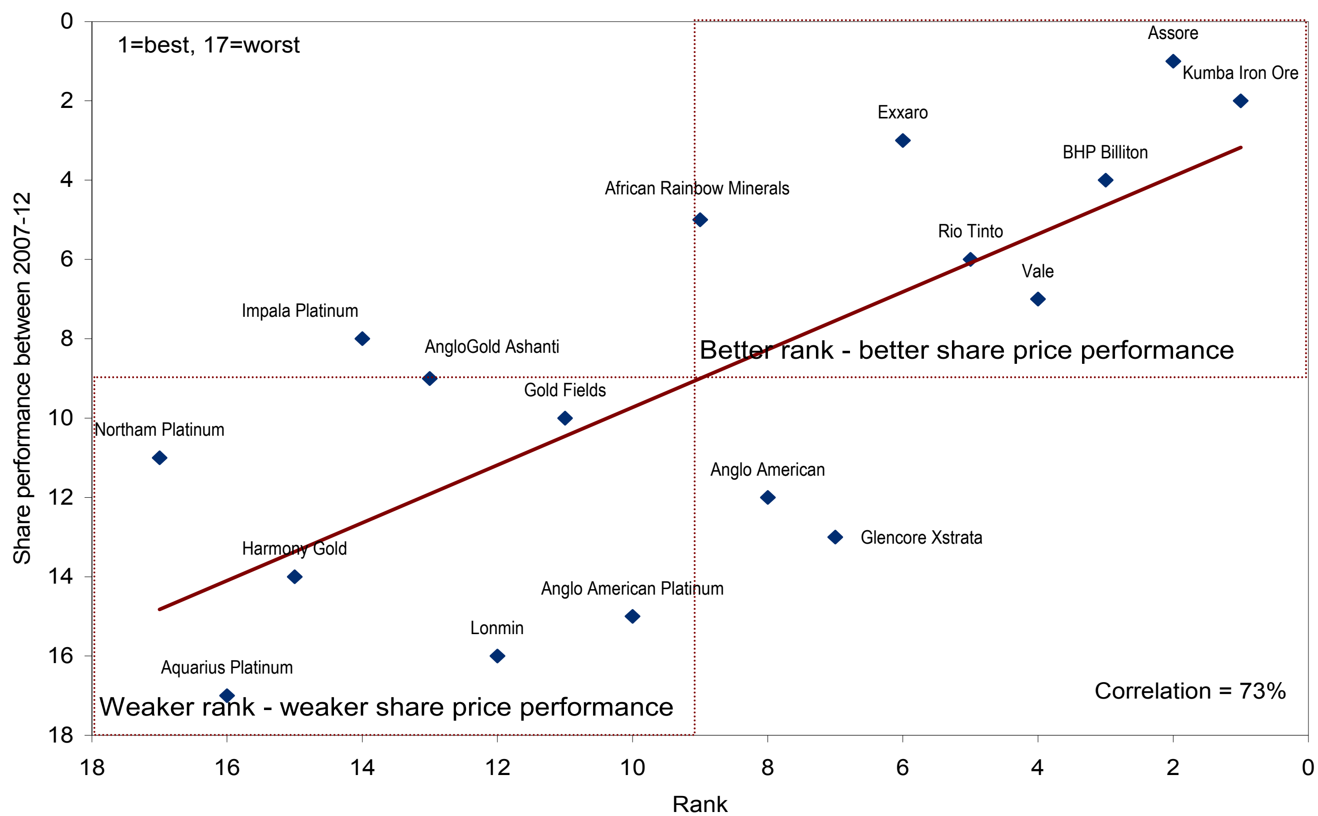
Rank	Company	Safety	Productivity	Production growth/share	Avg. Revenue per employee	Cost control	Avg. EBITDA per employee	Asset utilization efficiency
1	Kumba Iron Ore	2	2	1	3	16	3	1
2	Assore	3	9	2	4	7	4	2
3	BHP Billiton	5	6	6	2	12	1	5
4	Vale	1	3	7	5	4	5	13
5	Rio Tinto	7	8	9	1	9	2	6
6	Exxaro	9	1	4	7	8	6	8
7	Glencore Xstrata	7	6	5	6	1	9	13
8	Anglo American	10	3	8	8	2	7	13
9	African Rainbow Minerals	4	13	3	9	14	8	3
10	Anglo American Platinum	13	3	10	10	3	12	8
11	Gold Fields	10	9	14	12	17	10	6
12	Lonmin	6	13	12	16	5	16	13
13	AngloGold Ashanti	16	12	16	11	10	14	3
14	Impala Platinum	14	16	13	13	6	11	11
15	Harmony Gold	12	11	11	17	11	17	10
16	Aquarius Platinum	14	15	17	14	15	13	12
17	Northam Platinum	17	17	15	15	13	15	17

Source: Citi Research

…which in turn drives share price performance

- Interestingly, there is a strong historical correlation between our efficiency series and share price performance (correlation 73%). We continue to (and more so) believe mining companies with a sustainable margin advantage, biggest efficiency gains and value accretive capital allocation are likely to outperform in a flat to declining commodity price environment.

Figure 2. Relationship between miners performance ranking* and 2007-12 share performance*



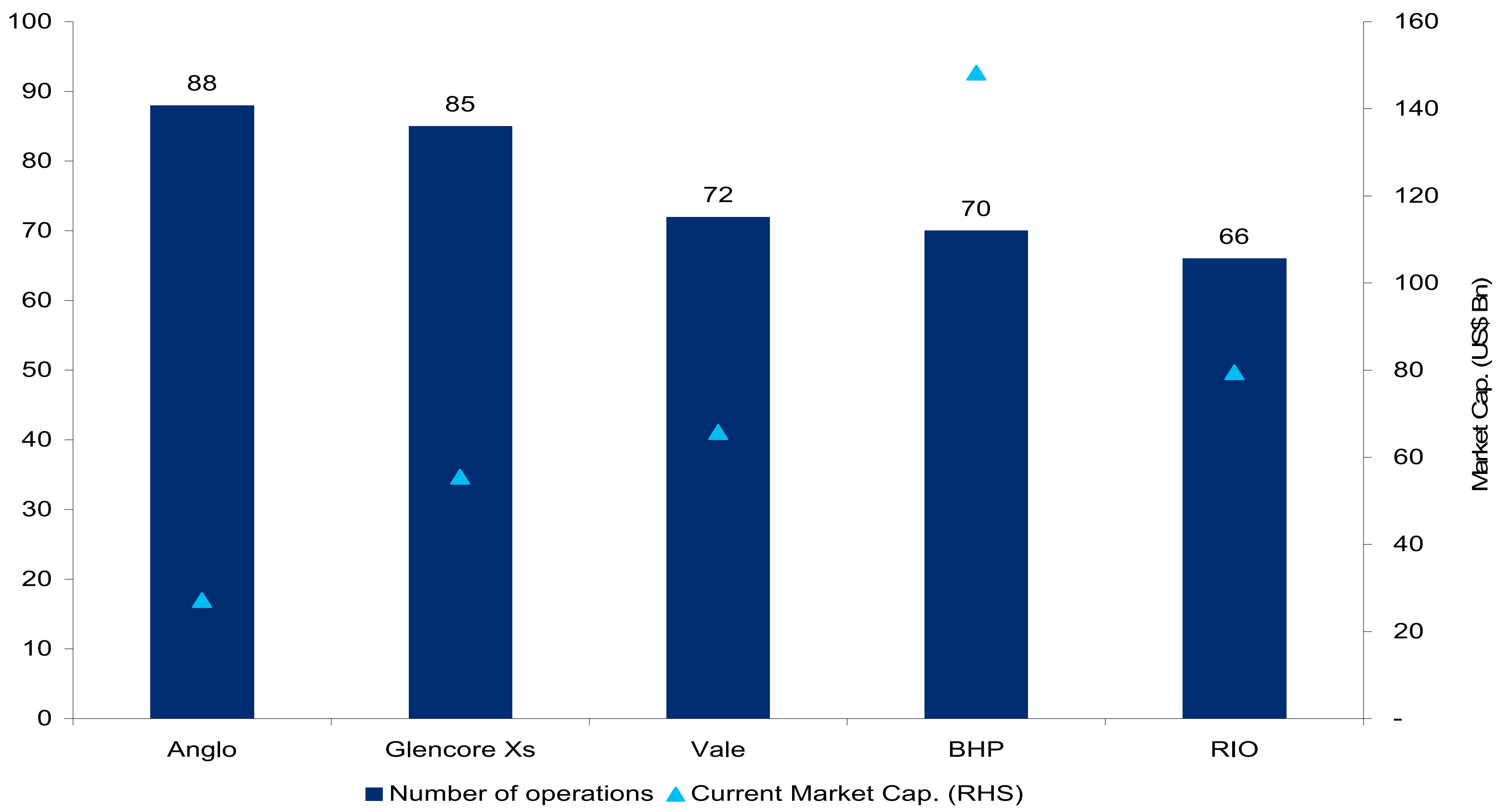
* 1 = best; 17 = worst

Source: DataStream, Citi Research

Interestingly there is less correlation between size and efficiency

- The old adage that that bigger is better doesn't appear to hold true in our analysis; the more assets the company has to manage and the more operationally complex these operations are, generally the less efficient the company is. In the figure below, we have compared the number of operations by each company against their current market capitalisation.

