Equity Research

November 17, 2008

BSE Sensex: 9385

Metals

HINDALCO
SELL (Rs57)
Target price: Rs41 (↓ 28.1%)

NALCO
HOLD (Rs176)
Target price: Rs180 (↑ 2.9%)

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INDIA

Aluminium sector

No near-term relief

Reason for report: Re-initiating coverage on aluminium sector & NALCO and Initiating coverage on Hindalco

The weak economic outlook coupled with strengthening of the US dollar may have siphoned liquidity flows from aluminium, leading to 43% devaluation YTD; however, i) rising energy insecurity with increased power costs (per tonne of smelted metal requiring ~15MWh of power), ii) prospects of carbon trading and associated emission costs (~US$40/te of CO2) and iii) increasing capex with higher turnaround provide positive long-term visibility to aluminium prices. While domestic smelters enjoy integration benefits, sector multiples continue to be guided by the near-term LME price outlook, for which a short-term re-rating is unlikely. Re-initiate coverage on NALCO with HOLD rating and initiate coverage on Hindalco with SELL.

- **Near-term demand growth to remain uncertain.** Increased concerns on global credit growth and liquidity have led to weakening of global GDP growth outlook (with IMF reducing CY09 estimates to ~2.2% vis-à-vis 3.7% YoY, and (0.7%) and (0.5%) growth in the US and EU respectively). While we expect Chinese and global demand CAGR over FY07-11E at 11.6% and 5.7% respectively, we believe risks are biased towards the downside in the near term (with Chinese demand growth faltering from 43% in CY07 to 14% in CY08 and China retaining its status as a net exporter). Global power shortage with curtailed Chinese production (on increased Government intervention and prices below cash operating costs) and exports would align supply with long-term demand.
- **Cost pressures persist.** Industry-average global power costs increased 50% over CY02-07, with Chinese power costs increasing sharply post Central Government's decision of removing preferential power tariffs, thereby impacting power smelting costs by US$66/te. Also, a tight alumina market and significant auxiliary input cost escalation have turned one-third global smelting capacities loss making at current LME aluminium prices. Further, increased capital costs (50-60% for average greenfield over the next decade), absence of locations with indigenous power and abysmal price levels will prevent/delay commissioning of greenfield/brownfield.
- **India's cost competitiveness alluring.** Indian players are among the lowest-cost producers globally, with captive bauxite mines & power plants. NALCO features in the lowest decile of the global cost curve. This cost competitiveness would help domestic players export surplus from capacity expansions. However, the competitiveness will become acutely significant beyond CY10-11E, whence India's capacity would reach ~2.4mnte, thereby necessitating exports of ~15% production.
- **Pricing to remain subdued in near term, valuations to remain suppressed.** There has been a sharp 43% retracement of aluminium from its peak due to global weakness in commodities, thereby pulling down prices below the cash-operating costs of 1/3rd of global smelting capacities. Inventories have reached an intermediate high and short-term demand outlook remains uncertain. While long-term price outlook remains stable, any near-term jump in prices on account of increased supply curtailments and energy costs looks unlikely; this will suppress global and domestic multiples. Global EV/EBITDA has been de-rated on an average, by 86% YTD. Domestic valuations are broadly inline with global valuations. Given short-term concerns on aluminium prices; re-initiate coverage on NALCO with HOLD rating and initiate coverage on Hindalco with SELL.

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Near-term demand growth remains uncertain

Increased concerns on global credit growth and liquidity have led to weakening of global GDP growth outlook (with IMF reducing CY09 estimates to ~2.2% vis-à-vis 3.7% YoY, and (0.7%) and (0.5%) growth in the US and EU respectively). While we expect Chinese and global demand CAGR over FY07-11E at 11.6% and 5.7% respectively, we believe risks are biased towards the downside in the near term. Category-wise, rolled and extruded products are likely to experience a steep fall in demand in FY09 owing to softening industrial, automotive and construction markets in Europe and the US, while semis would witness stable growth mainly driven by demand in China and other developing Asian economies.

