

27<sup>th</sup> November 2006**BUY**Price  
Rs542Target Price  
Rs670

Sensex - 13,703

**Price Performance**

(%)	1M	3M	6M	12M
Absolute	6.1	25.9	32.2	230.0
Rel. to Sensex (1.8)		7.5	5.4	175.2

Source: Capitaline

**Stock Details**

Sector	Metals
Reuters	STRL.BO
Bloomberg	STLT.IN
Equity Capital (Rs mn)	1,098
Face Value	2
52 Week H/L (at BSE)	614/158
Market Cap (Rs bn)	301.2
Daily Avg Vol (No of shares)	2,785,565
Daily Avg Turnover (US\$ mn)	27,399

**Shareholding Pattern (%)**

(31st Sep.'06)

Promoters	79
FII/NRI	6.3
Institutions	2.8
Private Corp.	5.1
Public	6.8

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# Sterlite Industries (India)

## Riding the metals wave

Initiating

We initiate coverage on Sterlite Industries India Ltd (SIIL) with a 'Buy'. SIIL, along with its subsidiaries Hindustan Zinc Limited (HZL) and Bharat Aluminium Company Ltd (BALCO) is currently riding the non-ferrous metals wave. The zinc business will be the star performer with zinc prices expected to remain strong over the next two years, given strong demand growth coupled with limited supply. Favourable pricing environment and capacity expansions in all 3 businesses should lead to a CAGR of 35.7% sales and 62.6% in net profit during FY06-FY08. Based on SOTP valuation, we have arrived at a target price of Rs.670 (an upside of 24% from the CMP of Rs.542).

**Riding the metals wave– Highest exposure of SIIL is through Zinc**

Base metal prices have increased significantly over the last four years. Copper has jumped 3.7x, zinc has gained 4.8x and Aluminium has doubled since Jan 1, 2002. We strongly believe the 4-year rally will propel ahead further due to a confluence of several factors, viz., low inventories, sustained growth in the Chinese economy, supply constraints, historical under-investment in new exploration and a weak dollar. Strong demand from China will contribute to the price momentum, and a slowing US economy may not be much of a dampener. We expect the zinc prices to remain firm during FY2008; but have factored de-growth in other metal prices. The Rampura Agucha mines of HZL are one of the best mines with a metal content of 12.8% is the backbone of SIIL's performance. The mine is operating at its rated capacity of 3.5mtpa

**FY06-08 revenue CAGR of 35.7% expected due to capacity expansion**

The recently commissioned 245,000tpa aluminium smelter at Korba is now operating at close to its rated capacity. New capacities on the cards include 0.170mtpa zinc smelter at Chanderiya, 1.4mtpa Alumina production from Vedanta Alumina (VAL) and 0.5mtpa aluminium smelter at Jharsuguda under VAL in which Sterlite holds 30% We believe, the existing capacities and the ones in the pipeline, once commissioned will propel the revenues of the company at a CAGR of 35.7% from FY06 to FY08.

**Plans to raise \$2bn via ADS to fund HZL buyout, foray into Power sector**

SIIL has unveiled its plans to raise around \$2bn through ADS issue. The proceeds will be used to fund buyout of Government of India's 29.5% stake in HZL. Apart from this the funds will be used to repay \$150mn of debt and partly fund 2,400MW power plant in Orissa. We believe, the ADS will dilute its equity by 30%. We present 2 scenarios later in this report apart from our base case target of Rs.670 to discuss the impact of ADS.

**Key Risks to our valuation**

We perceive slow down in demand from for the base metals from China as the biggest risk to our assumptions for commodity price movement. Other risks include project execution risk, environmental risk and government regulations.

Rs mn	Net Sales	EBITDA	EBITDA %	PAT	ROCE %	EV/ EBITDA	P/BV	EPS (Rs)	P/E (x)
FY05	72,525	18,349	25.3	9,148	17.4	7.4 x	4.6 x	14.3	8.0 x
FY06	131,272	40,241	30.7	22,279	18.5	6.2 x	3.9 x	30.2	11.5 x
FY07E	233,758	87,607	37.5	55,778	34.5	2.8 x	2.3 x	69.2	7.8 x
FY08E	241,607	92,648	38.3	58,898	27.8	2.3 x	1.6 x	71.6	7.6 x
FY09E	234,945	96,592	41.1	61,856	23.2	1.7 x	1.2 x	75.7	7.2 x

## Investment Rationale

### Will the bull-run end soon? The answer is difficult, we feel no ...

Identifying the start of the current commodity bull run and predicting a date when prices will cool off is very difficult. However, we have reasons to believe that the current commodity bull-run is unlikely to end in a hurry. Low inventories, sustained growth in the Chinese economy, supply constraints, historical under-investment in new exploration and a weak dollar continue to feed the current metals boom.

*Low inventories, sustained growth in the Chinese economy, supply constraints, historical under-investment in new explorations and a weak dollar continue to feed the current metal boom*

The commodity bull-run which we believe, started around mid 2002, currently shows no signs of abating in spite of a sharp correction in May 2006. Zinc and lead have made new highs eclipsing the peaks made on May 11, 2006 and are still trading at prices higher than their peak during May 2006. Demand for base metals is still at high levels with Chinese economy leading the way. Although the data released by China shows some concerns about copper consumption, we feel Sterlite will remain insulated from the overall demand supply of refined copper as its copper mining capacity is very small as compared to its concentrate requirement and it is primarily a custom smelter of copper.

*China continues to be the key driver of the current metals boom*

The demand for base metals in India is yet to pick up as India's economy gains momentum. The USA and Europe de-stocked during last year assuming the bull-run would be short-lived while China consumed whatever was offered at lower prices. However, the continued uptrend in prices are now hurting Chinese economy which has started de-stocking over the past 3 months. However, we feel, the demand from China will increase once its stocks are exhausted and SRB stops supplying metals from its reserves. The strength of the demand for copper can be gauged by the current copper TCRC negotiations where miners like BHP, Teck Cominco have virtually ruled over copper smelters and have reduced and capped the price participation (PP) clause involved in the smelting fee. We feel the strong demand will persist at least in the near to medium term before fresh supplies are in the market to meet the current demand. Secondly, substitution of one metal for another will take some time before the impact is visible in the prices. China has presumably started substituting copper with aluminium in medium tension wires and other low-end products.

*Low inventories support high prices*

Low inventory at the LME for all the base metals continue to support prices at higher levels. Under-investment in mining exploration since 1997 is taking a toll on fresh supplies. We feel the next round of fresh supplies will take at least 2-3 years to come to the market before it can make a significant impact on metal prices

### Sterlite is in the right time with right resources

Sterlite's capacity expansions over the last two years especially in zinc, where the company is an end to end integrated player will help it in taking complete advantage of the current bull-run. As for copper, Sterlite is a custom smelter and its vulnerability to volatility in price of the metal is fairly low as its income from this division is restricted to the TCRC margin. Sterlite operates the zinc business through its 64.9% subsidiary, Hindustan Zinc Limited (HZL), which is an end-to-end integrated player with the current mine output more than sufficient to meet the existing smelting capacity. HZL is in fact, selling excess concentrate produced over the last few quarters. The demand for zinc, which is mainly consumed in galvanizing steel does not show any sign of weakening demand as China continues to produce record quantities of Steel. For the nine months ending September 2006, China produced 308.4mt (18.4% up yoy) of crude steel accounting for 34% of the global production. Global production during the first nine months of CY2006 grew by 9.3% yoy to 903.3mt. However, during the same period, growth in global production of crude steel

*Sterlite is a diversified metals company with interests in copper, zinc and Aluminium*

*Massive steel production in China continues to drive the demand for zinc*

ex-China was 5.1%. We expect the demand for zinc in China to grow since the demand for galvanized steel to feed its automobile and construction industry is expected to grow over the next 2 years although at a slower pace. As for aluminium, there are fears about restarting of idle capacities in China. However, one needs to analyze in detail regarding the location of these aluminium smelters before taking a call on any changes in the price of aluminium. Many smelters that are currently idle are located in the central China region where access to bauxite mine is low, infrastructure is still poor and transport costs will be very high, making the operations of these smelters economically unviable. Chalco, China's flagship aluminium company is also planning high capacities which will put further pressure of the cost economics of these smelters that might plan to re-open. To add to the woes of these idle capacities, the Chinese government has imposed taxes on export of high energy consuming products like copper and aluminium and has reduced import tax on alumina. This would further discourage aluminium smelters to re-open their idle facilities.

Sterlite operates its Aluminium business through its 51% holding in BALCO and also has a 30% stake in VAL (where its parent company Vedanta Resources Plc. holds the balance 70%). The existing capacity of the company which consists of 130,000tpa of aluminium smelter is fully integrated with access to captive bauxite mines. Currently BALCO purchases alumina from open market to feed its new smelter. We expect its new smelter of 245,000tpa to be integrated with respect to sourcing of alumina once VAL starts commercial production. The company expects to commence operations at VAL in Jan 2007.

#### **Capacity expansion on target, expect revenue growth at CAGR of 35.7% by FY2008**

Sterlite has so far fared well on its project execution capabilities. -The new Korba aluminium smelter with a capacity of 245,000 tpa with an estimated cost of \$550mn implies per tonne cost of \$2245/t as against an industry benchmark of around \$4000/t.

*All the major expansions in Phase-I are completed, further debottlenecking to increase capacities*

Sterlite currently has \$330mn of capex pending in the current round of expansion that includes \$300mn for the 177,000tpa Chanderiya zinc smelter along with a 77MW CPP and another \$30mn for de-bottlenecking the current copper smelting capacity at Tuticorin. Post de-bottlenecking, the total capacity of copper smelting division at Tuticorin will move up from 310,000tpa to 400,000tpa. Sterlite has a 30% stake in VAL, which has 2 mega projects - 1.4mtpa alumina refinery at Lanjigarh, Orissa at an expected cost of \$800mn and 0.5mtpa aluminium smelter including 1215MW of captive power at Jharsuguda in Orissa which entails at capex of \$2.1bn. The alumina refinery will be achieving mechanical commissioning by Jan 2007 and we expect complete ramp up by Aug 2007. The Jharsuguda aluminium smelter will come up in 2 phases of 250,000tpa each. We expect the first phase to be completed by 2QFY2009 and will include 675MW (5x135MW each) captive power plant. The second phase should likely complete by FY2010 and would include the balance 250,000tpa smelter and 540MW (4x135MW) captive power plant.

**Capacity expansions already completed**

Business Division	Addl. Capacity	Location	Cost (\$mn)	Completion Period
Copper Smelter +CPP	120,000tpa +22.5MW	Tuticorin	87	Apr-05
Zinc Smelter +CPP	170,000tpa +154MW	Chanderiya	335	May-05
Zinc Mine Expansion	1.45mtpa	Rampura Agucha	90	May-05
Lead Smelter	50,000tpa	Chanderiya		Feb-06
CPP for new Korba Aluminium Smelter	540MW	Korba	350	Mar-06
Aluminium Smelter	245,000tpa	Korba	550	May-06*
<b>Total</b>			<b>1412</b>	

\* Re-commissioning completed by Sep 2006 after power disruption due to stormy weather

**The pipeline continues to grow***Second phase of expansion on track*

- 1.4mtpa alumina refinery
- 0.5mtpa Aluminium smelter

SIIL has had a good track record in terms of project execution and has been able to complete the projects planned so far within the budgeted time and cost. The company completed Chanderiya and Rampura Agucha mine expansion at 25% below the budgeted costs. The aluminium smelter at Korba was also completed on time, though; stormy weather conditions caused a power disruption, which took toll on its smelter pots. However, we expect all the pots to be re-commissioned soon. The company currently has now just one more project to complete apart from the greenfield projects under Vedanta Alumina (VAL) where it has a 30% stake. The next round of expansion is the Chanderiya zinc smelter which will be increased by 170,000tpa along with a 77MW CPP and will involve a capex of \$300mn. We expect the mechanical completion of the project by Jan 2008 and a complete ramp up by August 2008. Apart from this, Sterlite also has a 30% stake in VAL which has an ambitious expansion project lined up. The project is a 1.4mtpa greenfield alumina refinery at Lanjigarh, which is expected to be complete by end of FY2007. The second project in the pipeline for VAL is \$2.1bn aluminium smelter project which includes 500,000tpa smelter at Jharsuguda and 1215MW CPP. This project will be completed in two phases – the first phase is expected to be complete by 2QFY2009 and will include 250,000tpa aluminium smelter and 675MW CPP (135MWx5). The second phase of the project is expected to be complete by end of FY2010 and will include 250,000tpa aluminium smelter and 540MW CPP (135MW x 4).

**Projects in the pipeline**

Project Description	Capacity	Location	Expected Cost	Timeline for completion
Zinc Smelter	170,000tpa + 77MW CPP	Chanderiya	\$300mn	Jan 2008 (mechanical commissioning)
Alumina Refinery *	1.4mtpa	Lanjigarh	\$800mn	FY2007
Aluminium Smelter *	Phase- I - 250,000tpa+675MW CPP	Jharsuguda	\$2.1bn	2QFY2009
	Phase - II - 250,000tpa + 540MW CPP	Jharsuguda		FY2010

\* These projects are being commissioned under Vedanta Alumina Ltd., a subsidiary of Vedanta Resources. Sterlite has 30% stake in VAL.

The entire funding so far has been done through a mix of debt and primarily equity that includes a fresh issuance of capital and internal accruals. The company had raised money through rights issue to boost its equity by Rs.19.72bn (approx \$429mn) and partly fund the expansion projects in pipeline. Sterlite has reduced its net debt to equity from 0.83x in FY2005 to 0.53x in FY2006, through the rights issue and has so far invested Rs.1656.9mn. With the cost of refinery estimated at \$800mn, Sterlite needs to put in an additional Rs.9.4bn by the end of FY2007 as a part of its 30% stake in VAL. We believe Sterlite will generate sufficient FCF to meet its commitments. We expect Sterlite to be debt free company by FY2008.