Figure 3. Number of operating mines versus market capitalisation

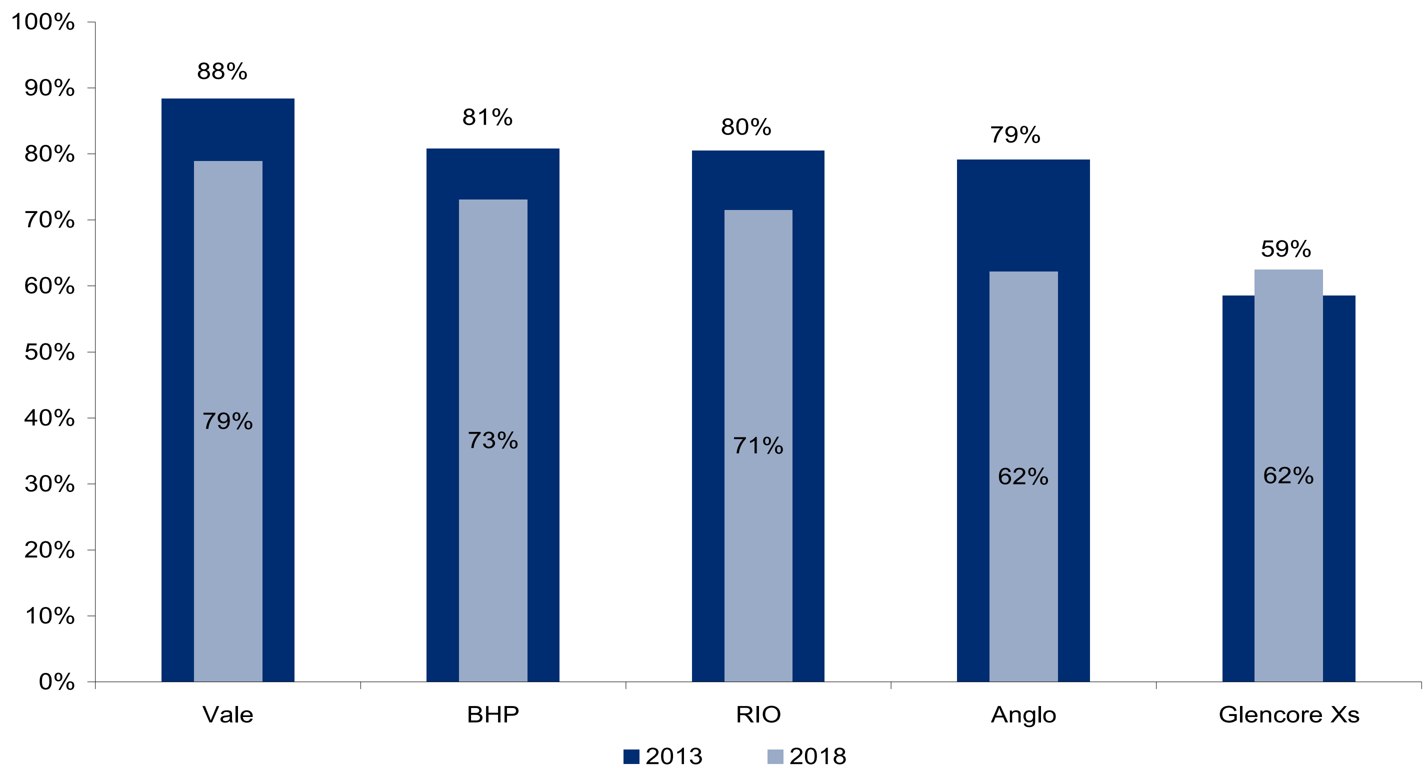


Source: Company reports, Citi Research

Where is money: 80:20 rule applies

- We conclude that, for most miners, 80% of their 2013e EBITDA will be derived from top 10 operations, leaving them with a string of assets which arguably don't move the earnings needle but can soak up considerable management time. Interestingly, we expect this to reduce by the ramp up of new assets but expect it to remain high; we argue the large companies still need to **spin** off underperforming assets, **shrink** the companies and **grow** from a lower base – shrink, spin and grow. .

Figure 4 Forecast. EBITDA Contribution of miners from top 10 operations

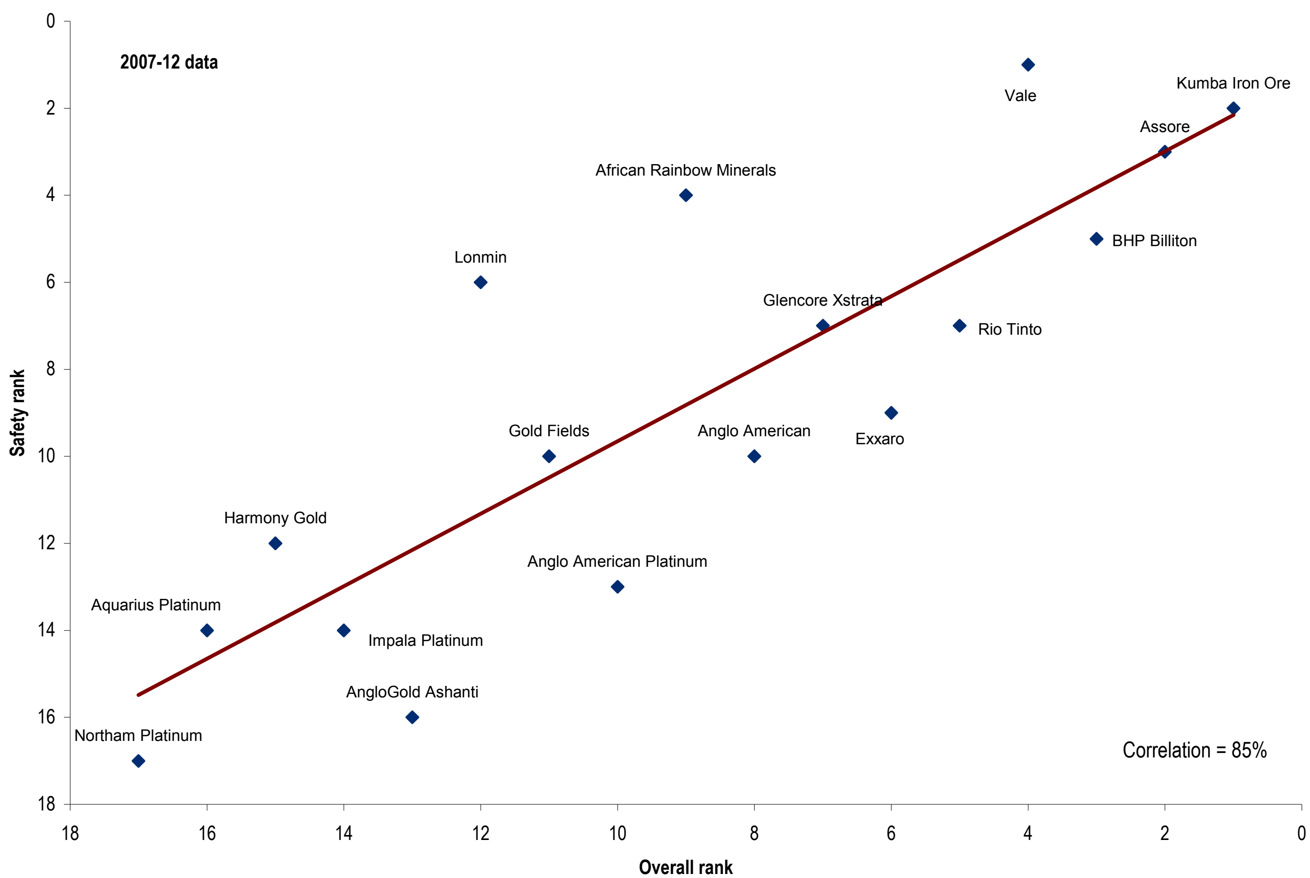


Source: Citi Research, Company Reports

1. Safety

- Safety is the cornerstone of efficient and productive mining. There is an 85% correlation between miners' safety track records and overall efficiency and productivity. The correlation is remarkably better from last year's analysis (55%) underpinning the significance with a deeper set of data.

Figure 5. Correlation between safety and overall productivity and efficiency ranking

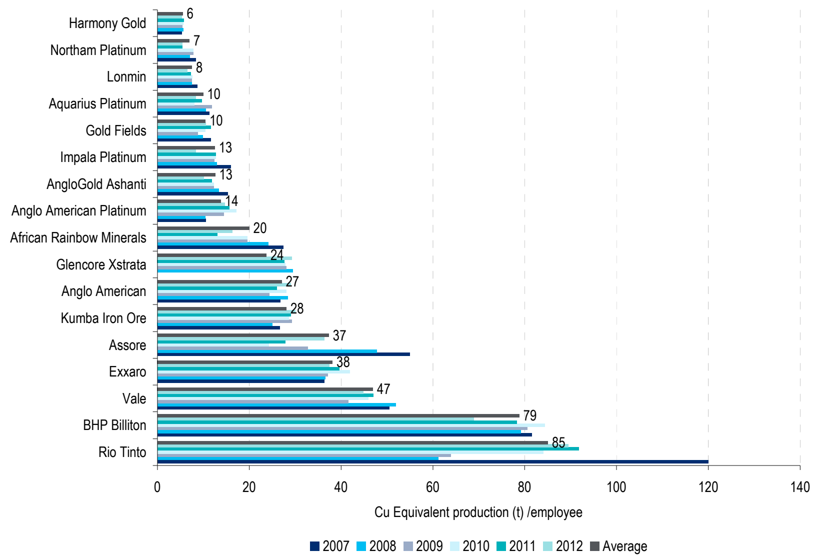


Source: Company reports, Citi Research

2. Labour productivity

- Larger diversified miners (RIO, BHP, Vale) are more productive than smaller miners (ARM, Kumba), pointing to scale benefits.
- RIO's workforce appears to be most productive, driven by large scale open pit and mechanised nature of its mineral operations.
- Deep-level precious metal miners are least productive.

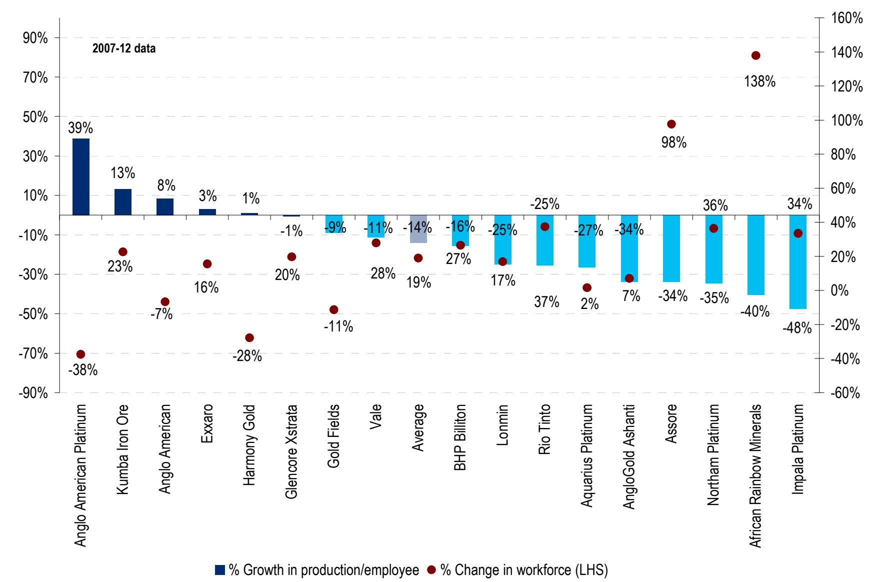
Figure 6. Annual production per employee*, 2007-12



* Copper equivalent tonnes per employee (including contractors) per annum

Source: Company reports, Citi Research

Figure 7. Growth in production per employee and workforce, 2007-12

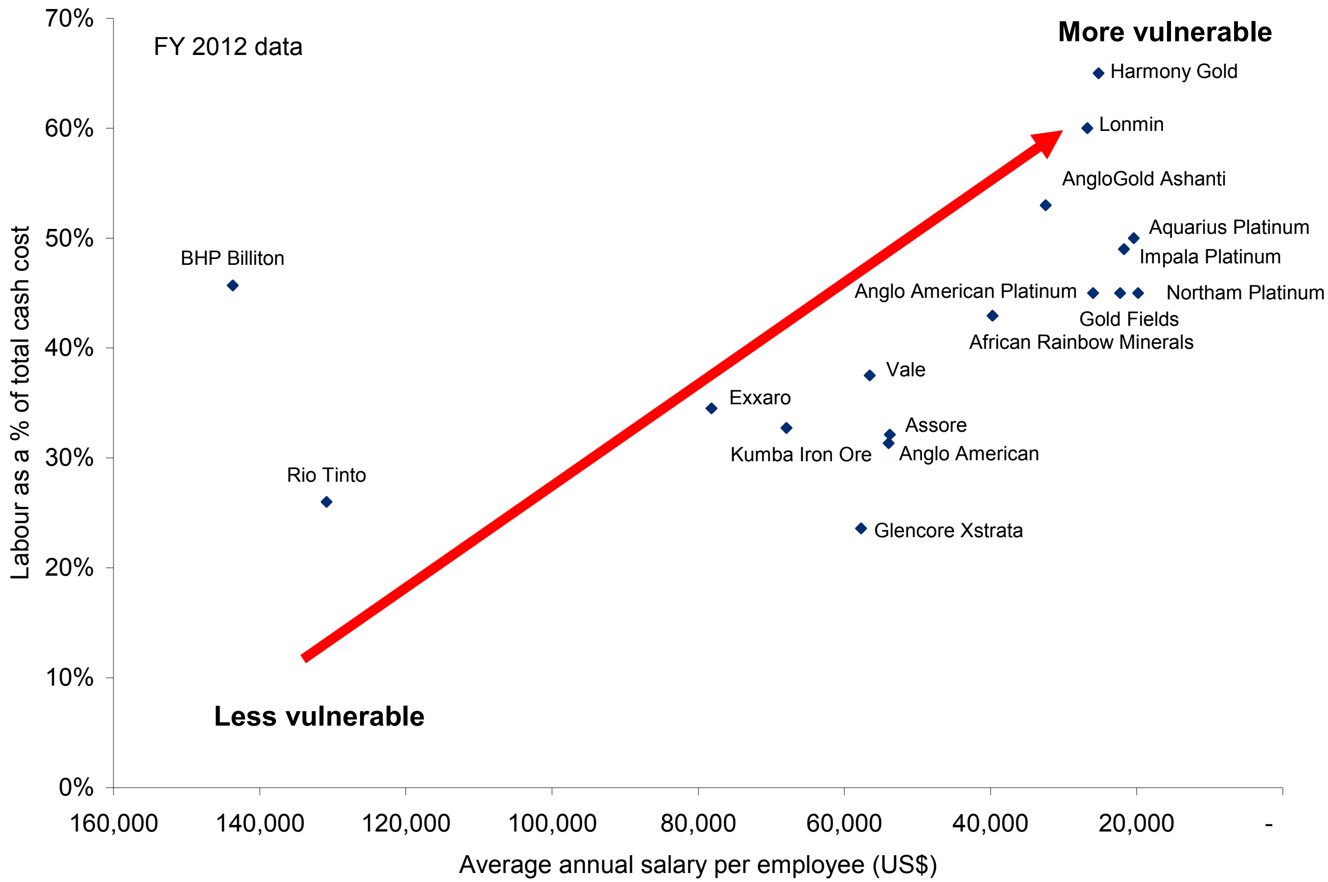


Source: Company reports, Citi Research

Who is more vulnerable to labour issues

- We have also tried to identify miners who are most vulnerable to the labour agitation and industrial actions through following chart. Miners with lower exposure to labour cost out of total cost and those who pay higher than the global average are less prone to labour issues and the impact is also lower compared to those miners whose labour constitutes a major portion of the total cash costs.