### Capacity Mapping post expansions

Post all the expansion plans that are currently in the pipeline, the capacities under different business units will be as under:

Business Division	Location	Total Capacity post expansion (tpa)
Copper Smelter	Tuticorin	400,000
Zinc Smelter	Chanderiya	581,000
Lead Smelter	Chanderiya	103,000
Aluminium Smelter – Sterlite	Korba	380,000
Alumina Refinery – Vedanta Alumina	Lanjigarh	1-1.4mtpa
Aluminium Smelter – Vedanta Alumina	Jharsuguda	500,000

### Highest exposure to zinc, where it is fully integrated

*SIL is end-to-end integrated in zinc from ore to mining, which helps in fully benefiting from the current rally in metal prices*

Zinc remains the star performer in Sterlite's pack of metals as it is fully integrated from mining to refining. The Rampura Agucha mine meets more than the current requirement of zinc concentrates and as a result, HZL has been able to fully participate in the current rally. We expect HZL to contribute to nearly 36% in terms of net sales and 80% at the EBITDA level. We believe zinc prices to remain firm in FY2007 and see a marginal increase in FY2008 and a decline of 5.2% in FY2009. We have assumed zinc prices at \$3750/t for FY2007, \$3800/t for FY2008 and \$3600 for FY2009. The first phase of capacity expansion at the Chanderiya smelter and mine expansion at Rampura Agucha has already been completed in May 2005 taking the smelting capacity to 411,000tpa and mine output to 3.75mtpa and total reserves at Rampura Agucha mine extended to 50mt. Zinc reserves at the Agucha mine has been further expanded with continued exploration and as at March 31, 2006 the mine has a reserve of 53.4mt. HZL has lined up another round of hike in smelting operations of 170,000tpa. With the completion of this expansion, HZL's smelting capacity will cross half million tonne mark and will touch 581,000tpa. We expect the mechanical commissioning of the new smelter by Jan 2008 and a complete ramp-up of the facility by August 2008.

### Valuation Rationale

We value Sterlite stand alone at 4.5x FY2008E EV/EBITDA due to continued pressure on TCRC margins. We value HZL at 5.5x its FY2008E EV/EBITDA given its strong earnings momentum and capability to capitalize on the current zinc rally. We value BALCO at 5.0x its FY2008E EV/EBITDA. The existing plant at BALCO is fully integrated with bauxite mines. We expect alumina prices to be under pressure over the next two years as over supply from China continues to put pressure. Hence, the costs for the new Aluminium smelter (BALCO-II) is also expected to come down. At our target price, Sterlite consolidated is expected to trade at 4.2x FY2008 estimates.

## Attractive valuation -potential upside of 24% from CMP

We value Sterlite at Rs.670 per share based on the SOTP method.

Company	Fair Value	Sterlite's stake	Value per share in Sterlite's consolidated valuation	Remarks
Sterlite - Stand alone	32	100%	32	Based on our target FY2008E EV/EBTDA of 4.5x on standalone basis
Hindustan Zinc	875	64.9%	568	Based on our target FY2008E EV/EBTDA of 5.5x on standalone basis
BALCO	61	51%	31	Based on our target FY2008E EV/EBTDA of 5.0x on standalone basis
Copper Mines at Tasmania (Mining operations of Sterlite)	19	100%	19	Based on DCF with a WACC of 14.5% and Beta of 1.0
Vedanta Alumina	64.3	30%	20	Based on 1x replacement value of the refinery
<b>Fair Value of Sterlite</b>			<b>670</b>	<b>At Rs.670, the stock will trade at 4.2x consolidated FY2008 EV/EBTDA, P/E 9.4x FY2008, and P/B of 2.0x FY2008</b>

*At our price target of Rs670, the Sterlite should trade at EV/EBITDA of 4.2x its FY2008 consolidated earnings*

Our SOTP valuation of Sterlite indicates a possible upside of 24% from the current market levels. Our valuations are on the realistic assumptions on prices of base metals. At our target price, Sterlite will trade at a P/E of 9.4x EV/EBITDA of 4.2x its FY2008 earnings which is in line with its peer group globally.

We are not comfortable giving Sterlite stand-alone a higher discounting of more than 4.5x its FY2008 EV/EBITDA as TCRC margins are now at very low levels and we believe they might dip further next year as limited supply of copper concentrate will give miners upper hand in the negotiations. Further, elimination of PP will erode most of their profits that these smelters could have gained from rise in copper prices. Our sensitivity analysis shows that Sterlite's valuation is least sensitive to wide fluctuations in movement in copper prices as the PP element has been completely eliminated as of now.

For Hindustan Zinc, we are comfortable with an EV/EBTIDA target of 5.5x as its peers are currently trading at an average of 5.33x FY2008 EV/EBTIDA. We are comfortable giving HZL a marginal premium over its peer set because its ebitda margins are far superior to its peer set. HZL has an ebitda margin in excess of 70% over the forecasted period whereas its peer set has average margins hovering around 45%. Although the gap in margins is huge but we do not want to build in a huge premium on the ebitda margins as the gap could be on price assumptions with which the margins are directly correlated. However, we do believe, a small premium is justifiable due to such a wide gap in ebitda margins and considering the fact that HZL has one of the best zinc mines in the world with a metal content of 12.8%.

For BALCO, we are comfortable with a target FY2008 EV/EBITDA of 5.0x. The peer set for BALCO namely Alcan, Alcoa, Hindalco, Nalco and Chalco are trading at an average FY2008 EV/EBITDA of 5.22x. The current capacity of BALCO is completely integrated with mining operations and raw material linkages are in place. We expect the new smelter at BALCO to be also fully integrated in next year once production from VAL starts.

## Other opportunities not factored in current valuations

### Buyout of Government stake in HZL and BALCO not factored

*Our valuation does not include any upside from further consolidation of Sterlite's stake in its subsidiaries- BALCO and HZL*

Sterlite has the option to buy out the Government of India's stake in HZL. The call option is exercisable after April 11, 2007. We believe the company will exercise the option as it has done for BALCO. However, the government (GOI) is now planning to sell its stake in HZL and BALCO through an open offer. In case the management of Vedanta Resources Plc, the holding company of Sterlite, reach an amicable settlement with the GOI, the transfer of the remaining stake with the government might be done without any hiccups. We have currently not factored this into our model as we feel the chances of GOI selling its stake at the previously agreed price are low. The impact on Sterlite equity will depend upon the ADS offer price.

### Stake hike in BALCO and possible stake hike in HZL

*Sterlite has infused Rs.5bn as share application money. We have not factored this in our valuation pending allotment of shares*

Sterlite has already made a payment of Rs.5bn to BALCO as an advance against share capital. This implies that the company might be hiking its stake in BALCO in FY2007. Currently, Sterlite holds 51% in BALCO. With the government planning other routes to divest its stake in BALCO, Sterlite might plan to hike its stake in BALCO through further capital infusion. This will not only provide BALCO with the cash needed for its expansion programme, it will also increase the stake of the parent company even if it is not able to buy out GOI's balance 49% stake. We have not factored in this stake hike in our consolidated valuation.

### Profits from 30% stake in VAL also not factored

*VAL is yet to commence commercial production. It is expected that Bauxite will be charged into the refinery from Jan2008. We value VAL at 1x its replacement value*

We have valued Sterlite's stake in VAL at 1x replacement value of the alumina refinery currently being set up. We have not factored in any profits from the alumina refinery. In case VAL is able to source bauxite from Nyamgiri mines as planned, the costs for Alumina refinery will come down substantially resulting in higher profits, which we have not factored in our valuations till date. The CIF value of imports of alumina has come down from \$600/t levels to \$300/t currently. We believe, abundant supply of alumina from China will lead to suppressed prices for alumina in the near to medium term.

Global Comparable Valuation

All currencies converted to USD

Company	Financial Year End	Primary Business CMP as of		Shares Market		Enterprise Value	Ebitda Margin		Earnings Per Share		Return On Assets (ROA)			
		3rd Nov 2006	USD	o/s	Cap		USD bn.	YET+1	YET+2	YET+3	YET+1	YET+2	YET+3	
		USD	USD	Mn.	USD bn.	USD bn.	Percentage	Percentage	USD/Share	Percentage	Percentage	Percentage		
<b>Sterlite</b>	<b>Mar</b>	<b>11.91</b>	<b>553</b>	<b>6.59</b>	<b>7.88</b>	<b>36.2%</b>	<b>37.1%</b>	<b>39.1%</b>	<b>1.53</b>	<b>1.62</b>	<b>1.66</b>	<b>28.9%</b>	<b>24.4%</b>	<b>20.6%</b>
HindustanZinc	Mar	20.38	423	8.61	8.20	76.1%	77.4%	75.6%	2.55	2.73	2.85	66.9%	42.7%	31.3%
Alcan	Dec	46.55	376	17.52	20.62	17.5%	18.3%	16.9%	5.17	5.15	4.62	9.5%	10.2%	10.3%
Alcoa	Dec	28.91	867	25.07	34.02	14.2%	19.7%	18.1%	2.88	2.91	2.65	9.0%	9.1%	8.6%
Antofagasta	Dec	9.82	986	9.68	18.68	67.2%	72.2%	57.3%	1.27	1.08	0.59	48.6%	41.1%	28.0%
BHP Billiton	Jun	21.25	3,496	74.28	72.19	52.3%	50.8%	47.5%	2.26	2.15	1.90	34.6%	29.9%	24.7%
Hindalco	Mar	4.22	1,159	4.89	5.47	22.6%	19.0%	19.4%	0.49	0.43	0.47	11.0%	7.9%	8.3%
Kagara Zinc	Jun	5.40	200	1.08	1.09	66.3%	55.5%	52.7%	0.56	0.45	0.34	62.8%	58.0%	37.0%
Korea Zinc	Dec	110.77	19	2.09	2.36	19.5%	18.6%	18.6%	18.11	16.70	14.69	19.7%	15.3%	12.6%
Nalco	Mar	5.03	644	3.24	2.76	62.3%	53.8%	58.5%	0.71	0.51	0.38	24.2%	14.1%	9.5%
PhelpsDodge	Dec	96.27	204	19.64	17.90	44.2%	48.9%	44.7%	16.41	16.07	12.29	31.0%	21.6%	16.7%
Rio Tinto	Dec	56.44	1,030	58.16	119.23	52.0%	52.2%	50.4%	5.89	5.78	5.02	32.5%	33.9%	34.3%
Sumitomo metal and mining	Mar	12.96	573	7.43	8.65	19.5%	17.8%	16.0%	1.51	1.22	0.85	16.8%	14.7%	9.6%
TeckCominco	Dec	70.62	211	14.91	12.89	59.1%	55.8%	50.2%	8.57	8.07	6.13	39.4%	37.1%	28.7%
Xstrata	Dec	43.64	943	41.16	43.62	47.8%	53.3%	45.6%	4.55	4.65	3.68	19.8%	17.9%	16.5%
Zinifex	Jun	11.89	487	5.79	5.44	44.1%	39.8%	33.9%	2.35	1.61	1.04	51.4%	29.6%	14.1%
Freeport Memorandum Copper-B	Dec	59.69	187	11.17	12.56	53.6%	50.2%	51.0%	6.86	5.52	5.24	33.1%	28.5%	28.2%
Grupo Mexico Sab De Cv-Ser-B	Dec	3.40	2,585	8.80	10.62	58.9%	58.1%	53.8%	0.67	0.74	0.54	21.1%	21.4%	21.7%
Southern Copper Corp	Dec	50.83	294	14.97	15.72	62.9%	62.8%	56.6%	7.25	7.56	5.41	40.9%	38.5%	20.6%
CHALCO	Dec	0.69	11,694	8.10	8.93	36.7%	28.9%	24.3%	0.13	0.09	0.07	18.3%	11.4%	7.6%
Average for all excluding HindustanZinc and Sterlite						44.5%	43.1%	39.7%				29.1%	24.4%	18.7%
Average for Aluminium companies						30.7%	27.9%	27.4%				14.4%	10.5%	8.9%
Average for Zinc companies						47.3%	44.6%	40.2%				38.6%	31.6%	21.8%

Notes:

- 1) YE= Year Ended
- 2) T+1 = first year of forecast, T+2=Second year of forecast, e.g., if Year ended is Dec, then T+1= Dec 2006, but if Year ended is June, then T+1= June 2007
- 3) Sterlite and HZL are Emkay Research estimates
- 4) Other company estimates are Bloomberg estimates as on 3<sup>rd</sup> Nov 2006
- 5) Conversion Rates applied for the currency as at 3<sup>rd</sup> Nov as per following

AUD	GBP	CAD	CNY	EUR	INR	JPY	SGD	MXN	HKD	KRW
Australian Dollar	Pound	Canadian Dollar	Chinese Yuan	Euro	Rupees	Yen	Singapore Dollar	Mexican Peso	Hong Kong Dollars	South Korean Won