Figure 8. Miners relative position on issues related to labour



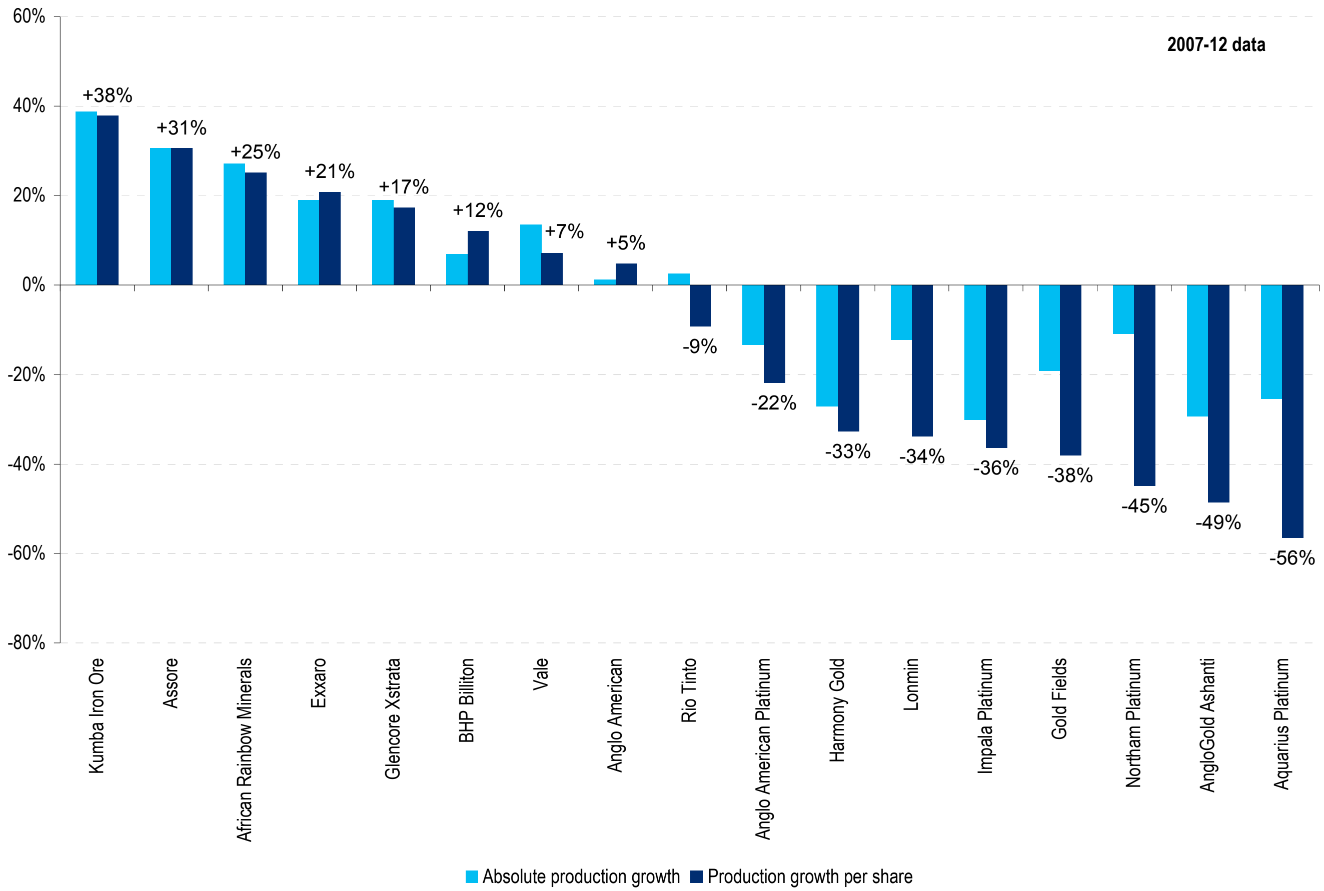
Source: Company reports, Citi Research

3. Production volume growth per share

- Average production per share declined 10% over the past five years. Kumba (+38%), Assore (+31%) and ARM (+25%) were outperformers. Glencore Xstrata increased production per share 17%, while BHP posted a gain of 12%.

- Platinum and Gold miners performed poorly, with production declines in all cases. Production per share declines were exacerbated by share issues over the period.

Figure 9. Miners relative position on issues related to labour



Source: Company reports, Citi Research

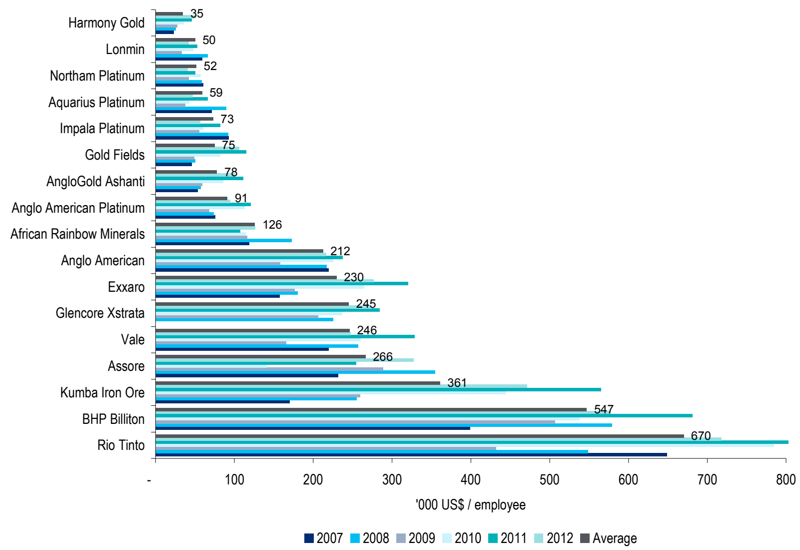
4. Revenue per employee

Revenue per employee combines labour productivity with the impact of commodity prices.

Our analysis in figures below highlights the following:

- Continuing the trend, Rio Tinto ($670 000 per employee) and BHP Billiton ($547 000) generated far more revenues per employee than peers. Performance was driven largely by superior productivity, and both miners benefited from high iron ore prices.
- Harmony Gold ($35 000) came out bottom of the pile and worse than Lonmin ($50 000) and Northam Platinum ($52 000), mainly due to its poor productivity.

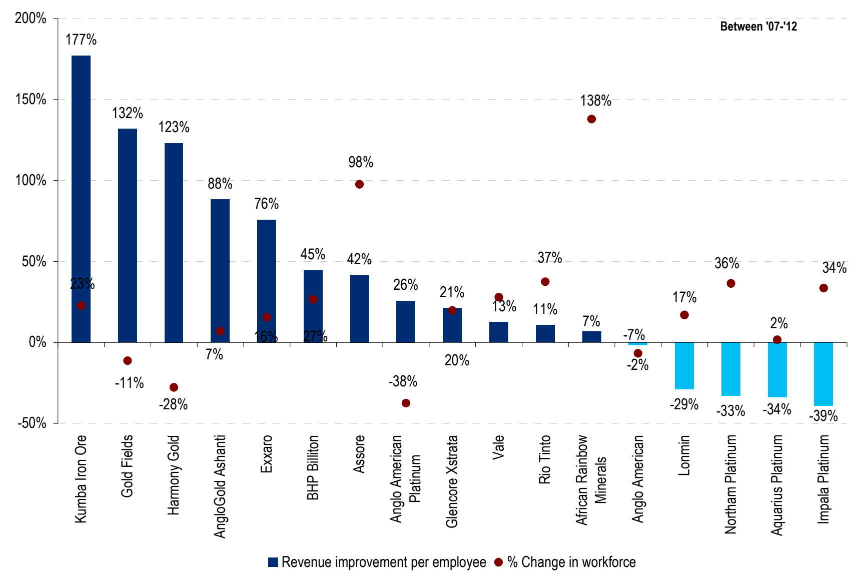
Figure 10. Revenue per employee*, 2007-12



* Including contractors

Source: Company reports, Citi Research

Figure 11. Improvement in revenue per employee, 2007-12

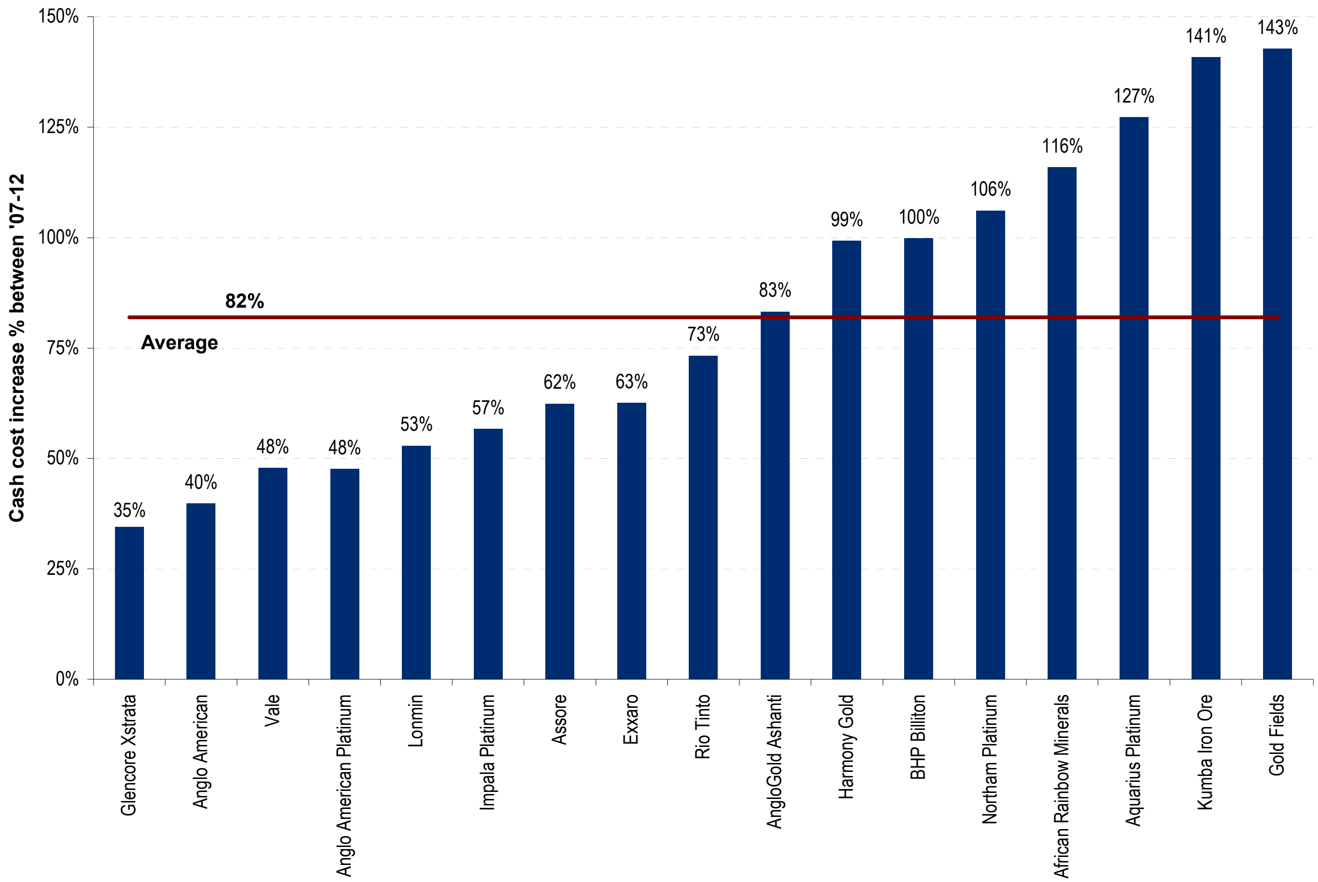


Source: Company reports, Citi Research

5. Cost control

- Average unit cash cost inflation for these miners from 2007 to 2012 was 82% in US dollar terms (Figure 19). The escalation in cash costs has been driven by a combination of factors, but the major drivers have been: 1) currency appreciation; 2) increasing labour and electricity costs; 3) fuel and consumable costs; 4) falling grades; and 5) deeper, older mines with higher strip ratios.

Figure 12. Five year cash cost inflation (2007-2012)



Source: Company reports, Citi Research

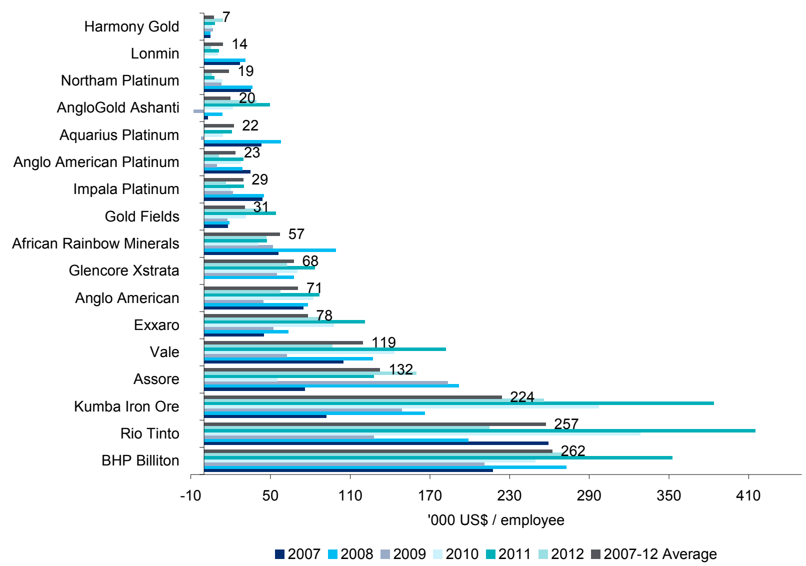
6. EBITDA per employee

EBITDA per employee considers the combined impact of commodity exposure, cost management and volume benefits.

Key observations:

- Miners with high iron ore exposure outperformed due to elevated and rising prices.
- BHP squeezed most EBITDA per capita out of its workforce, due to superior productivity, competitive cost positioning and a favourable commodity mix. It generated average EBITDA per employee of $262 000 between 2007 and 2012.
- SA gold and platinum miners underperformed, given the labour intensive nature of underground mining (low productivity), declining production and high and rapidly rising costs.

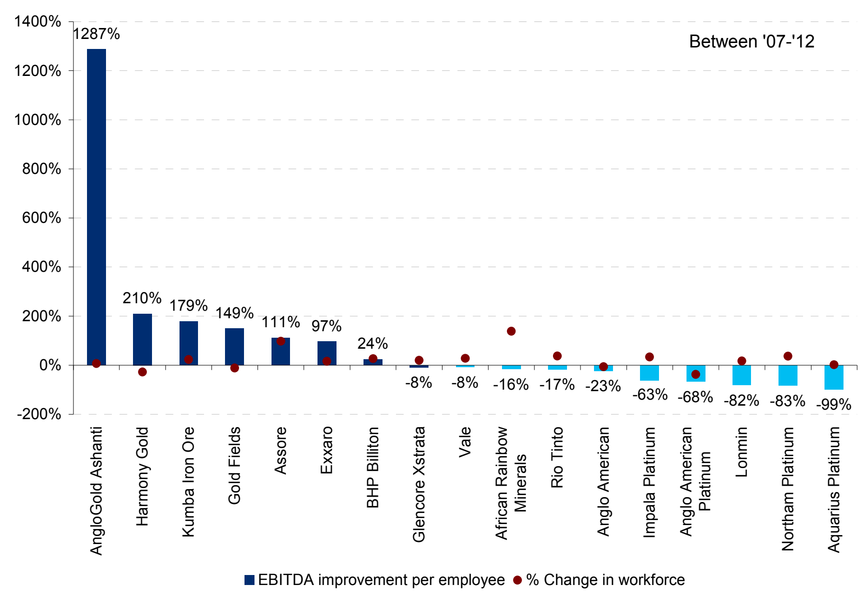
Figure 13. EBITDA per employee*, 2007-12



* Including contractors

Source: Company reports, Citi Research

Figure 14. Improvement in EBITDA per employee, 2007-12



Source: Company reports, Citi Research

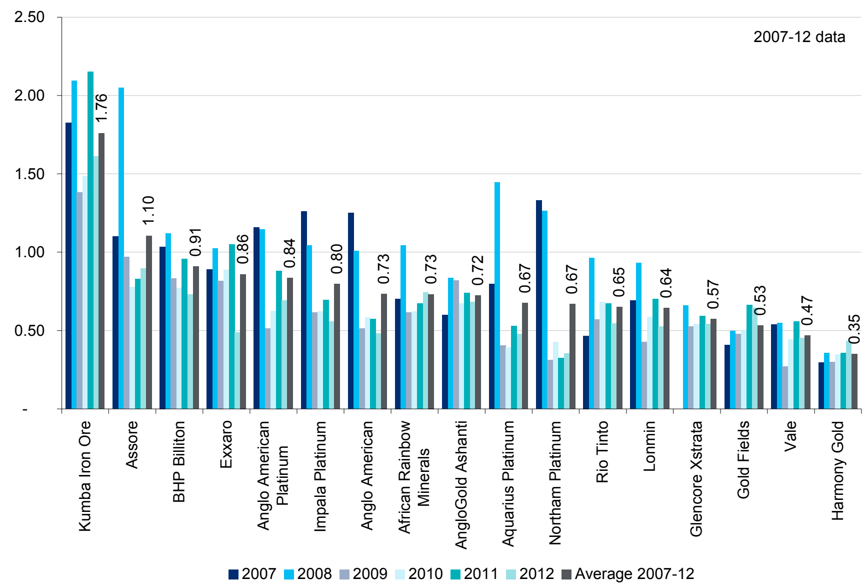
7. Capital allocation and asset efficiency

Capital allocation and efficient use of assets are as important in generating shareholder returns as earnings.

Below we analyse miners' asset turnover as a measure of efficient use of assets.