Global Comparable Valuation

Company	Financial Year End	Primary Business	Price to Earnings (x)			Price to BVPS (x)			Price to Sales (x)			EV/EBITDA		
			YE T+1	YE T+2	YE T+3	YE T+1	YE T+2	YE T+3	YE T+1	YE T+2	YE T+3	YE T+1	YE T+2	YE T+3
Sterlite	Mar	Diversified Mining	7.78	7.37	7.17	2.27	1.56	1.18	1.23	1.17	1.21	4.06	3.79	3.70
Hindustan Zinc	Mar	Zinc	7.99 x	7.45 x	7.16 x	4.81 x	2.99 x	2.14 x	4.14	3.91	3.67	5.51 x	5.11 x	4.91 x
Alcan	Dec	Aluminium	9.01 x	9.04 x	10.08 x	1.61 x	1.41 x	1.43 x	0.76	0.74	0.74	5.11 x	4.76 x	5.19 x
Alcoa	Dec	Aluminium	10.04 x	9.93 x	10.91 x	10.11 x	7.77 x	7.13 x	0.63	0.83	0.85	6.01 x	5.74 x	6.37 x
Antofagasta	Dec	Diversified Mining	7.75 x	9.09 x	16.70 x	3.42 x	2.64 x	2.42 x	2.49	3.18	4.25	7.17 x	8.49 x	14.33 x
BHP Billiton	Jun	Diversified Mining	9.40 x	9.87 x	11.16 x	4.01 x	3.01 x	2.42 x	1.83	1.80	1.88	3.40 x	3.46 x	3.84 x
Hindalco	Mar	Aluminium	8.61 x	9.85 x	8.95 x	1.76 x	1.46 x	1.29 x	1.15	1.10	1.12	5.68 x	6.48 x	6.49 x
Kagara Zinc	Jun	Zinc	9.60 x	11.92 x	15.86 x	4.64 x	3.29 x	2.14 x	3.21	2.95	2.24	4.90 x	5.37 x	4.29 x
Korea Zinc	Dec	Zinc	6.11 x	6.63 x	7.54 x	1.86 x	1.78 x	1.26 x	0.96	0.91	0.97	5.55 x	5.50 x	5.92 x
Nalco	Mar	Aluminium	7.12 x	9.93 x	13.21 x	1.85 x	1.61 x	1.45 x	2.54	2.96	3.15	3.48 x	4.69 x	4.59 x
Pheips Dodge	Dec	Diversified Mining	5.87 x	5.99 x	7.83 x	2.57 x	1.76 x	1.37 x	1.66	1.59	1.84	3.42 x	2.96 x	3.76 x
Rio Tinto	Dec	Diversified Mining	9.58 x	9.77 x	11.24 x	3.90 x	2.97 x	2.50 x	2.38	2.37	2.58	9.39 x	9.31 x	10.47 x
Sumitomo metal and mining	Mar	Diversified Mining	8.60 x	10.62 x	15.27 x	1.85 x	1.58 x	1.43 x	1.03	1.11	1.23	6.16 x	7.23 x	8.95 x
Teck Cominco	Dec	Zinc	8.24 x	8.75 x	11.53 x	2.49 x	1.96 x	1.69 x	2.66	2.72	3.13	3.89 x	4.21 x	5.39 x
Xstrata	Dec	Zinc	9.60 x	9.38 x	11.86 x	2.14 x	1.74 x	1.64 x	3.26	3.69	3.61	7.23 x	7.34 x	8.40 x
Zimifex	Jun	Zinc	5.07 x	7.41 x	11.40 x	2.58 x	2.33 x	2.17 x	1.56	1.79	2.22	3.32 x	4.21 x	6.15 x
Freeport/Mcmoran Copper-B	Dec	Copper	8.70 x	10.82 x	11.40 x	5.62 x	3.79 x	3.11 x	1.92	2.05	2.15	4.02 x	4.59 x	4.75 x
Grupo Mexico Sab De Cv-Ser-B	Dec	Diversified Mining	5.11 x	4.60 x	6.32 x	2.20 x	1.72 x	1.47 x	1.34	1.32	1.51	2.75 x	2.74 x	3.38 x
Southern Copper Corp	Dec	Copper	7.01 x	6.72 x	9.39 x	4.31 x	3.75 x	2.88 x	2.63	2.49	3.16	4.39 x	4.16 x	5.87 x
CHALCO	Dec	Aluminium	5.42 x	7.63 x	9.63 x	1.44 x	1.29 x	1.20 x	1.17	1.16	1.10	3.52 x	4.41 x	4.98 x
Average for all excluding Hindustan Zinc and Sterlite			7.82 x	8.78 x	11.13 x	3.24 x	2.55 x	2.17 x	1.84 x	1.93 x	2.10 x	4.97 x	5.31 x	6.28 x
Average for Aluminium companies		Aluminium	8.04 x	9.28 x	10.56 x	3.35 x	2.71 x	2.50 x	1.25 x	1.36 x	1.39 x	4.76 x	5.22 x	5.52 x
Average for Zinc companies		Zinc	7.72 x	8.82 x	11.64 x	2.74 x	2.22 x	1.78 x	2.33 x	2.41 x	2.43 x	4.98 x	5.33 x	6.03 x

Notes:

- 1) YE= Year Ended
- 2) T+1 = first year of forecast, T+2=Second year of forecast, e.g., if Year ended is Dec, then T+1= Dec 2006, but if Year ended is June, then T+1= June 2007
- 3) Sterlite and HZL are Emkay Research estimates
- 4) Other company estimates are Bloomberg estimates as on 3<sup>rd</sup> Nov 2006
- 5) Conversion Rates applied for the currency as at 3<sup>rd</sup> Nov as per following

AUD	GBP	CAD	CNY	EUR	INR	JPY	MXN	HKD	KRW	
Australian Dollar	Pound	Canadian Dollar	Chinese Yuan	Euro	Rupees	Yen	Singapore Dollar/Mexican Peso	Hong Kong Dollar	South Korean Won	
1 USD =	1.299	0.526	7.885	0.787	44.903	118.064	1.567	10.810	7.780	943.396

**Assumptions**

<b>Price Assumptions</b>		<b>FY2007</b>	<b>FY2008</b>	<b>FY2009</b>
Copper price	\$/t	7000	6000	5000
Zinc Price	\$/t	3,750	3,000	3,600
Lead Price	\$/t	1,350	1,500	1,100
Aluminium Price	\$/t	2,400	2,200	2,000
Alumina Linkage to Aluminium Price	%	18%	12%	12%
Alumina Price	\$/t	432	264	240
<b>TCRC Margin ¢/lb</b>				
Spot TCRC		50/5	50/5	40/4
Contract TCRC		080/8	060/6	060/6
Price Participation in Contract TCRC	¢/lb	9.44	0.00	0.00
Blended TCRC	¢/lb	25.63	14.49	13.92
<b>Capacity and Production Assumptions</b>				
<b>Copper</b>				
Total Smelting capacity	t	400,000	400,000	400,000
Cathode Production	t	287,245	348,750	368,000
Capacity utilization	%	71.8%	87.2%	92.0%
<b>Zinc</b>				
Concentrate sale	t	263,501	170,715	21,115
Realization per tonne on concentrate	\$/t	3,750	3,000	3,600
Metal Total production capacity		411,000	411,000	581,000
Total production		328,800	361,680	511,280
Capacity utilization		80.0%	88.0%	88.0%
<b>Lead</b>				
Installed capacity	t	103,000	103,000	103,000
Metal Production	t	41,200	56,650	72,100
capacity utilization	%	40.0%	55.0%	70.0%
<b>Aluminium</b>				
Total Installed Capacity	t	380,000	380,000	380,000
Production	t	309,500	342,000	354,500
Capacity utilization	%	81.4%	90.0%	93.3%
Blended Cost of Production	\$/t	1,538	1,320	1,316

**Sensitivity to zinc price highest, but diversification helps reduce volatility**

Sterlite's profits are highly sensitive to the zinc prices as compared to aluminium price and copper TCRC margins. The sensitivity of Sterlite to zinc price would be lower than that of a pure play zinc company like HZL due to its diversification into copper and aluminium business.

*Sterlite's sensitivity to zinc prices is highest amongst all base metals*

**Change in the consolidated EPS due to change in base metal prices in FY2008**

<b>Base Metal and % change</b>	<b>Metal price assumptions (\$/t)</b>	<b>Consolidated EPS of Sterlite (Rs)</b>	<b>% change in EPS from base</b>
<b>Zinc – Base Case</b>	3,800	71.6	-
↑ 5%	3,990	74.3	+3.79
↑ 10%	4,180	77.0	+7.58
↓ 5%	3,610	68.9	-3.79
↓ 10%	3,420	66.2	-7.63
<b>Aluminium – Base Case</b>	2,200	71.6	-
↑ 5%	2,310	72.3	+1.05
↑ 10%	2,420	73.1	+2.10
↓ 5%	2,090	70.8	-1.05
↓ 10%	1,980	70.1	-2.10

**Change in consolidated EPS due to change in blended TCRC margin in FY2008**

<b>TCRC margin and % change</b>	<b>TCRC margin blended (¢/lb)</b>	<b>Consolidated EPS of Sterlite</b>	<b>% change in EPS from</b>
Base Case	14.49	71.6	-
↑ 5%	15.22	71.9	+0.49
↑ 10%	15.94	72.3	+0.97
↓ 5%	13.77	71.2	-0.49
↓ 10%	13.04	70.9	-0.97

## Recent developments

*The proceeds from ADS will be used to*

- Buyout GOI's stake in HZL
- Repayment of loan of \$150mn
- Investment into the power sector

SIIL has recently unveiled its plans to foray into the power sector through its subsidiary –Sterlite Energy ltd. It plans to increase its power project at Jharsuguda from 1215MW to 2400MW. Of this 2400MW, 1200MW is expected to be consumed in-house; balance 1200MW will be sold to SEB, PTC. The total outlay on this project is expected at \$1.9bn to be funded through a debt-equity mix of 70:30. Sterlite will infuse equity partly through internal accruals and partly from the proceeds from the ADS issue. It will also bid for ultra mega power plants (UMPP) planned by the government of India. It is already pre-qualified for 2 such bids and will be bidding for these two projects shortly. It should be noted here that Sterlite is India's largest captive power producer.

SIIL has announced that it will also enter the wind power business through its subsidiary HZL. It plans to set up 77MW of wind power plant in two phases with a total capex of Rs4,000mn. The first phase is expected to be completed by mid 2007 and the second phase by end 2008.

### Plans to raise \$2bn via ADS to fund HZL buyout, foray into Power sector

Sterlite has unveiled its plans to raise \$2bn through ADS issue. The ADS will be listed at NYSE.

*SIIL plans to raise \$2bn through ADS route*

We believe, the issue could be offered between Rs.500-550. We have built our case assuming maximum dilution, presuming that the ADS might not be offered at lesser than price equivalent of Rs500/- per share. The proceeds from the ADS issue will be utilized for the following:

- Buyout of government stake in HZL
- Repayment of Debt to the tune of \$150mn
- Investment into the Power sector

We have build up the two “what-if” scenarios:

The First scenario is based on the premise that the HZL buyout is successful and Sterlite manages to acquire at least additional 15% stake in HZL. Currently Government holds 29.5% stake in HZL. It has an option to sell 3.5% to the employees of HZL. There have been reports about government mulling the option of offloading 10% stake in HZL through market. We believe, Sterlite will be well in a position to buyout the balance 15% stake, unless the price offered and agreed to by both the parties is in excess of Rs1,251. In such a case, Sterlite will have to look for alternate source to finance the deal partly.

### Possible stake acquisition under different price scenarios

#### Case-1: HZL buyout is successful

	Buyout price				
Rs.	910	1,023	1,137	1,251	1,364
Addl. Stake	20.7%	18.4%	16.5%	15.0%	13.8%

*Sterlite will manage to acquire at least 15% of the stake in HZL if the offer price by GOI does not exceed Rs1251/share*

**Case-2: HZL buyout is UN-successful and no other investment avenues for Sterlite for immediate deployment of ADS proceeds - Pessimistic scenario**

We feel this is an unlikely scenario but we cannot rule this out. In case HZL buyout is not successful, we feel that Sterlite will find other productive ways to invest the proceeds of ADS and enhance shareholders' value.

EBITDA - FY2008	3,855
Target EV/EBITDA - standalone Sterlite	4.5
Target EV - standalone Sterlite	17,349
Cash Balance originally	-4,118
Liquid -other investments	-10,563
Existing Debt on books	14,191
Net Debt	-490
Target Market Cap	17,840
Add: Proceeds from ADS	91,000
Less: issue expense @3%	-2,730
Less: Debt repayment	-6,825
Less: Investment in Power sector-full 30% in FY08	-25,935
Assumed price for ADS (Rs. Per share)	500
No. of fully diluted shares o/s (in mn)	731
Fair Value of the Standalone Sterlite on diluted equity	24
Value of Subsidiaries on diluted equity	489
Consolidated Valuation post ADS dilution	513
Add: Cash per share -net proceeds from ADS (post investment in power and debt repayment)	76
<b>Revised Target Price for Sterlite</b>	<b>589</b>
Upside from CMP	8.7%

*In case the buyout is unsuccessful, Sterlite will still have a minimum fair value of Rs589/share assuming no income from cash received through ADS*

We have not factored any interest income that will accrue in case Sterlite parks its funds temporarily even with liquid plan of different mutual funds. We believe, income from such liquid plans can yield an annualised return in excess of 8-10% given the current interest rate scenario.

## Risk Factors

*Slowdown in Chinese economy is the biggest risk to the current metal price rally. Sterlite's fortunes are directly correlated to the performance of the commodity prices*

### Slowdown in demand from China

The biggest risk for Sterlite is a slow down in Chinese economy that is currently the driver for the entire bull-run in the commodities. We do not feel that China's economy will slow down to such an extent that might hurt the demand for base metals significantly. We are also not optimistic about China's capability to be self sufficient in zinc. Although, China might be self-sufficient in copper over the next year; we believe, it will continue to import zinc and copper concentrate over the next two years.

China will continue to drive the global consumption growth, albeit at a slower pace as the base effect takes its toll on its growth numbers and the Chinese government takes steps to slow down the economic growth to avoid over-heating. Between 2002 and 2005, China alone accounted for more than 50% of the total consumption growth in copper, aluminium and steel. Currently, China's share in world output is at 15%; by far highest for any Asian economy ex-Japan. As per IMF data, the share of metal consumption tends to rise as a country's industrial development progresses. The share of metals continues to rise till the per capita PPP -adjusted real income reaches between \$15,000 and \$20,000. Currently China's per capita PPP-adjusted real income is estimated at \$6,400. This leaves a lot of room for further demand in base metals and steel. This trend has been observed during the industrialization phase of Japan, and South Korea. We believe, India could also follow a similar road map, albeit a few years behind China in terms of per capita consumption of metals.

*Delay in securing environmental clearance and consequent delay in capacity expansion might impact our valuation for Sterlite*

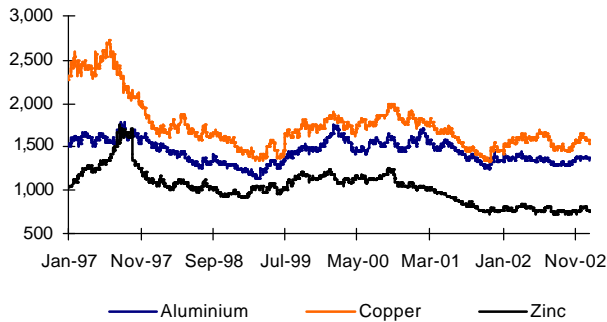
### Project execution risk on account of environmental clearance

The second biggest risk could be project execution on account of environmental clearances. There have been reports expressing concerns regarding environment degradation in areas where the expansion programmes have been launched by the Sterlite group. Smelting, if not properly done, by itself is a polluting industry. However, there are measures that can be adopted to reduce the pollution levels significantly. We believe Sterlite will be able to secure environmental clearances and proceed with its planned expansions. However, there could be delays in securing these clearances. In case of long delays in securing environmental clearance, our assumptions might not hold true.

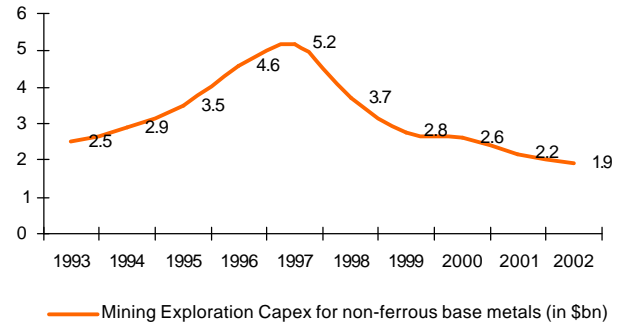
## Why there has been a sudden short supply of metals?

Underinvestment in mineral exploration due to lack of sustained demand

### While metal prices remained flat from 1997 to 2002...



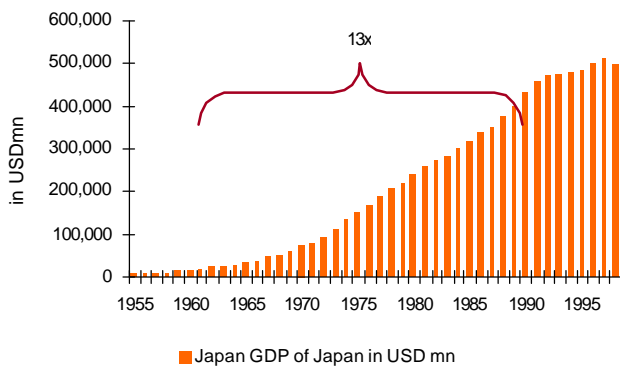
### ...mineral exploration capex continued dwindling



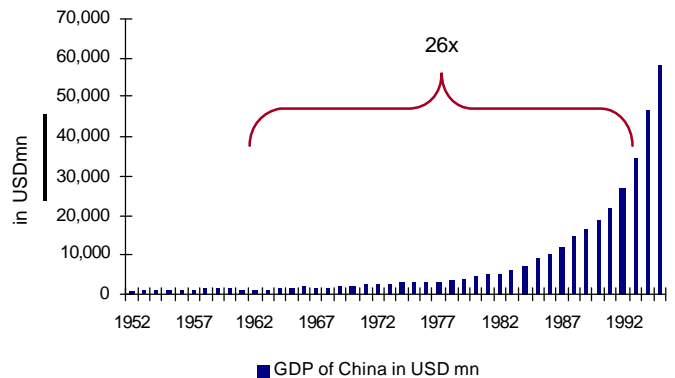
During the period from 1998 to 2002, investment in minerals exploration gradually dried up owing to lack of demand from the end user industries and excess supply from the then existing mines. The underinvestment in exploration capex has resulted in huge gap between the sudden surge in demand and limited supply from existing mines.

**Tremendous pace of growth of China's GDP as compared to Japan's GDP during a similar 25 year growth phase leading to fundamental shortage of metals.**

### GDP growth of Japan was 13x during its fast growth phase of 25 years



### GDP growth of China was 26x during its fast growth phase of 25 years



The rate of growth of China's GDP has been nearly twice that of what Japan achieved when it transformed itself into an industrialized nation. This has resulted in huge shortage of base metals, coal and energy. During 2004, China contributed to 40% of the global growth and accounted for nearly 32% of steel output, 20% of aluminium output, 44% of cement output and 32% of coal. The explosion in the Chinese economy has led to a fundamental shortage of commodities across the board.

During the first six months of 2006, the GDP of China grew by \$1.41trillion representing a yoy growth of 10.9%. This growth was driven mainly due to sustained fixed assets investments that grew at 30% yoy. Exports were up by nearly 25% at \$429bn as compared to imports that were up by 21% at \$367bn representing a trade surplus of \$61bn. Currently China is on the verge of crossing \$1trillion in foreign exchange reserve, thanks to its burgeoning trade surplus with western world especially US.

## Copper business

Sterlite has achieved smelting capacity of 410,000tpa through debottlenecking 100,000tpa in November 2006. This additional capacity is expected to ramp-up by 1QFY2008. The cost of debottlenecking has been estimated around Rs1,150-1,350mn (\$25-30mn). Sterlite increased its copper cathode capacity from 165,000tpa to 310,000 in April 2005. It also has wire rod production capacity of 292,000 which was increased from 196,000tpa in FY2005.

### Copper Mines at Tasmania Pty Limited (CMT) - Provides 10% of total concentrate requirements...

*Sterlite sources 10% of its copper concentrate requirement from its 100% subsidiary in Australia, Copper mines of Tasmania (CMT)*

Sterlite indirectly owns 100% of the CMT through its 100% subsidiary Monet Cello BV; CMT was acquired in 1999. It is an underground mine in Australia with a total resource availability of around 1.25mt and copper grade of 1.27%. At the current extraction rate, the mine will have an estimated life of six years in case no further reserves are explored. During FY2006, CMT provided 10% of the total concentrate requirement of Sterlite. As Sterlite increases its smelting operations by de-bottlenecking, we believe CMT will account for close to 8% of the total concentrate requirement. CMT produced 30,000t of copper during FY2006 representing a yoy growth of 8.7%. Sterlite also owned Thalanga Copper Mines in Australia, which has been closed and disposed off along with all associated liabilities. Apart from that, the parent company Vedanta Resources Plc. also has mines at Zambia - Konkola Copper Mines that has a total estimated reserve of 174.8mt and copper grade of 2.83%.

### ...While 67% of the concentrate is met through long term contracts

*It sources 67% of its concentrate requirement through long term/annual contract*

Sterlite imports nearly two thirds of its copper concentrate requirements through long term contracts. These contracts are of typically 2-3 years in terms of quantity agreed, with prices negotiated every six months (annually during March) and semi-annually (During September). The TCRC margins have crashed this year due to over supply of smelting capacity and shortage of copper concentrates. We believe, the shortage will continue over the next two years.

### ...The balance being met through spot contracts

*Spot deal, which have crashed to as low as \$30/¢3 account for around 23% of the total concentrate requirement of Sterlite*

Sterlite imports the balance concentrate requirements through spot deals. Spot deals have also spiralled downwards to as low as \$30/¢3. We believe the TCRC rates in the spot market will remain tighter than that in the long-term contracts, as concentrate shortage continues.

### Miners have their say- Price Participation (PP) earlier capped now removed...

The last round of half yearly negotiations saw miners reducing the PP paid to the smelters by as much as 75%. As per the prevailing norms smelters were entitled to 10% of the price above 90¢/lb. However, in the current round of negotiations, miners have been successful in raising the cap on (PP) from 90¢/lb to \$1.20/lb. Moreover, the key point to be noted is that they have capped the PP at a max of 6¢/lb. This implies that even if copper stays above ¢180/lb (\$3968/t) custom smelters will not be able to participate in the rally. However, at any time, if the price of copper falls below the ¢180/lb mark, custom smelters will take a hit on their PP component. At current prices, smelters would have earned ¢25.5/lb of copper smelted or \$560/t purely from price participation. However, this might be now limited to ¢6/lb or \$132/t, which means nearly 75% of their income from Price Participation will stand eroded. To add to the woes of the custom smelters,

Due to prolonged tightness in the copper concentrate supply, miners have been successful in bargaining hard and eliminating PP in the annual TCRC negotiations

BHP has reportedly scrapped PP in its latest TCRC contract with Vedanta Resources in a deal for 200,000t of copper concentrate. This signals end of a long standing arrangement between miners and smelters. Now smelters' income is driven only by TCRC margins and not by any increase in copper prices at LME.

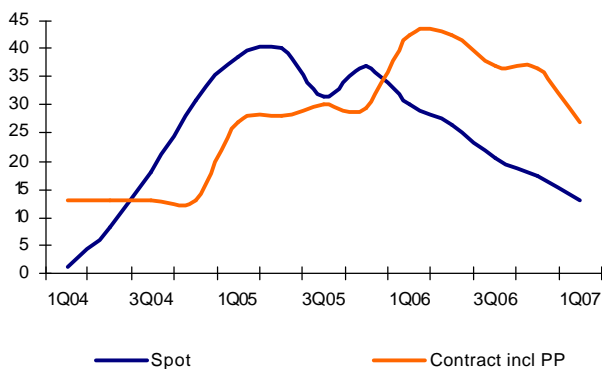
#### Major deals concluded recently

Miner	Smelter	Spot/Long Term Contract	TCRC	Remarks
BHP Billiton	Vedanta Resources Plc	LTC	\$60/¢6	No PP
BHP Billiton	Tongling (China)	LTC	\$73/¢7.3	Cap on PP @¢6/lb and benchmark moved from ¢90/lb to ¢120/lb
Teck Cominco	Japanese	LTC	\$60/¢6	As above
BHP Billiton	Pan Pacific Copper (Japanese)	LTC	\$60/¢6	As above
BHP Billiton	Hindalco	One time	\$75/¢7.5-\$80/¢8	No PP
Unknown	Chinese	Spot	\$20/¢2	No PP
Unknown	Chinese	Spot	\$30/¢3	No PP

Source: Industry, Emkay Research

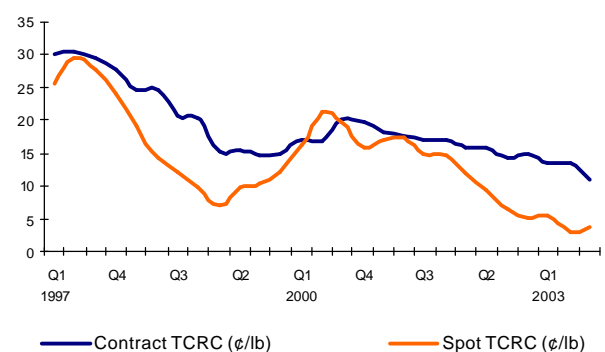
We have assumed nil PP in our calculation for TCRC. We believe Sterlite's copper smelting operations will contribute close to 7% at EBITDA level in FY2007. We expect TCRC margins to fall much below the FY2006 level, but expect volume growth to mitigate a certain amount of loss due to decline in TCRC margin. We believe the copper business (excluding CMT) will generate 4.5% of the consolidated profit at EBITDA level in FY2008 and 4.8% in FY2009.

#### Historical TCRC margin trend for Sterlite



Source: Company

#### Historical trends in TCRC margin in the Industry



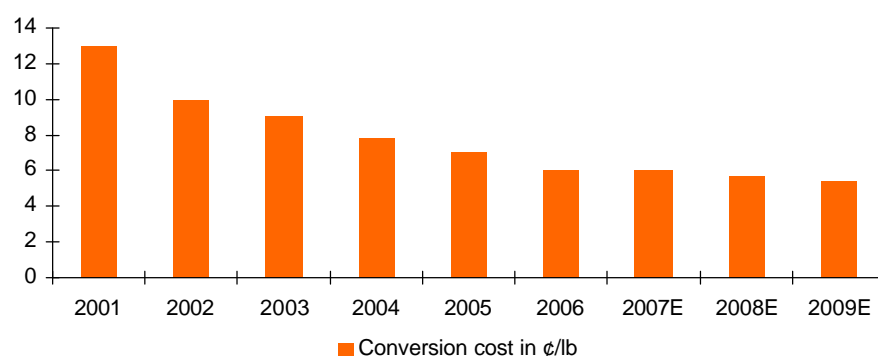
Source: CVRD

#### ... But Sterlite continues to lower its cost of smelting through volume growth and operational efficiency

Despite reduction in TCRC margins, we believe the copper smelting operation will continue to be profitable as Sterlite continues to reduce costs through improvement in efficiency and increase in volumes. The Tuticorin smelter is now in the first quartile in terms of least cost of copper smelter plant world wide. We believe, post capacity expansion to 400,000tpa, smelting costs will reduce further to around ¢5.19/lb from the current cost of ¢6.10/lb. Overall, we believe, the smelting costs should reduce by 14.3% in next 3 years up to FY2009.



## Sterlite's Conversion cost of copper concentrate in ¢/lb

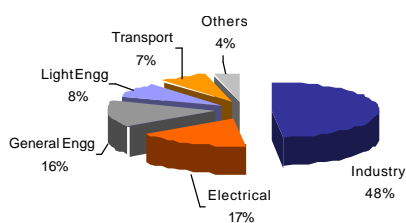


Source: Company data, Emkay Research estimates

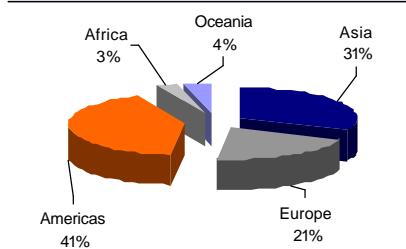
## Assumptions for Copper business

	Unit	FY2007E	FY2008E	FY2009E
Copper price	\$/t	7,000	6,000	5,000
Spot TCRC margins	\$/t- ¢/lb	50/5	50/5	40/4
Long Term Contract TCRC margins	\$/t- ¢/lb	80/8	60/6	60/6
Blended TCRC margins	¢/lb	25.63	14.49	13.92
Price participation in LTC	¢/lb	9.44	nil	nil
Cost of conversion	¢/lb	6	5.58	5.19
Gross Margin per tonne in smelting operations	\$/t	463	226	222
Installed Smelting capacity	tpa	400,000	400,000	400,000
Copper Cathode Production	tonnes	287,245	348,750	368,000
Capacity utilization	%	71.80	87.20	92.00
Copper Rods capacity	tpa	292,000	292,000	292,000
Copper rod production	tonnes	175,154	212,658	224,396
Capacity utilization	%	60.00	72.80	76.80
Sulphuric Acid-Installed capacity	tpa	1,068,000	1,068,000	1,068,000
Sulphuric Acid-production	tonnes	854,400	854,400	854,400
Phosphoric Acid - Installed capacity	tpa	180,000	180,000	180,000
Phosphoric Acid – Production	tonnes	171,000	171,000	171,000

## Global Copper Consumption pattern



## Global copper production by region in '05



## Copper Industry –Global Demand and Supply

We believe the copper industry is still driven primarily by strong fundamental demand and continued supply imbalances. China has been leading the demand for the base metals including ferrous and non-ferrous. With the continuing infrastructure investments in China, the demand for copper and other base metals continues to remain strong. This coupled with continued disruptions at supply end ensures that supply remains tight even though demand continues to be robust. Throughout 1HCY2006, we have seen major supply disruptions with the highlight being the 21-day strike at Escondida. Escondida produced 8.5% of the total world consumption of copper in 2005. There have been reports of production disruptions at other major mines like strike at Highland Valley, production disruption due to landslide at Grasberg, riots at Zambia's Chambishi and others. Increasing mining capacity is a very long process and it takes at least 3-4 years before a mine can start commercial production. Moreover, a mine is evaluated and investment is made generally if the mine is expected to be profitable at copper price of €100/lb. In 2005, mines have been operating at less than 85% capacity utilization owing to the continued disruptions. This is significantly less than the last 10-year average of 92.2%. We believe, this feature will continue to persist although not for strikes or other disruptions, but for the new mines which would start commercial mining over the next two years, depressing the overall industry average.