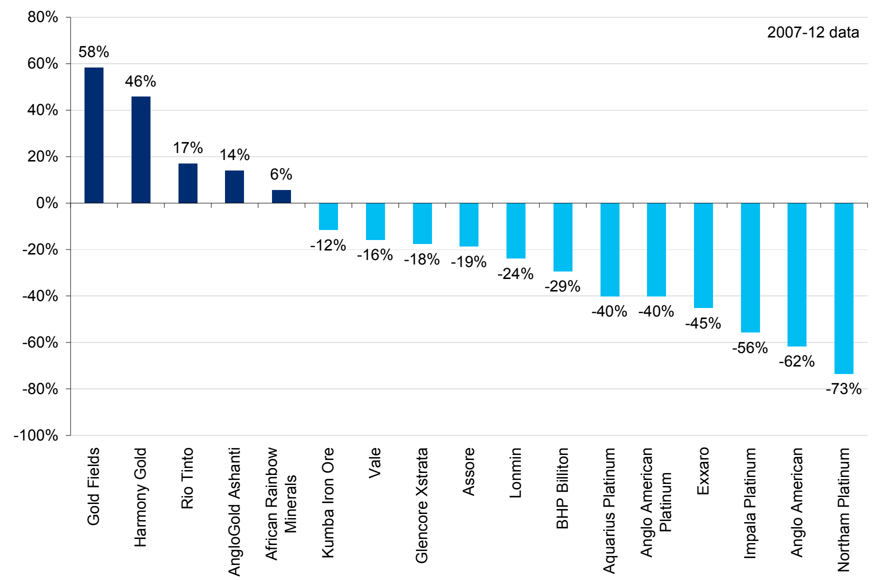
- Kumba, Assore and BHP Billiton seem to display the most efficient asset utilisation among peers.
- Harmony, Vale and Gold Fields show the lowest asset turnover.
- Biggest improvements were seen at the SA gold miners, which benefited from a sharply rising gold price (up till 2012) and Rio Tinto (partly due to impairments). However, despite improvements, Harmony and Goldfields' asset utilisations are still poor.

Figure 15. Asset turnover (2007-2012)



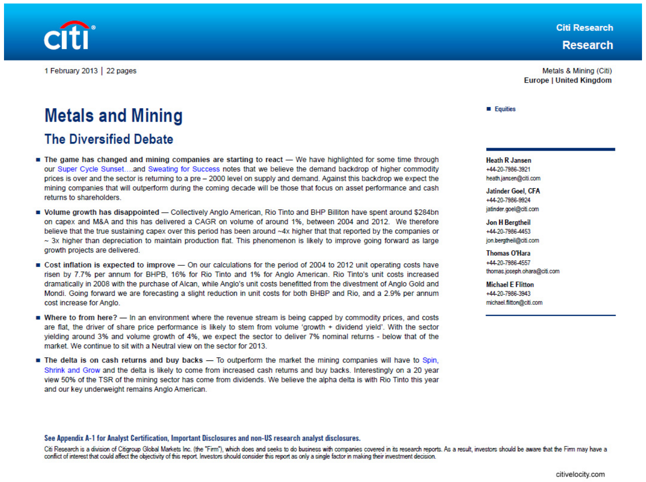
Source: Company reports, Citi Research

Figure 16. Asset turnover improvement from 2007 to 2012



Source: Company reports, Citi Research

Figure 17. The Diversified Debate – 1 February 2013



Citi Research
Research

1 February 2013 | 22 pages

Metals & Mining (Citi)
Europe | United Kingdom

Metals and Mining

The Diversified Debate

- **The game has changed and mining companies are starting to react** — We have highlighted for some time through our Super Cycle Sunset….and Sweating for Success notes that we believe the demand backdrop of higher commodity prices is over and the sector is returning to a pre – 2000 level on supply and demand. Against this backdrop we expect the mining companies that will outperform during the coming decade will be those that focus on asset performance and cash returns to shareholders.
- **Volume growth has disappointed** — Collectively Anglo American, Rio Tinto and BHP Billiton have spent around $284bn on capex and M&A and this has delivered a CAGR on volume of around 1%, between 2004 and 2012. We therefore believe that the true sustaining capex over this period has been around ~4x higher that that reported by the companies or ~ 3x higher than depreciation to maintain production flat. This phenomenon is likely to improve going forward as large growth projects are delivered.
- **Cost inflation is expected to improve** — On our calculations for the period of 2004 to 2012 unit operating costs have risen by 7.7% per annum for BHPB, 16% for Rio Tinto and 1% for Anglo American. Rio Tinto's unit costs increased dramatically in 2008 with the purchase of Alcan, while Anglo's unit costs benefitted from the divestment of Anglo Gold and Mondi. Going forward we are forecasting a slight reduction in unit costs for both BHBP and Rio, and a 2.9% per annum cost increase for Anglo.
- **Where to from here?** — In an environment where the revenue stream is being capped by commodity prices, and costs are flat, the driver of share price performance is likely to stem from volume 'growth + dividend yield'. With the sector yielding around 3% and volume growth of 4%, we expect the sector to deliver 7% nominal returns - below that of the market. We continue to sit with a Neutral view on the sector for 2013.
- **The delta is on cash returns and buy backs** — To outperform the market the mining companies will have to Spin, Shrink and Grow and the delta is likely to come from increased cash returns and buy backs. Interestingly on a 20 year view 50% of the TSR of the mining sector has come from dividends. We believe the alpha delta is with Rio Tinto this year and our key underweight remains Anglo American.

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See Appendix A-1 for Analyst Certification, Important Disclosures and non-US research analyst disclosures.

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Source: Citi Research

Figure 18. Metals & Mining - Diversified Debate II – Why Not To Do NPV Positive Projects – 11 February 2013

Citi Research
Research

11 February 2013 | 15 pages

Metals & Mining (Citi)
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Diversified Debate II – Why Not To Do NPV Positive Projects

- **Why companies shouldn't do NPV positive projects** — The general belief of mining CEOs is that they should proceed with NPV positive projects, paraphrasing this view goes along the line of "we can invest in project X and beat our cost of capital so therefore we should do it"; the contention in this thinking is how shareholders actually get rewarded for this NPV generated. As an example, over the past three years Rio Tinto has traded at a 30% discount to our calculated NPV since 2009. In essence for every $1 of NPV created by the company, shareholders have been rewarded with 70c of value.
- **What returns are needed…larger than you think** — In essence it appears the market is implying a much higher WACC than the companies are using for their capital allocation decisions. On our calculations the market is implying a 14% discount rate versus Citi's base case of ~10%; on this basis to generate value creation to shareholders (and a P/NPV rerating) then mining CEOs should be targeting at least a 17% post tax return on new projects. This raises an important question: are the miners or the market right? Looking at the recent history of value destruction in the mining industry along with the future risk of higher capex, royalties, tax and project delays, we would side with the market. On this basis unless the miners can achieve a 17% post tax return they, in our view, should just hand back cash.
- **What can the miners learn from other cycle industries** — It is interesting to look at how other cyclical industries have behaved to maximise shareholder value. In June 2011 Berkeley Group Holding (BKGH.L), a UK housebuilding company, announced that it would repay ~£13.00 per share in dividends (equivalent to its market cap) over a ten-year period. One could argue that there are similarities in the cyclical nature of buying and developing land as to buying and developing resources. Berkeley Group argued this strategy removed timing issues around cash generation coinciding with peak land prices, which has strong parallels to the mining industry.
- **What would be the value if say Rio adopted this policy?** — Rio Tinto is currently trading at a 15% discount to our calculated NPV of $133bn, after a strong recent run. If Rio Tinto paid out its current market cap ($115bn in dividends) it would result in our expected payout ratio increasing from around 50% to 86%, which in our view is achievable. We calculate a value of $167bn under this scenario which would represent $66bn in dividend payments (using a dividend discount model) and a residual value in 2023 of $101bn, representing around 45% upside to the current share price.

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Source: Citi Research

Figure 19. Metals & Mining - Diversified Debate III – How do you grow a Mining Company?– 22 March 2013

Citi Research
Research

22 March 2013 | 18 pages

Mining - Diversified (Citi)
Europe | United Kingdom

Metals & Mining

Diversified Debate III – How do you grow a Mining Company?

- **Tour de Mining** — The super cycle appeared like the perfect opportunity for the mining sector, a downhill run to the finishing line; instead what transpired was more akin to a pile-up, resulting in cuts, bumps and bruises. Nevertheless, the sector has delivered strong outperformance relative to the market and in this note we analyse the factors that drove this performance on a total shareholder return (TSR) basis.
- **Divergence in performances in the period between 2003 and 2013** — The performance within the large diversified miners was stark, BHP Billiton delivered the strongest TSR at 884%, followed by Rio Tinto at 408% and Anglo American at 188%. In breaking down the drivers of TSR, prices and margins were the largest contributor to TSR and a much bigger factor than volumes. Capital allocation was the differentiating factor, with share buybacks (or rights issues) being a huge driver of absolute and relative performance, along with dividend payments.
- **Entering the Mountain stage** — In our view, the next ten years the sector is likely to be fought in an uphill battle on costs, capital and cash returns, against a headwind of declining commodity price (refer to our Super Cycle Sunset note). This raises an important question — are the large diversified mining companies just too big to succeed? As an example, BHPB's market cap in 2003 was around $34bn versus today at ~$192bn. Assuming the current payout ratios, the large miners will deliver between a 6.8% and 7.5% p.a. return on a TSR basis over the next decade, and it is unlikely the miners can grow out of this predicament. This will likely result in the sector underperforming the broader market, and in our view the most nimble competitor, (who slims, spins and grows) will win the yellow jersey.
- **Sector preference** — Our sector view is bearish (Bear Digs Deeper); Rio Tinto remains our only Buy amongst the large-cap diversified mining companies. We have Sell recommendations on ENRC, ANTO, FQM, NHY, BOL, ABG, FRES, HOCM, RRS, SSAB and KCOG. We remain underweight on the gold and base metals companies and our key underweight in the large-cap miners is Anglo American.

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Figure 20. Metals and Mining - Diversified Debate IV – I wanted growth, but now I want yield – 12 April 2013

Citi Research
Research

12 April 2013 | 17 pages

Mining - Diversified (Citi)
Europe | United Kingdom

Metals and Mining

Diversified Debate IV – I wanted growth, but now I want yield

- **Mixed Message** — It is understandable why mining managements are confused, as recently as 18 months ago the mining investors were craving growth, now investors have flipped and are craving yield. We can empathize with mining executives who are running the company on a long-term basis but are being impacted by short-term investor sentiment. However we believe the message from investor is slightly misunderstood; we believe that mining investors actually wanted **value-added growth** rather than just growth. Our analysis suggests returns on new projects over the past 5-6 years have struggled to make the cost of capital and therefore investors are right to be cautious and demand a higher cash return on the belief they can redeploy that capital into other sectors or smaller companies that can deliver growth. We therefore believe the large diversified mining companies will derate until investors receive an appropriate free cash flow/yield outcome.
- **Working hard for your money** — In our opinion, mining managers are going to have to work extremely hard over the foreseeable future to deliver returns and as investors will adopt a 'wait and see' approach. It is the view of a number of investors that the mining executives will have to prove themselves before they will buy the shares, and that headline announcements on cost reductions, asset optimisation or divestments are likely to be dismissed (or may be very short lived in share price reactions).
- **The dilemma for the diversified mining CEO is do we go ex-growth?** — In our opinion, the biggest challenge facing the diversified mining CEO is when will their company go ex-growth? While the CEOs may not want to admit it, in an environment where they shelve capex plans, they will at some point go ex-growth (certainly from a volume perspective).
- **The dilemma for investors is are we ever going to see any of the cash?** — The worry for investors is when will they see cash returns in the form of dividends or buybacks, or will the companies just turn on the capex tap, as and when cash flow improves?
- **Our view, the miners need to give greater transparency on cash returns and hurdle rates** — We believe the miners need to trade on a 5-6% dividend yield and have explicit hurdle rates of greater than 20% on new growth projects to achieve a market-based return. Our analysis suggests BHPB has the best position based on growth potential with yield. However we favour Rio Tinto, based on a higher FCF generation with a potential for higher near-term returns. However, in our view, Rio is likely to go ex-growth this decade and needs to acknowledge this with a higher payouts to shareholders.

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Source: Citi Research

Figure 21. Metals & Mining - Diversified Debate 5 – does diversification pay? - 26 June 2013

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1 February 2013 | 22 pages

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The Diversified Debate

- **The game has changed and mining companies are starting to react** — We have highlighted for some time through our Super Cycle Sunset….and Sweating for Success notes that we believe the demand backdrop of higher commodity prices is over and the sector is returning to a pre – 2000 level on supply and demand. Against this backdrop we expect the mining companies that will outperform during the coming decade will be those that focus on asset performance and cash returns to shareholders.
- **Volume growth has disappointed** — Collectively Anglo American, Rio Tinto and BHP Billiton have spent around $284bn on capex and M&A and this has delivered a CAGR on volume of around 1%, between 2004 and 2012. We therefore believe that the true sustaining capex over this period has been around ~4x higher that that reported by the companies or ~ 3x higher than depreciation to maintain production flat. This phenomenon is likely to improve going forward as large growth projects are delivered.
- **Cost inflation is expected to improve** — On our calculations for the period of 2004 to 2012 unit operating costs have risen by 7.7% per annum for BHPB, 16% for Rio Tinto and 1% for Anglo American. Rio Tinto's unit costs increased dramatically in 2008 with the purchase of Alcan, while Anglo's unit costs benefitted from the divestment of Anglo Gold and Mondi. Going forward we are forecasting a slight reduction in unit costs for both BHBP and Rio, and a 2.9% per annum cost increase for Anglo.
- **Where to from here?** — In an environment where the revenue stream is being capped by commodity prices, and costs are flat, the driver of share price performance is likely to stem from volume 'growth + dividend yield'. With the sector yielding around 3% and volume growth of 4%, we expect the sector to deliver 7% nominal returns - below that of the market. We continue to sit with a Neutral view on the sector for 2013.
- **The delta is on cash returns and buy backs** — To outperform the market the mining companies will have to Spin, Shrink and Grow and the delta is likely to come from increased cash returns and buy backs. Interestingly on a 20 year view 50% of the TSR of the mining sector has come from dividends. We believe the alpha delta is with Rio Tinto this year and our key underweight remains Anglo American.

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Source: Citi Research

Figure 22. Spot Vs. Base

PE Multiples	RIC	Rating	Listing	Price	Target	Citi Base Case				Spot Fx/Prices				IBES Consensus			
Calendar Years			Ccy	28/6/13		2013E	2014E	2015E	13E-15E CAGR	2013E	2014E	2015E	13E-15E CAGR	2013E	2014E	2015E	13E-15E CAGR
Diversified																	
Anglo American PLC	AAL.L	Neutral	GBP	12.66	18.00	10.8	8.8	7.7	18%	13.1	16.0	17.4	-13%	9.8	8.3	7.1	18%
BHP Billiton PLC	BLT.L	Neutral	GBP	16.82	20.50	10.1	8.8	7.7	14%	9.6	8.8	8.5	6%	9.8	8.8	8.2	9%
Glencore Xstrata	GLEN.L	Buy	GBP	2.72	4.00	10.7	9.0	7.5	20%	19.3	19.7	19.3	0%	11.2	9.0	6.8	29%
Norilsk	NKELyq.L	Buy	USD	14.41	20.50	8.2	6.6	6.2	15%	13.4	16.8	19.2	-17%	9.4	8.6	7.9	9%
Rio Tinto PLC	RIO.L	Buy	GBP	26.83	40.00	7.4	6.8	5.7	14%	8.1	7.8	6.7	10%	7.6	6.7	6.2	11%
Vale	VALE.N	Buy	USD	13.15	20.00	6.5	6.8	6.2	2%	6.9	8.6	8.7	-11%	5.9	6.5	6.6	-5%
Vedanta Resources	VED.L	Neutral	GBP	10.20	12.80	9.2	8.9	7.0	15%	14.3	13.7	10.4	17%	10.0	7.1	7.4	16%
Weighted Average						**9.0**	**8.0**	**6.9**	**13%**	**10.7**	**11.0**	**10.8**	**1%**	**8.9**	**8.0**	**7.2**	**11%**
Bulks																	
African Minerals	AMIq.L	Buy	GBP	1.90	4.30	2.3	1.6	1.8	11%	2.3	1.7	1.9	10%	5.0	2.6	3.8	15%
Ferrexpo PLC	FXPO.L	Buy	GBP	1.33	3.20	4.2	3.0	2.6	27%	4.5	3.3	2.8	27%	4.3	4.6	5.0	-7%
London Mining	LOND.L	Buy	GBP	0.93	1.75	6.6	2.5	2.3	68%	7.6	3.0	2.7	68%	5.1	2.5	3.2	26%
New World Resources	NWRR.L	Sell	GBP	0.55	0.65	nm	nm	nm	na	nm	nm	nm	na	nm	nm	nm	na
Zanaga	ZIOC.L	Neutral	GBP	0.11		nm	nm	nm	na	nm	nm	nm	na	nm	nm	na	na
Base Metals																	
Antofagasta PLC	ANTO.L	Sell	GBP	7.95	8.50	11.9	17.6	15.8	-13%	15.9	17.8	17.9	-6%	11.7	11.8	11.9	-1%
Boliden	BOL.ST	Sell	SEK	83.15	92.00	11.5	8.1	7.3	26%	26.3	13.2	11.6	51%	12.0	8.9	6.9	31%
First Quantum Minerals	FQM.L	Sell	GBP	9.70	9.80	15.4	17.5	9.2	30%	25.9	35.6	16.3	26%	11.6	10.3	7.1	28%
Nyrstar	NYR.BR	Neutral	EUR	3.30	4.00	nm	18.6	12.8	na	nm	nm	nm	na	nm	9.2	7.0	na
Aluminium																	
Norsk Hydro	NHY.OL	Sell	NOK	24.24	23.00	29.6	29.2	23.3	13%	132.9	781.4	204.2	-19%	26.0	16.3	10.9	54%
UC Rusal	0486.HK	Sell	HKD	3.00	1.80	27.1	15.5	21.0	14%	nm	nm	nm	na	13.3	6.9	6.6	43%
Precious Metals																	
African Barrick Gold	ABGL.L	Sell	GBP	0.96	1.24	5.3	6.8	8.7	-22%	31.7	nm	84.0	-39%	7.7	4.9	5.1	23%
Aquarius Platinum Plc	AQP.L	Buy	GBP	0.40	0.66	18.7	35.5	16.0	8%	30.4	nm	nm	na	nm	10.1	6.4	na
Centamin Egypt	CEY.L	Neutral	GBP	0.32		2.3	4.0	4.9	-31%	3.4	127.2	4.3	-11%	2.7	3.3	3.5	-12%
Fresnillo Plc	FRES.L	Neutral	GBP	8.82	10.16	15.9	16.1	16.7	-2%	22.1	30.0	25.1	-6%	17.6	14.9	14.0	12%
Gem Diamonds	GEMD.L	Buy	GBP	1.36	1.72	18.3	10.3	9.3	40%	nm	8.7	8.4	na	14.1	12.5	9.3	23%
Hochschild Mining	HOCM.L	Sell	GBP	1.55	1.78	14.3	10.6	7.3	40%	nm	nm	18.0	na	22.3	12.4	6.7	82%
Lonmin Plc	LMI.L	Buy	GBP	2.54	3.86	20.5	18.3	14.3	20%	64.8	nm	nm	na	25.0	15.0	9.4	63%
Nordgold	NORDNq.L	Sell	USD	1.90	1.96	34.5	32.4	19.8	32%	nm	nm	nm	na	6.6	4.4	5.3	11%
Petra Diamonds	PDL.L	Buy	GBP	1.15	1.51	14.7	7.8	5.9	57%	9.4	7.2	6.1	24%	14.8	10.2	9.5	25%
Petropavlovsk PLC	POG.L	Sell	GBP	0.90	1.16	2.9	3.1	3.2	-5%	7.8	nm	18.6	-35%	3.3	2.8	2.6	13%
Polymetal	POLYP.L	Neutral	GBP	4.53	5.29	5.1	5.0	6.3	-10%	9.3	10.3	10.7	-7%	6.6	5.2	5.7	7%
Randgold Resources	RRS.L	Sell	GBP	40.85	39.26	14.4	16.0	20.0	-15%	24.4	29.8	30.8	-11%	16.6	10.9	11.3	21%
South Africa																	
African Rainbow	ARIJ.J	Buy	ZAR	150	210	9.6	8.9	7.8	11%	9.8	11.2	10.9	-5%	8.6	8.0	na	na
Assore	ASRJ.J	Sell	ZAR	320	270	9.4	9.7	9.1	2%	8.8	8.8	8.4	2%	10.2	10.0	na	na
Exxaro	EXXJ.J	Neutral	ZAR	146	150	11.2	9.3	9.0	12%	11.0	10.1	10.2	4%	10.0	8.3	7.6	14%
Kumba Iron Ore Ltd	KIOJ.J	Neutral	ZAR	461	480	9.3	8.6	9.1	1%	8.9	8.4	9.0	-1%	10.0	10.6	12.8	-12%