## World Copper Mine and Refining Capacity and utilization

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
World Mine Capacity	11,256	11,913	12,346	13,059	13,760	14,201	14,443	15,097	15,227	15,821
World Mine Production	10,095	11,107	11,537	12,250	12,787	13,211	13,626	13,579	13,676	14,529
Mine Capacity Utilization (%)	89.7	93.2	93.4	93.8	92.9	93	94.3	89.9	89.8	91.8
World Refinery Capacity	13,476	14,246	15,499	16,123	16,946	17,046	17,719	18,325	18,841	19,337
Primary Refined Production	9,737	10,677	11,375	12,012	12,443	12,635	13,718	13,422	13,460	13,802
Secondary Refined Production	2,095	2,000	2,103	2,055	2,103	2,125	1,862	1,846	1,774	1,967
Refined Production (Secondary+Primary)	11,832	12,677	13,478	14,067	14,545	14,760	15,580	15,268	15,234	15,769
Refineries Capacity Utilization (%)	87.8	89.0	87.0	87.2	85.8	86.6	87.9	83.3	80.9	81.5

Source: ISCG

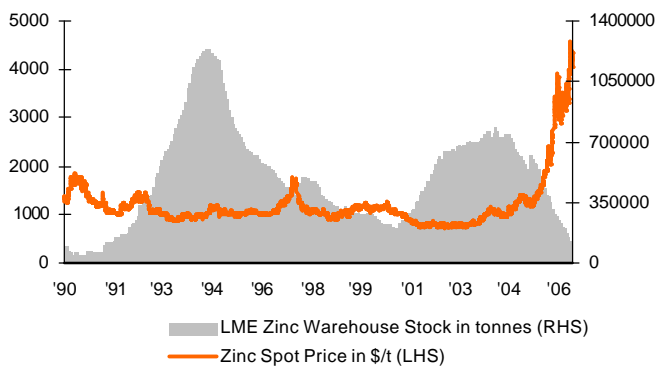
*Global refined consumption is expected at 18mt and should grow at 3.5-4% pa. The supply is expected to grow at a faster pace at 4-5%*

We estimate the world market for refined copper, currently at around 18mn tonne will grow at 3.5-4% p.a. for the next two years with supplies growing at a faster pace at 4-5% p.a. We expect this demand to be fuelled by continued demand from China, which is still transforming itself from rural to urban economy. There is large-scale industrialization and urbanization happening in China which will keep the demand for copper high for the next two years.

## Continued shortage of output from mines copper have pushed prices to record highs

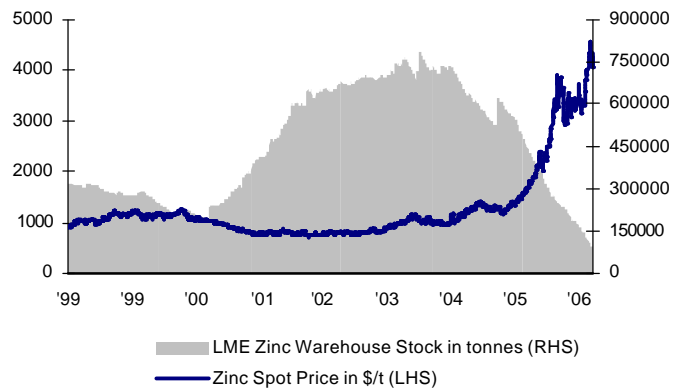
The spectacular rise in the copper price has also been due to the depletion in the warehouse inventories world wide. From a high of 980,075t on May 05,2002, warehouse stocks at LME have fallen to 157,925t (as on Nov 21,2006) at LME. With sustained demand from China, copper prices are expected to remain at current levels for some time. We expect copper to average around \$7,000/t levels during FY2007, \$6,000/t during FY2008 and \$5,000/t during FY2009. We expect the demand for copper to grow at around 3-4% over the next decade with most of the growth coming in the next 5 years and expect Asian countries to contribute to this growth primarily.

Copper Spot LME price since 1990 and LME warehouse stocks



Source: Bloomberg

Copper Spot LME price since 1999 and LME warehouse stocks



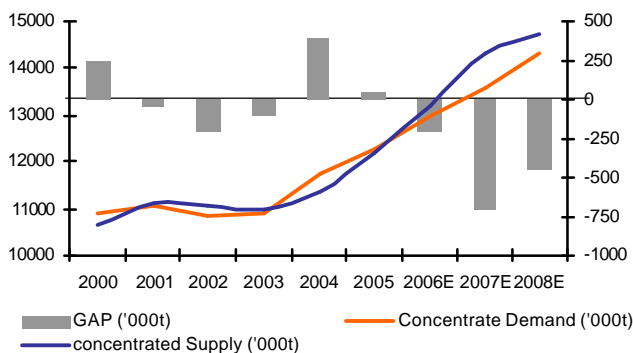
Source: Bloomberg

*Increase in smelter capacity at a pace faster than supplies have resulted in tremendous pressure on the TCRC margins*

**...But smelting capacities outpace mine production- leading to fall in TCRC for smelters**

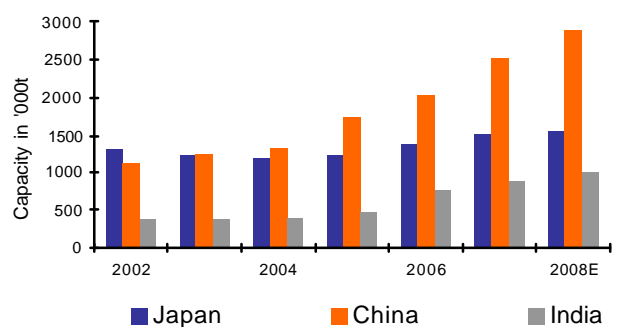
Over the past several years, smelting capacities have been steadily building up. However, mining capacity is yet to catch up with the rise in smelting capacities. Due to depression in metal prices over last several years, investment in mining has not been very attractive. However, with the current rise in prices, many miners have announced new projects. We believe, it takes atleast 6-8 year before any new mine can start commercial production, hence the copper prices are expected to remain firm in the near term. However, smelting capacities have been added at a faster pace. In 2005, Japan, China and India have alone increased their smelting capacities by 16.6%. It is expected that the smelting capacity will continue to build up in 2006 till 2008 in all the three countries. The rise in smelting capacity in India, China and Japan combined will increase from 3.415mtpa to 5.45mtpa representing an increase of 2.035mtpa with nearly 60% of the incremental capacity to be added in China alone. We expect a drastic fall in TCRC in the next round of yearly contract negotiations. The spot TCRC have already crashed to as low as \$30/¢3 and contract TCRC have also crashed to as low as \$60/¢6 with a cap on price participation, and eliminations in some contracts.

Concentrate availability and demand



Source: BHP Billiton

Smelting capacities expected in Asia



Source: BHP Billiton

*Chinese consumption of copper has grown at 15% CAGR from 2000-2005*

### The China Factor

Copper consumption in China has been growing at a CAGR of 15% for the period between 2000 and 2005, much higher than the global CAGR of 1.9% during the similar period. Total production and consumption of copper in China during 2005 was 2.58mt and 3.67mt representing a shortfall of 1.09mt or 30% of the total demand. During 2004, production from copper mines in China could satisfy only 40% of the smelting capacity whereas smelters could meet only 63% of the electrolysis (refining) capacity. By the end of 2004, the smelting capacity was estimated at 1.63mt whereas production of blister copper (copper cathode) was 1.32mt. China has been the leading consumer of copper and copper concentrate over the last four years and we do not believe this pattern will change for the next 2 years at least. We expect China to be a leading consumer of copper concentrate.

### Global demand and consumption of copper

The global consumption of copper is driven primarily by the building and electrical industries with building accounting for nearly 48% of the global consumption. The latest housing data from US has not been very encouraging and might signal a slow down in copper consumption in US. However, strong demand from China, Japan and other emerging economies like India will continue to boost the demand for copper.

### The supply/demand balance for refined copper

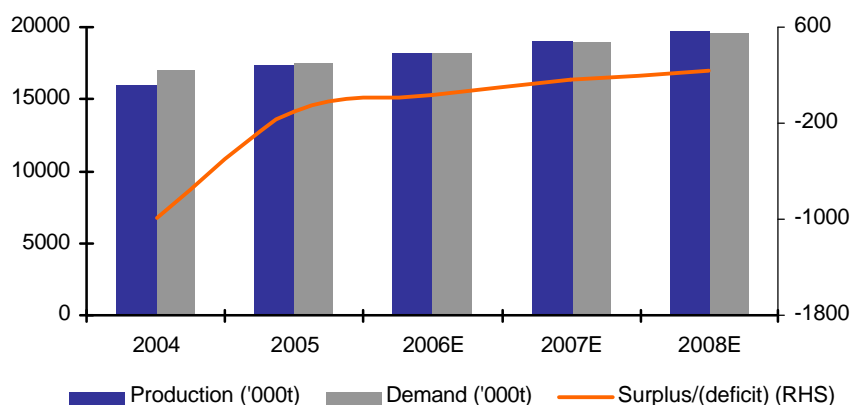
(000 tonnes)	2004	2005				2005	2006				2006
	Year	Q1	Q2	Q3	Q4	Year	Q1	Q2	Q3	Q4	Year
World Production	<b>15,931</b>	4,055	4,075	4,193	4,243	<b>16,564</b>	4,381	4,414	4,425	4,489	<b>17,712</b>
World Consumption	<b>16,750</b>	4,165	4,239	4,237	4,256	<b>16,897</b>	4,402	4,455	4,361	4,531	<b>17,750</b>
<b>Gap</b>	<b>-819</b>	-110	-165	-43	-13	<b>-333</b>	-21	-40	63	-42	<b>-37</b>

Source: ILZSG

### Recent wage agreements to ensure no stoppage in the next two years

Recently, Highland Valley mine concluded a new wage agreement with the miners and has avoided a strike. BHP Billiton has also signed a new wage agreement with the miners at their new mine at Spence, Chile to avoid any strike before even the start of the production at the new mine. Overall, we believe, the series of disruptions which has marred the global supply of copper during CY2005 and CY2006 will not recur. As a result, production from copper mines will improve substantially as compared to the capacity utilization during 2005. We expect the copper demand and supply balance to enter into the positive territory marginally in FY2007 and further in FY2008 leading to a decline in the price for refined copper.

### World Demand and Supply Balance of Copper

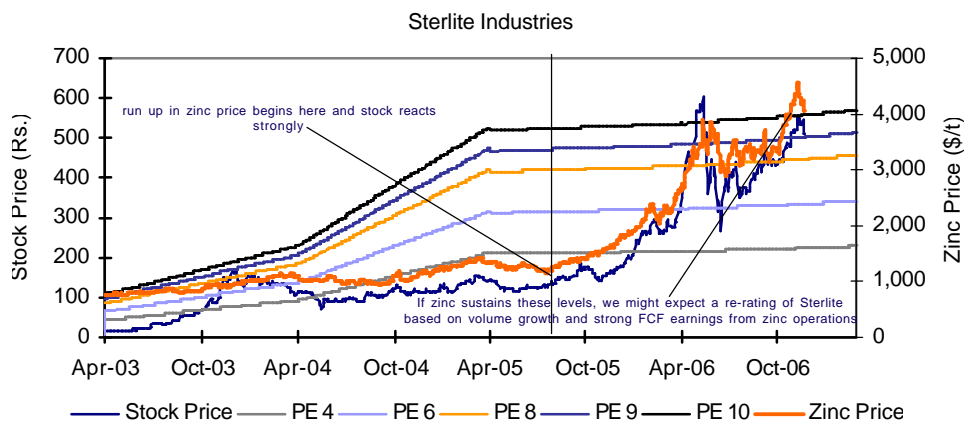


Source: Industry

**Valuation of the Copper business - Sterlite Industries- Stand alone**

We value Sterlite at 4.5x its FY2008 EV/EBITDA. We have assumed a blended TCRC margin of  $\text{¢}25.63/\text{lb}$  for FY2007 after accounting for price participation. Our assumption includes a cap on price participation for the second half of the year at  $\text{¢}6/\text{lb}$  which if not capped would have resulted in a huge surplus for the smelting industry and also for Sterlite. We have assumed blended TCRC margin of  $\text{¢}14.49/\text{lb}$  for FY2008 with no PP. We value Sterlite's copper business at Rs.32/share.

**Sterlite- P/E chart in comparison to zinc price**



Source: Bloomberg, Emkay Research estimates

## Zinc (including Lead) business - The Sterlite Powerhouse

*Sterlite derived 62% of its profit at EBITDA level from its zinc business in FY2006*

Sterlite operates its zinc business through Hindustan Zinc Limited (HZL) in which, it holds a 64.9% stake. HZL is the only integrated producer of zinc with an end-to-end integration from mining to refining. HZL contributed 29.5% to the total revenue of Sterlite but accounted for 62% of the profits at EBITDA level during FY2006. Going forward, we expect this concentration to increase further with a 38% contribution to total revenue and 81% contribution to total profit at EBITDA level during FY2007. The stock price of Sterlite closely mirrors the zinc prices at LME.

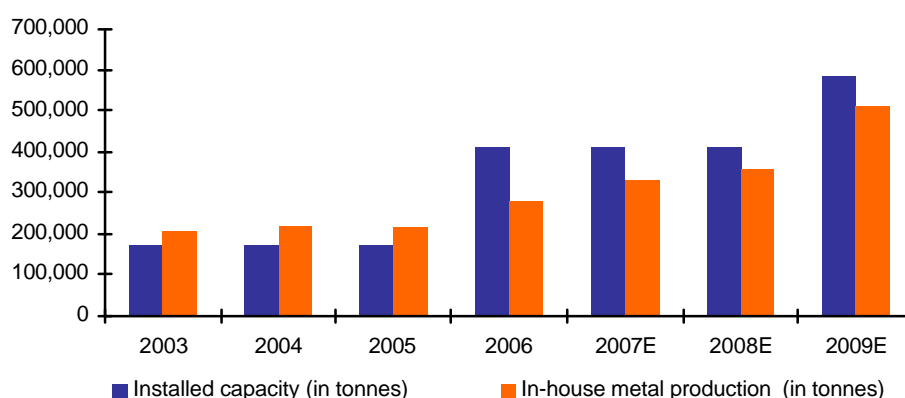
### Sterlite's stock price is highly sensitive to zinc price at LME



Source: Bloomberg

It increased its smelting capacity from 170,000tpa to 300,000tpa in May 2005. It and has announced an expansion of 170,000tpa capacity in August 2005, which it expects to complete by Jan 2008. We expect the ramp up of the increased capacity of 170,000t in six months. We expect the plant to be fully operational at its rated capacity by August 2008

### Hindustan Zinc's installed capacity and metal production



Source: Company data, Emkay research estimates

Hindustan Zinc has also setup an additional 50,000tpa lead smelter in 4Q2006 that kicked off production in 1QFY2007 with a total production of 4,300t. We expect a complete ramp up of the plant by the end of 2QFY2007.

### Captive mines- the key to profitability

HZL currently has three zinc and lead mines

- Zawar,
- Rajpura Dariba, and,
- Rampura Agucha

*Zawar mines have zinc reserves of 5.83mt with zinc metal grade of 4.39% and lead metal grade of 1.79%*

**Zawar mines:** It is currently the oldest mine in the possession of HZL. The mine is situated 40km east of Udaipur, Rajasthan. It was commissioned in 1942 and actually has four underground mines with a concentrator that serves all the four mines. The mine has a production capacity of 1.2mtpa and currently has reserves of 5.83mt with zinc grade of 4.39% and lead grade of 1.79%.

**Rajpura Dariba mines:** It is also an underground mine commissioned in 1983 and is situated 75km north east of Udaipur, Rajasthan. The mine has a production capacity of 1mtpa and currently has reserves of 9.95mt with zinc grade of 5.93% and lead grade of 1.76%.

*Rampura Agucha mine is one of the finest zinc mines in the world with reserves of 53.4mt and metal content of 12.8%*

**Rampura Agucha mines:** It is an open cast mine and one of the most cost efficient. The mine is situated 225km north of Udaipur, Rajasthan and has a very high grade of zinc and lead ores as compared to the other two mines.

The reserves at the Rampura Agucha mine, which feeds the Chanderiya smelter, has been increased by 25%, compared to the reserves at 31 March 2004, to 50.1 million tonnes through further exploration. The reserves contain 12.8 % zinc and 1.9% Lead. The life of Rampura Agucha has therefore been extended by another 3 years, at the increased level of output, with potential to expand the reserves through further exploration. The mine output has now been expanded from 2.3mtpa to 3.75mtpa and the expansion was completed in 22 months with capital cost of Rs.14.66bn (around 25% lower than the budget cost of Rs.19.55bn). The mine has been completed nearly 6 months ahead of increase in zinc smelting capacity. The mine expansion has been ahead of the proposed expansion of 170,000 zinc smelter. We believe, HZL will continue to sell concentrate outside till the new smelter fully ramps up. We believe, the new smelter will be fully operational in August 2009, and concentrate sales will continue till that time.

### Expansion continues -new smelter to take up total capacity beyond 0.5mtpa

HZL has already announced a greenfield project of 170,000tpa capacity of zinc smelter at Chanderiya with a captive power plant of 77MW. The expected capex of Rs13.8bn (\$300mn) will be entirely funded through internal accruals. It is expected that the mechanical commissioning of the project will be completed by Jan 2008. The management expects to spend 30% of the capex in FY2007, 65% in FY2008 and the balance 5% in FY2009. Production is expected to start by August 2009, and the total smelting capacity will cross the half million tonne mark and should be 0.511mtpa.

### Significant contribution to the group's profitability

HZL contributed to 29.5% to the total turnover of Sterlite, but accounted for 62.4% of the profit at EBITDA level in FY2006. Going forward, we believe the contribution of HZL to the total profitability of Sterlite will increase further. We believe, HZL will contribute 40.1% to the group's turnover but account for nearly 85.1% of the profits at EBITDA level in FY2007 (excluding profit from CMT).

**Assumptions for Zinc business**

	Unit	FY2007E	FY2008E	FY2009E
Zinc price	\$/t	3,750	3,800	3,600
Installed Smelting capacity	tonnes	411,000	411,000	581,000
Refined Zinc production	tonnes	328,800	361,680	511,280
Capacity utilization	%	80	88	88
Concentrate Sale	tonnes	263,500	170,715	21,115
Lead Price	\$/t	1,350	1,500	1,100
Lead Installed Capacity	tonnes	103,000	103,000	103,000
Lead Production	tonnes	41,200	56,650	72,100
Capacity utilization	%	40	55	70

**Valuation of Zinc business**

We have assumed zinc price at \$3,750/t in FY2007, \$3,800/t in FY2008 and \$3,600/t in FY2009. We believe, zinc prices will not come down very sharply over the next 2 years as the demand for zinc is expected to remain strong and supply is expected to remain tight.

We value HZL at 5.5x its FY2008 EV/EBITDA. We are comfortable giving HZL a higher multiple as compared to its peer group for the higher integration level, steady stream of free cash flow generation and high margins enjoyed by HZL as compared to its peers. We believe, the zinc business is most integrated and we see a demand for zinc rising as supply lags demand substantially. Sterlite holds 64.9% in HZL.

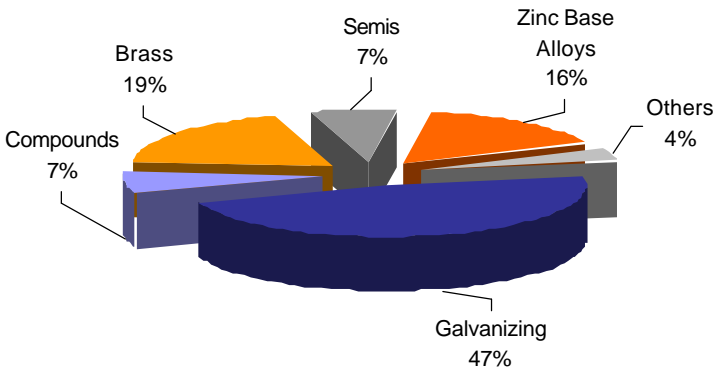


**Zinc Industry -World Demand Supply**

The key application of zinc is in steel products where it is used for galvanizing steel that accounts for nearly 47% of the total end consumption of zinc and is mainly used in the construction segment. The recent report on disappointing housing growth in US has been more than offset by strong demand from China. The decline in US consumption of zinc by 14.3% has been more than offset by a strong demand in China by 18.4%. China continued to be a net importer of around 265,000t in 2005. As per CRU, during the period from Jan-May 2006, world production was short by around 120,000t as compared to 98,000t during the similar period a year ago.

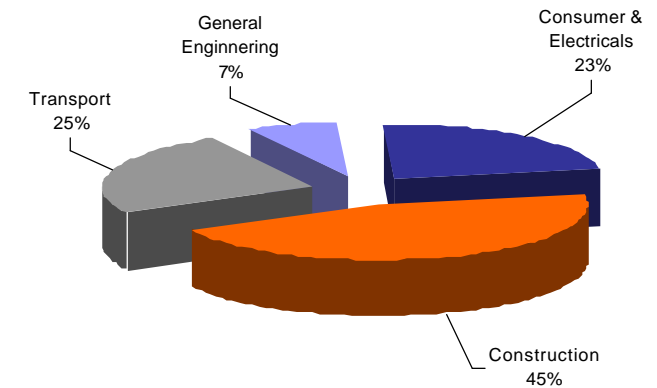
*China's net import of zinc for the period from Jan to Aug 2006 rose by 44.4% yoy*

**First use of zinc**



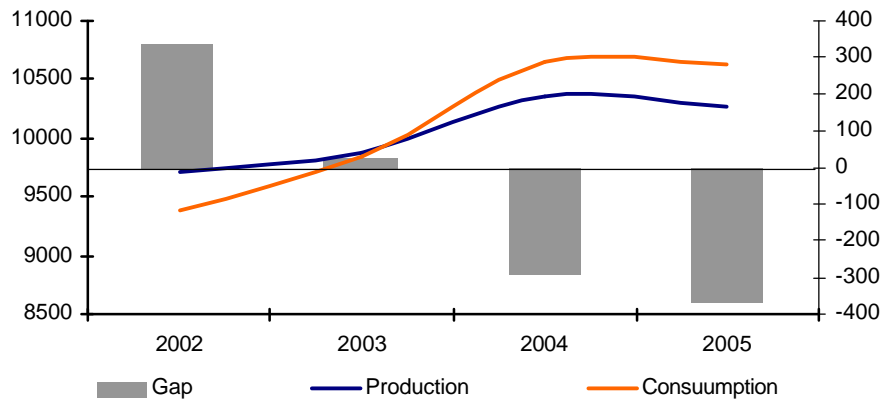
Source: International Zinc association

**End use of zinc**



Source: International Zinc association

**Zinc- Demand Supply Gap**



Source: Industry, Emkay Research estimates

We believe the shortfall in zinc production will continue over the next two years resulting in firm prices. Zinc has primarily been a laggard in this metal rally. We believe that the metal is fundamentally short in supplies and the market will remain tight for the next two years. We expect the global production to rise by around 3-3.5% and the demand to move ahead at 4-4.5%.

## WORLD ZINC SUPPLY AND DEMAND 2001- 2005

000 tonnes	2001	2002	2003	2004	2005	Change 2004-05	
Mine Production	8,933	8,904	9,579	9,664	9,995	331	3.4%
Metal Production	9,228	9,720	9,868	10,158	10,262	104	1%
Metal Usage	8,919	9,386	9,845	10,457	10,694	237	2.3%
Surplus/(Deficit)	309	334	23	(299)	(432)	(133)	

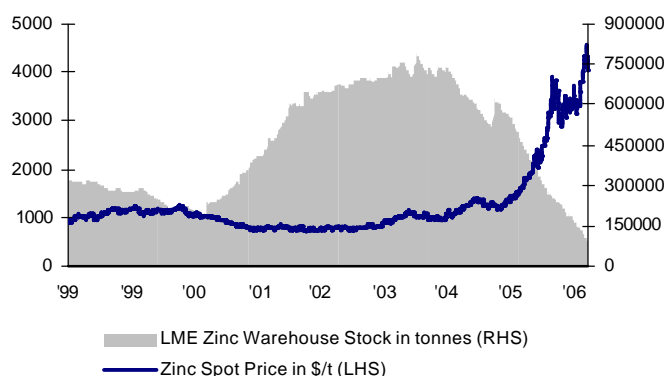
Source: ICSG

### We expect continued strength in zinc price during 2007 and 2008

Zinc prices have risen by 127.9 % ytd. They have increased by 8.2% in the past one month alone. In the last 4 years, the zinc spot price has moved up by 461.5% whereas the LME stocks have declined by nearly 79%. LME warehouse stocks are nearing 15-year lows as strength in demand continues. On ytd basis, stocks have come down by 77% from 394,125t to 89,450t. With an average of 29,000tpd consumption, stocks are depleted to as low as 4 days of consumption! There are expectations about stocks hitting near critical levels by the end of CY06, taking prices to new highs.

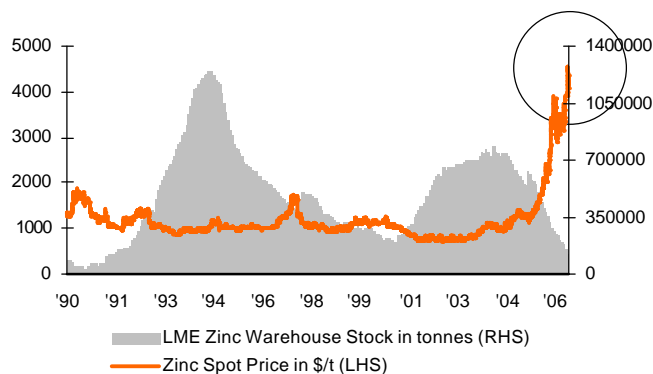
We do not foresee any remarkable substitution for zinc given its unique anti-corrosion properties. We expect the strength in demand for zinc to continue in FY2008 pushed by China and continued slack in supplies. We forecast average zinc price for FY2007 at \$3,750/t for FY2008 at \$3,800. However, for FY2009, we have lowered our estimate for zinc price by 5% from our FY2008 estimates to \$ 3,600/t.