Source: Citi Research

Figure 23. Key Reports

Sector Thematic

26-Jun-12 Metals & Mining - Diversified Debate 5 – does diversification pay?
07-May-13 Copper vs. Steel: Demand & Price Implications In A Consumer Driven China
15-Apr-13 Metals & Mining: Commodity downgrades reflecting reality
15-Apr-13 Industrial Commodities: Super Cycle Sunset theme playing out - revising forecasts
12-Apr-13 Metals and Mining: Diversified Debate IV - I wanted growth, but now I want yield
22-Mar-13 Metals & Mining: Diversified Debate III - How do you grow a Mining Company?
15-Mar-13 Metals and Mining: Macro Cycle Thoughts - Bear Digs Deeper
11-Feb-13 Metals & Mining: Diversified Debate II - Why Not To Do NPV Positive Projects
01-Feb-13 Metals and Mining: The Diversified Debate
29-Jan-13 Metals and Mining: What Can Tobin's Q Tell Us? Copper Returns And Replacement Cost
16-Nov-12 Big Oil & Big Mining II: Big Spenders
20-Sep-12 The Great China Steel Debate: Urbanisation and Steel Intensity
24-Jul-12 China Rebalance: The Impact on Steel

Heath Jansen - Diversifieds

08-May-13 Glencore Xstrata PLC (GLEN.L): Pedal To The Metal
26-Feb-13 Rio Tinto PLC (RIO.L): Climbing the Iron Ore Mountain
18-Feb-13 Anglo American PLC (AAL.L): Poor Returns and no Quick Fix
28-Mar-12 BHP Billiton PLC (BLT.L): Home Improvement

Jon Bergtheil - Precious & PGMs

20-Feb-13 Hochschild Mining Plc (HOCM.L): Downgrading on Weakening Silver
15-Feb-13 Gold and Silver Miners: Downgrading Fresnillo, Randgold and POG
14-Feb-13 African Barrick Gold Plc (ABGL.L): Sell Rating Maintained
16-Jan-13 Petra Diamonds (PDL.L): Growth Group and Encouraging Diamond Outlook
13-Nov-12 Lonmin PLC (LMI.L): A New Chapter
01-Mar-12 Global Gold Book: Cash Is King, Show Us the Money

Michael Flitton - Base Metals & Mid-Cap Ireon Ore

01-Mar-13 Kazakhmys Plc (KAZ.L): Stuck in Limbo, Maintain Neutral
28-Feb-13 African Minerals Ltd (AMIq.L): Deep Value and De-risked, Maintain Buy
18-Feb-13 Eurasian Natural Resources Corporation PLC (ENRC) (ENRC.L): Cooking On Gas Or Running On Fumes?
09-Jan-13 First Quantum Minerals Ltd (FQM.L): Inmet Deal the Catalyst for a De-rating, Downgrade to Sell
20-Apr-13 African Minerals and London Mining: Pumping Iron

Jatinder Goel - Base Metals Mining & Smelting

01-Mar-13 Norsk Hydro ASA (NHY.OL): Tough Time to Persist; Re-iterate Sell
05-Feb-13 Nyrstar NV (NYR.BR): Expecting Strong 2013 Zinc TCs, Talvivaara Over-played; Buy
31-Jan-13 Antofagasta (ANTO.L): Re-basing Los Pelambres' Cost Structure. Reiterate Sell
05-Nov-13 Vedanta Resources Plc (VED.L): Reality over Value – Resuming Coverage with Neutral
23-Apr-12 Boliden AB (BOL.ST): Missing the Alpha Drivers - Sell

Thomas O'Hara - European Steels / Bulks

Thematic

17-May-13 European Steel - Saving For Your Pension (Deficit)
04-Mar-13 European Steel: Run Down, Pay Down, Write Down: boosting sector returns
07-Jan-13 European Steel: Does the Restock trade still work in 2013?
21-Dec-12 European Steel Outlook: Groundhog Day: The title cliché for 2013

Company Specific

14-May-13 ThyssenKrupp AG (TKAG.DE): What Is the Market Assuming on Steel Americas?
22-Apr-13 ThyssenKrupp AG (TKAG.DE): Too Much Uncertainty Despite the Price: Maintain Neutral
15-Mar-13 ArcelorMittal (ISPA.AS): Now Cheap Enough to Buy into European Self Help
25-Feb-13 New World Resources (NWRR.L): Interesting strategy update, but 2013 will be tough: Maintain Neutral
21-Feb-13 Klockner & Co. (KCOGn.DE): M&A Rally ignores fundamentals: Downgrade to Sell
16-Jan-13 SSAB (SSABa.ST): European overhang – Initiate with a Sell
15-Nov-12 Salzgitter AG (SZGG.DE): Reality Check But Long Term Value Remains
26-Oct-12 voestalpine AG (VOES.VI): Near term downside risk, but consensual buy case remains
16-Mar-12 Ferrexpo PLC (FXPO.L): Pieces of the Jigsaw

Source: Citi Research

Figure 24. Other companies mentioned

Company	RIC	Rating	Currency	Current Price	Target Price
AngloGold Ashnti	ANGJ.J	2	ZAR	150.01	175.00
Gold fields	GFIJ.J	2	ZAR	52.99	68.00
Harmony Gold Mng	HARJ.J	2	ZAR	37.40	48.00
Impala Platinum	IMPJ.J	1	ZAR	96.92	130.00
Northam Platinum	NHMJ.J	1	ZAR	33.95	41.00
Anglo Amer Plat	AMSJ.J	1	ZAR	295.00	380.00

Source: Citi Research

Appendix A-1

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