#### Zinc Price and LME warehouse stocks since 1990



Source: Bloomberg

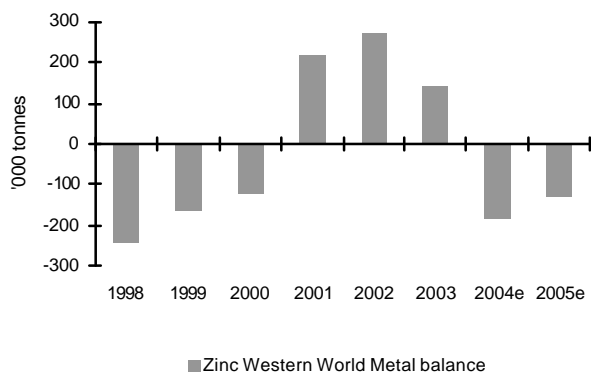
#### Zinc Price and LME warehouse stocks since 1999



Source: Bloomberg

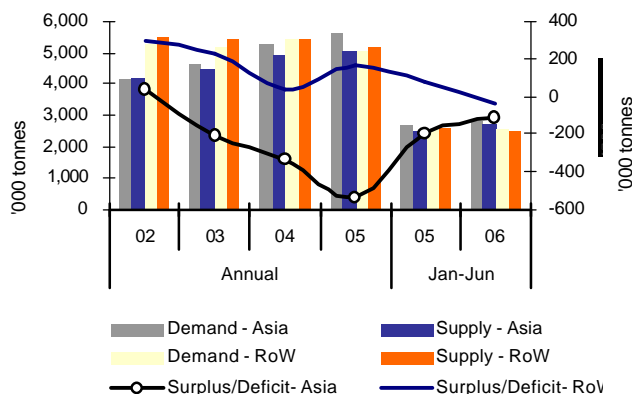
Zinc supply continued to be in short supply in the western world despite the slowdown in US. Certain EU countries like Germany continue to drive the consumption of zinc in this region of world. The demand for zinc grew by 2.4% in 2004 and 1.1% in 2005. Global output grew at 2.1% in 2004 and 5.1% in 2005. We expect the demand to continue between 2-3% with supply growing at a modest pace of 1.5-2%.

Zinc Demand supply Balance in Western World



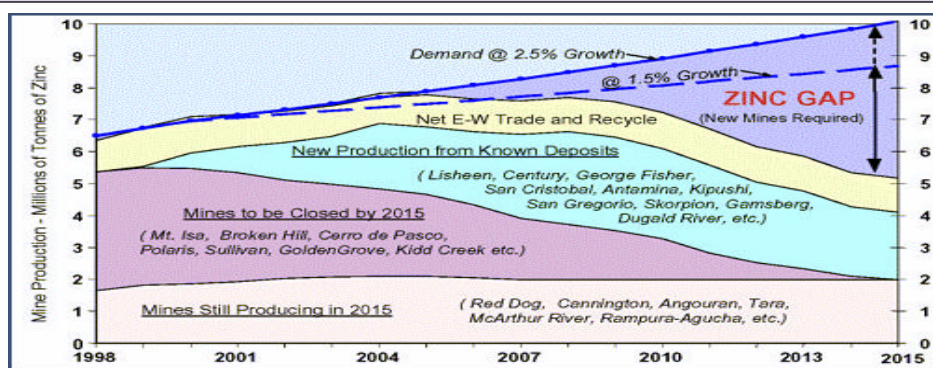
Source: International Zinc association

Region wise demand-supply



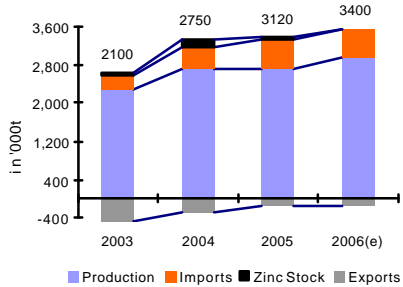
Source: International Zinc association

Global Demand supply Balance of Zinc



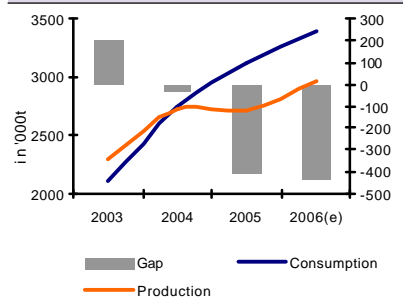
Source: Teck Cominco

Zinc-Consumption-Production in China



Source: Antaike

Zinc-Demand-Supply in China



Source: Antaike

The China factor again ....

As per the statistics from the China Non-Ferrous Metals Industry Association, China's zinc consumption has increased by 13.5% in 2005. During 2003-2006, the annualized growth rate of China's galvanized board capacity is expected at 48% from 4mt to 13mt. During 2005, the capacity was 11mt. Galvanization remains the key consumer of zinc in China. Since 2002, China has reduced the duty drawback on export on zinc and lead four times reducing the drawback from 15% to current levels of 5%. Except for zinc oxide, China continues to be a net importer of all other varieties of zinc including zinc alloys, refined zinc, zinc concentrate and others. The net import of refined zinc moved up to 269,000t in 2005 and net import of zinc concentrate increased to 567,800t. China has huge reserves of zinc and copper in Tibet region but mining from these areas is extremely difficult. However, sustained high prices of base metals have made mining at these locations feasible now. The sustained increase in the domestic demand for galvanized steel will continue to boost zinc demand. As per Antaike, the demand for galvanized boards are expected to rise by nearly 24% in 2006 on a yoy basis, resulting in rise in China's zinc consumption by around 8.9% to 3.4mt in 2006.

Going by recent reports from China, zinc and zinc alloy imports into China have risen by 22% during August to 49,740t. This adds up to a total of 380,876t imports from Jan to Aug 2006 representing an increase of 16.2% yoy. China continues to be a net importer of zinc and zinc alloys to the tune of 170,779t from Jan to Aug 2006 representing a whopping 44.4% jump yoy. As per Beijing's official non-ferrous metal research agency Antaike, demand for zinc in China might go up as high as 56% by 2010, primarily on the back of ever increasing production of steel. As China's construction and transportation sector

grows, demand for steel should also grow, leading to a substantial jump in demand for steel. China's demand could shoot up to 4.8mt from by 2010 from 3.08mt in 2005 representing a jump of nearly 56% representing a CAGR of 11.78% between 2006 and 2010. It expects the domestic zinc supply to lag demand by almost 10%.

### Zinc - The Indian scenario

Hindustan Zinc is the market leader in the Indian market with a market share of around 68%. In FY2006, the company sold 266,586mt in the domestic market up by 16% from FY2005. With the current expansion, we believe, the market share of Hindustan Zinc will improve further. Imports, which constitute around 25% of the total market, are expected to go down as Hindustan Zinc ramps up production at its new hydro-metallurgical smelter. The total domestic market is around 400,000 and is expected to grow at 8-10% p.a. over the next two year. Per capita of zinc consumption in India is around 0.42kg as compared to world average of 4.3kg. With the GDP forecasted to grow at around 8% during FY2006 and around 9% in FY2009, we expect the consumption of zinc to increase at a faster pace as compared to global growth rate. The demand in India, as in the world, will continue to be driven by galvanizing, which accounts for nearly 47% of the total zinc consumption world wide. The rest of the demand is accounted for by die-casting, dry batteries and chemicals segment.

*Domestic demand for zinc is expected to grow at 8-10% pa for next two years*

## Aluminium business - the potential to do the next “Zinc(g) thing” for Sterlite

Current capacity of Aluminium is:

- Old plant – 130,000tpa
- New plant – 250,000tpa

*With nearly 58% decline in alumina prices, we expect cash costs for BALCO-II expected to come down.*

Sterlite runs its aluminium business through its 51% holding in subsidiary BALCO. The existing plant of 130,000tpa at Korba (BALCO-I) is a fully integrated aluminium plant with Bauxite mines to aluminium smelter. BALCO has already commissioned its next phase of 250,000tpa aluminium smelter. However, due to sever storms and resulting power disruptions, all the 288pots were affected. These pots have already been re-commissioned. Currently, BALCO sources alumina for its new aluminium smelter on spot basis from outside. However, we expect the situation to improve when its associate company, VAL starts operation. VAL has set up 1.4mtpa alumina refinery that will supply alumina to the new smelter (BALCO-II). VAL will source bauxite for feeding its alumina refinery from the Nyamgiri mines. It has partnered with Orissa Mining Corporation (OMC) to mine Bauxite from the Nyamgiri hills. However, mining from the Nyamgiri mines has not yet started due to a ban on mining imposed by the Supreme Court last November. The case is still pending with the Supreme court.

### Costs - expected to come down once BALCO-II ramps up

Currently the cost of manufacturing aluminium at BALCO -I is \$1,497/t. BALCO currently falls in the third quartile of world aluminium production costs due to the inefficient technology used at BALCO-I. In spite of an estimated cost of \$90/t for Bauxite, the plant consumes electricity to the tune of \$599/t. This represents nearly 40% of the total cost of production. With the new plant, we believe, the electricity cost could come down to as low as \$359/t. However, the second plant is not very cost efficient as of now as it sources its Alumina requirements from spot market. A few months ago, spot alumina prices were ruling as high as \$580/t. However, with the recent crash in the alumina prices to \$275/t, we believe, the cost of manufacturing at BALCO -II will come down from our current estimates of \$2043/t to \$1,359/t by FY2008. We believe the long-term alumina prices will remain at 12% of the spot LME price of alumina. We believe, the BALCO -II plant will achieve 77% capacity utilization for FY2007 and will move up to 90% by FY2008 and further to 95% by FY2009. Our estimate for blended cost of production for FY2007 is at \$1,538/t which, we believe should shrink to \$1,316/t by FY2009. We do not foresee any gains substantial from operational efficiency of BALCO-I plant.

### 30% stake in VAL to result in substantial cash flows going forward but will need huge capital outlay initially

VAL has setup a 1.4mtpa alumina refinery at Lanjigarh at an estimated cost of \$800mn. Sterlite has already committed the capital cost involved in the project by way of subscription to the equity of VAL. The mechanical commissioning of the refinery has already been completed.

VAL is also in the process of setting up a 0.5mtpa aluminium refinery at Jharsuguda. The project is already under implementation. More than 50% of the capex has already been committed and basic construction work has also started. The cost of the project is estimated at \$2.1bn including a 1215MW captive power plant. The project is expected to be completed in two phases

- Phase-I - 250,000t aluminium smelter + 135MW x 5 = 675MW captive power plant
- Phase-II - 250,000t aluminium smelter + 135MW x 4 = 540MW captive power plant.

The first phase is expected to be completed by 2HFY2009 and the second phase by 2HFY2010. The project is expected to have a debt -equity ratio of 1:1. We have not projected financials of Vedanta Alumina as of now and have valued the business at 1x its replacement value.

**Assumption for the Aluminium business****Revenue Assumptions**

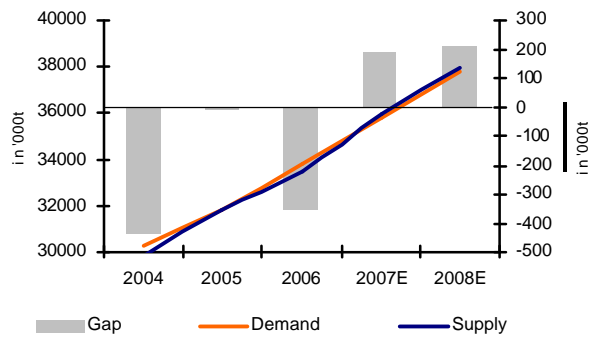
	Unit	FY2007E	FY2008E	FY2009E
Aluminium price	\$/t	2,400	2,200	2,000
Alumina Price	\$/t	432	264	240
Installed capacity	Tpa	380,000	380,000	380,000
Production	tonnes	309,500	342,000	354,500
Capacity utilization	%	81	90	93
<b>Cost Assumptions</b>				
Cost of production at BALCO-I	\$/t	\$1,497	\$1,497	\$1,497
Cost of production at BALCO - II	\$/t	\$1,563	\$1,227	\$1,227
Blended Cost of production	\$/t	\$1,538	\$1,320	\$1,316

**Aluminium Industry**

*Global alumina market is around 31.85mt with expected growth rate of 5.8%*

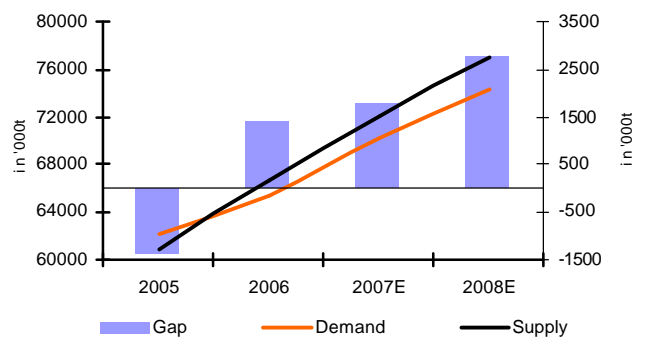
The global primary aluminium consumption was around 31.85mt in 2005. We expect the demand for Aluminium to grow by another 2mt every year in 2006 and 2007 representing a growth of 5.8%. However, the Chinese market is expected to grow at more than 15% during the same period. The aluminium market is expected to be in deficit in 2006 by 200,000t and might move to a surplus of 100,000t in both 2007 and 2008. The daily global production has moved to an all time high of 93,000tpd. China currently accounts for nearly 26.5% of the global output. With the current rate of growth in China and the expectation of slow down in US, we believe, China will overtake US as the largest consumer of aluminium. The growth of demand in US has been slower than anticipated and latest data on housing sector also continues to be a dampener on the growth in demand for all metals including aluminium in the US.

## Global Aluminium Demand Supply



Source: Metal Bulletin

## Global Alumina Demand Supply



Source: Metal Bulletin

## World primary aluminium balance

	2005	2006E	2007E	2008E	Q1 06A	Q2 06E	Q3 06E	Q4 06E
Primary production	31,841	33,435	35,924	37,950	8,083	8,346	8,475	8,521
% change yoy	6.7	5.0	7.4	5.6	7.3	5.4	3.7	3.7
Primary consumption	31,850	33,793	35,734	37,737	8,071	8,590	8,250	8,882
% change yoy	5.2	6.1	5.7	5.6	6.3	7.2	6.4	4.6
Global primary balance	-9	-358	190	213	12	-244	225	-361

Source: Metal Bulletin

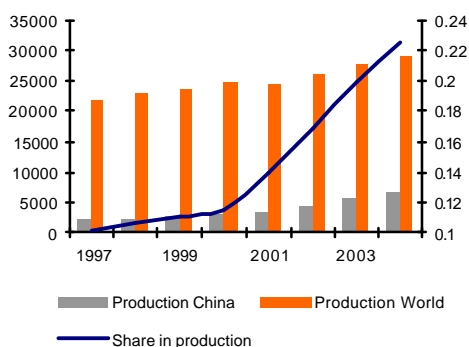
### The China factor

Currently China accounts for nearly one fourth of the global consumption of primary aluminium. Demand in China is primarily driven by construction and power sectors. We expect the share of China in world consumption to grow as its demand is expected to grow at a much faster rate as compared to the global demand that is expected to grow between 5-6% as compared to demand from China that is expected to grow at around 15%.

*Surplus production of alumina in China has resulted in slump of prices of alumina*

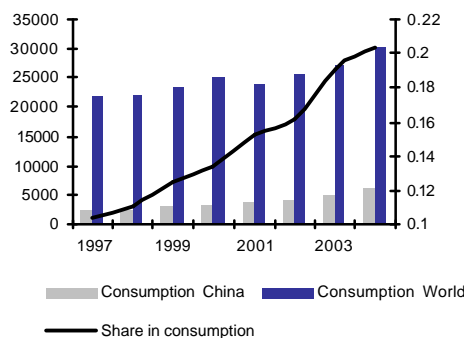
Alumina prices have crashed by nearly 60% in the last 4 months. Prices had soared to \$580/t before crashing to as low as \$225/t. At present, the spot alumina is trading at close to \$220-240/t. The alumina price slump can be primarily attributed to the growth in Chinese alumina smelting capacity leading to oversupply of the metal. A recent report suggested NALCO having concluded a deal for close to 50,000t of alumina at \$230/t. However, aluminium prices have not slumped as compared to alumina. As per Metal Bulletin, currently idle aluminium smelting capacity in China is close to 2 million tonnes. Crash in alumina prices will support stand-alone aluminium smelters as their cost of production will decline substantially due to fall in alumina prices. With buoyant prices and plentiful availability of alumina at low costs, these capacities might start production. However, the key question remains, how soon can these idle capacities start production and up to what price levels can they sustain production. An oversupply in the metals can quickly turn the price in favour of buyers and leave the stand-alone smelters with high losses. Currently, the high aluminium prices might support the high production costs in both China (primarily due to high energy costs) and in Europe (primarily to high other manufacturing costs), which in turn will lead to over supply and softening of prices. We do not foresee a drastic change in demand supply balance for aluminium in the next two year.

World Aluminium production and China's share

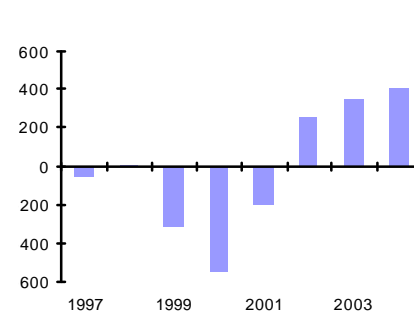


Source: CRISINFAC

World Aluminium consumption and China's share



Demand Supply gap in China



China is currently facing a huge shortfall in terms of energy generation. Many of its production facilities have been lying idle either due to lack of power or cost of power being so high that the operations at these facilities is not economically viable. To overcome the problem of power shortage, China has now started focus on two factors

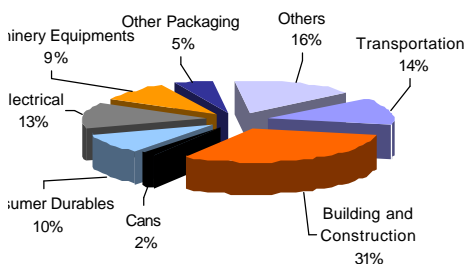
- reduction of energy inefficient capacities in manufacturing sectors; and
- increasing power generation

We believe both these measures are favourable to the aluminium industry. As small and inefficient capacities are closed and sanctions for further fragmented capacities are declined, fears about aluminium from China flooding global markets will recede and support the prices. Secondly, aluminium is required in T&D of power; hence, growth of the power sector will ensure that the demand for aluminium continues to be high.



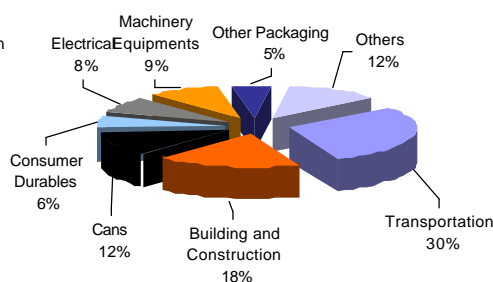
Sectoral consumption of Aluminium in China in 2005

In China in 2005



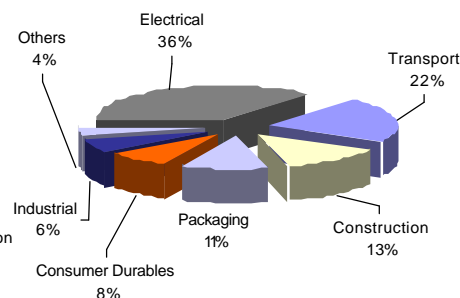
Source: ALCOA

In Western World in 2005



Source: ALCOA

In India in 2005



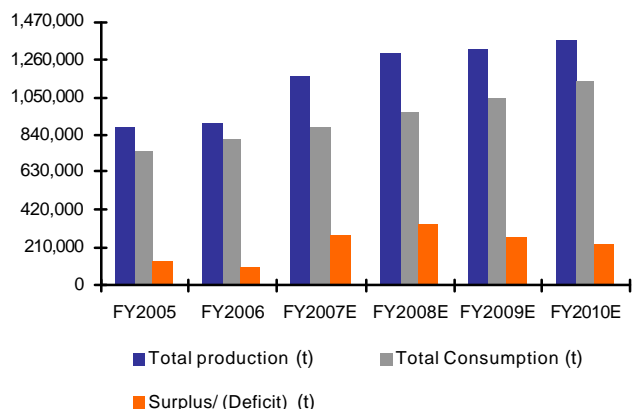
Source: CRIS INFAC

Domestic market is expected around 0.85mtpa and is expected to grow at 9-10%

Domestic market for aluminium

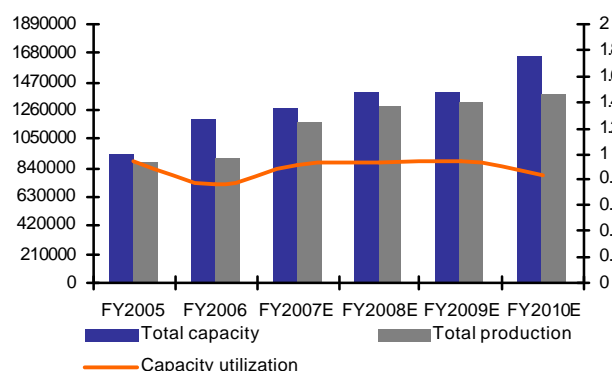
The domestic market of aluminium in India is around 850,000tpa which grew at 12.7% during FY2005 the domestic market is expected to grow at 9-10% over the next two years primarily due to strong growth expected in construction, transportation and power segments. India's GDP is expected to grow at more than 8% during the next five year plan. This growth would be augmented by strong growth in both services and manufacturing sectors leading to a healthy demand for metals. However, there are several brownfield and greenfield capacities already announced by the key players including BALCO, HINDALCO and NALCO, ensuing that India remains a net exporter in the aluminium market. We expect surplus in the range of 250,000tonnes during FY2007 which might go up to 350,000tonnes over the next two year. However, we do not expect prices in the local market to fall on the back of surplus production as lower cost of production in India ensures that the exports are also profitable leaving no space for excessive inventory build up. One of the key features of the India's aluminium industry is capacity utilization of major players in the Aluminium market like Hindalco and BALCO. We believe low cost of production and high end prices will keep the capacity utilization at very high levels. Hindalco, India's leading producer of aluminium has mentioned in its 2QFY2007 results that its plants are running at 100% capacity utilization and there is no room for any further growth in sales in terms of quantity unless planned expansions commercially start production. We expect the industry to operate at more than 90% capacity utilization levels over the next few years.

Demand Supply equation of primary aluminium in India



Source: CRIS INFAC, Emkay Research estimates

Capacity utilization in the industry



Source: CRIS INFAC, Emkay Research estimates

**Substitution of Copper in certain product categories to boost demand**

There are news from China that substitution of copper with aluminium in low-end conductors and other smaller applications. Although, the substitution is not very extensive or substantial at the moment, we can see a different picture in next year if the price of copper remain as high as they are currently. In such a scenario, aluminium will benefit directly from such substitution.

**Per capita consumption of aluminium still at low levels in developing economies**

The current per capita consumption of Aluminium in China is around 3kg as compared to 29 kg in US. India lags further behind China in terms of per capita consumption. The current per capita consumption of Aluminium is less than 1 kg in India, leaving a lot of scope for demand to grow.

Income Statement					Balance Sheet				
March end (Rs in mn)	FY06	FY07E	FY08E	FY09E	March end (Rs in mn)	FY06	FY07E	FY08E	FY09E
Gross Sales	142,724	252,136	260,553	253,558	Equity Capital	559	559	559	559
Less: Excise	11,452	18,378	18,945	18,613	Reserves & Surplus (incl MI)	76,921	130,291	188,711	250,089
Net Sales	131,272	233,758	241,607	234,945	Networth	77,480	130,850	189,270	250,648
Other Income	3,363	5,182	7,329	8,688	Total Debts	51,872	39,670	32,023	24,105
Total Income	134,635	238,940	248,937	243,633	Net deferred lib	13,397	19,639	21,973	23,514
Raw Material Consumption	87,174	137,962	143,327	133,986	Capital Employed	142,749	190,159	243,265	298,266
% of Sales	66.4	59.0	59.3	57.0	Gross Block	114,400	119,611	122,701	136,251
Staff Cost	4,518	6,786	6,333	6,720	Less Depreciation	-36,513	-41,994	-48,346	-54,980
Other Expenses	2,702	6,585	6,629	6,336	CWIP	7,611	5,088	11,528	878
Total Exp	94,393	151,333	156,289	147,042	Net Fixed Assets	85,497	82,706	85,884	82,150
EBIDTA	40,241	87,607	92,648	96,592	Investments & Associates	24,952	48,420	52,420	52,420
EBIDTA margin	30.7	37.5	38.3	41.1	Inventory	19,507	21,242	20,590	20,292
Depreciation	5,269	5,481	6,352	6,634	Debtors	13,475	20,611	21,797	22,827
EBIT	34,972	82,126	86,296	89,957	Cash & Mktable Sec.	11,153	32,159	75,140	139,903
Interest	2,353	2,590	2,121	1,655	Loans & Advances	16,287	18,250	17,434	10,366
Extra ordinary exp.	101	101	0	0	Total Curr. Assets	60,422	92,263	134,961	193,387
PBT	32,518	79,435	84,175	88,302	Current Liabilities	18,918	23,925	20,696	20,387
Tax	10,236	23,656	25,277	26,447	Provisions	9,308	9,307	9,307	9,307
ETR (%)	31.5	29.8	30.0	30.0	Total Curr. Liabi. & Prov.	28,226	33,232	30,003	29,694
Minority Interest	5,568	17,499	19,276	19,987	Net Current Assets	32,195	59,030	104,958	163,693
Preference Dividend	3	2	0	0	Misc. Assets	105	4	4	4
Adj. PAT	16,711	38,279	39,622	41,868	Total Assets	142,749	190,159	243,265	298,266

Cash Flow					Ratios				
March end (Rs in mn)	FY06	FY07E	FY08E	FY09E	March end (Rs in mn)	FY06	FY07E	FY08E	FY09E
Pre-tax profit	32,518	79,435	84,175	88,302	EBIDTA margin %	30.66	37.48	38.35	41.11
Depreciation	5,269	5,481	6,352	6,634	EBIT margin %	26.64	35.13	35.72	38.29
Net Chg in WC	-15,372	-23,242	-25,891	-18,877	NPM % (before Min. Int.)	16.97	23.86	24.38	26.33
Others	302	101	0	0	Adj ROCE (%)	18.47	34.52	27.80	23.24
CFO	22,717	61,775	64,636	76,059	Adj ROE (%)	25.51	36.86	24.75	19.03
Capex	-12,648	-2,689	-9,530	-2,900	ROIC (%)	28.75	44.05	40.82	43.10
Net Investments made	-6,465	-23,468	-4,000	0	Adj EPS	30.20	69.17	71.60	75.65
Others Investing Activities	4	0	0	0	Cash EPS	39.90	79.26	83.07	87.64
CFI	-19,109	-26,157	-13,530	-2,900	Book Value	139.81	236.43	342.00	452.90
Change in Share capital	1,178	-2,260	0	0	DPS	1.26	0.95	0.76	0.76
Change in Debts	-1,657	-12,202	-7,647	-7,918	Payout Ratio (%)	4.18	1.37	1.06	1.00
Div. & Div Tax	-319	-599	-478	-478	Debt Equity (x)	0.53	0.06	-0.23	-0.46
Others	0	449	0	0	PE (x)	11.52	7.82	7.57	7.16
CFF	-797	-14,611	-8,125	-8,396	P/BV (x)	3.88	2.29	1.58	1.20
Net Change in Cash	2,811	21,006	42,981	64,763	EV/Sales (x)	1.91	1.05	0.89	0.69
Cash Opening Balance	8,342	11,153	30,159	55,140	EV/EBITDA (x)	6.24	2.80	2.31	1.67
Cash Closing Balance	11,153	32,159	73,140	119,903	Div Yield (%)	0.23	0.17	0.14	0.14

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Ratings	Definition
BUY	Expected total return (%) of stock price appreciation and dividend yield) of over 25% within the next 12-18 months.
ACCUMULATE	Expected total return (%) of stock price appreciation and dividend yield) of over 10% within the next 12-18 months.
REDUCE	Expected total return (%) of stock price appreciation and dividend yield) of below 10% within the next 12-18 months.
SELL	The stock is believed to under perform the broad market indices or its related universe within the next 12-18 months.
NEUTRAL	Analyst has no investment opinion on the stock under review.

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