Automotive market – US registering 15-year low

Q2FY09 has seen unprecedented impact on aluminium demand, with major North American end-user markets declining vis-à-vis CY07. Tighter credit markets, economic uncertainty and job losses have drastically reduced consumer appetite for new vehicles. Annual automotive production in North America stands at ~13mn vehicles, a 14% YoY decline, with the lowest build-rate in 15 years. The big three – Toyota, GM and Ford – have witnessed 23% YoY decline. Also, the heavy truck & trailer market in the US is substantially off its peak. Build-rate of Class A trucks is likely to almost halve since peak levels of CY06. Given the weaker US economy, fleets have sufficient trailer inventory to cover immediate demand. Also, although tighter emission standards should have resulted in an upswing, such investments are, however, getting delayed. Annual trailer build rates are, therefore, running below 150,000 units, down 35% YoY.

European auto production in Q2FY09 was down 20% QoQ; we expect flat build rates YoY. Eventually, higher fuel efficiency standards in the US and Europe will drive more aluminium content in cars and light trucks, but the short-term picture is not promising and, given the current uncertainty, there are likely to be more risks to the downside.

Construction – Yet to recover from credit bubble

The commercial building & construction sector is currently being impacted by the credit crunch. Leading indicators such as architectural buildings have hit historic lows in CY08. Southern Europe has been witnessing weakness in commercial buildings, which is now spreading to other parts of the continent.

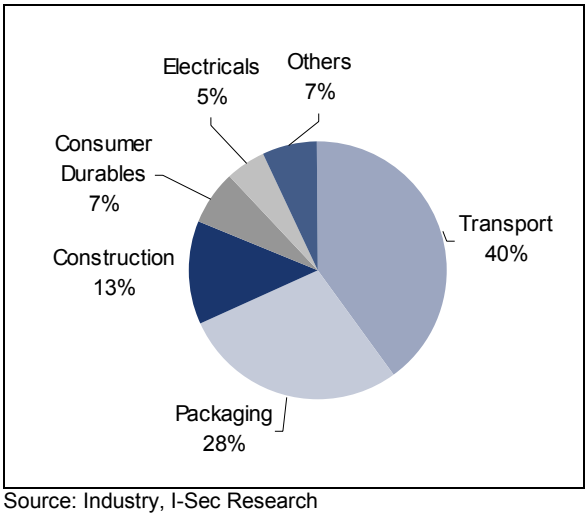
Aerospace segment – Fighting idle capacity

New builds are up ~8%, but air travel miles have stagnated and number of idle airplanes has reached September 11, ’08 levels. Airlines are cutting capacity to deal with lower demand and higher fuel prices; therefore, the spares market is beginning to tail off as well.

Power generation market an exception – Remains robust

Power generation markets, on the other hand, remain strong, with growth rates between 15% and 30% across regions. Despite a potential industrial economic slowdown, power infrastructure will continue to drive growth.

Chart 1: Aluminium – Global end-use pattern



Source: Industry, I-Sec Research

Table 1: Demand-supply balance

('000 te)

	2007	2008E	2009E	2010E	2011E	2012E
Total capacity	39,523	43,245	45,241	47,503	49,878	52,871
Demand	**37,806**	**41,587**	**42,626**	**44,758**	**47,219**	**50,052**
Production	37,410	42,273	43,119	44,844	47,086	49,675
Surplus/deficit/(change in stocks)	(396)	687	493	86	(134)	(377)

Source: Industry

Chinese demand growth – Key to watch

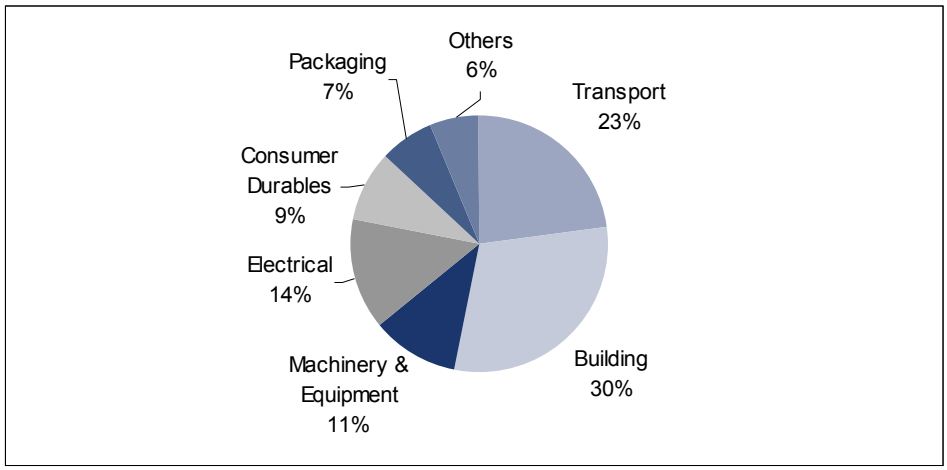
China, accounting for 33% of total global consumption, witnessed aluminium demand increasing 43% in '07 and 25% per annum on an average over the past five years. This was mainly due to:

- strong growth in the country's infrastructure development due to rapid industrialisation and urbanisation, with 90mn people having moved to cities and 250mn more expected to follow by '25.
- increasing intensity of use (IOU) of aluminium vis-à-vis copper. IOU of copper in China has fallen in recent years, while that of aluminium has increased; if this was due to substitution alone, it implies a 2mnte gain in aluminium demand and 1mnte loss in copper demand over the past five years.

We expect 11.6% Chinese demand CAGR over FY07-12E (vis-à-vis 43% demand growth in CY07), driven by average run rate of ~US$2trn gross fixed assets formation in China. Given the reduced demand outlook, we expect significant inventory accretion of 0.4mnte in CY08, despite aggressive production cutbacks.

However, given the current global credit crisis scenario, a consequent 8% demand growth in FY09 in China can release additional 1mnte aluminium globally. This is in line with increase in Chinese exports (up 66% YTD) vis-à-vis imports accretion of 5%.

Chart 2: End-use pattern of Chinese consumption



Source: Alcoa, I-Sec Research

Table 2: Chinese demand-supply balance

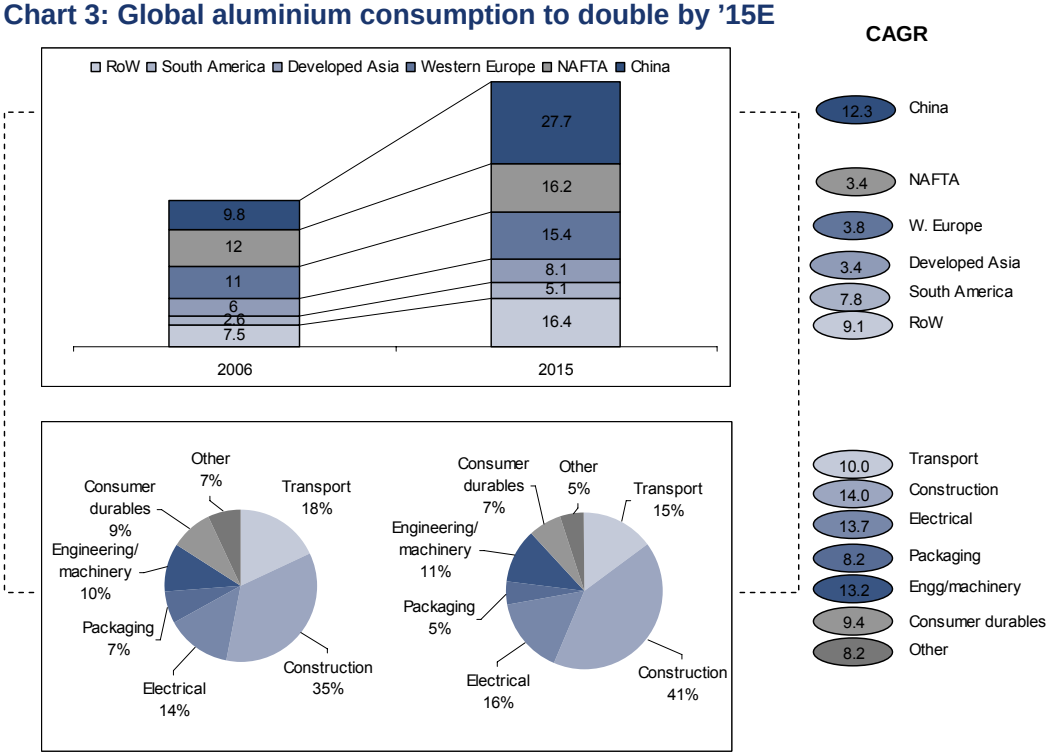
('000 te)

	2006	2007	2008E	2009E	2010E	2011E
Alumina						
Alumina production	13,800	20,700	25,875	29,756	32,535	33,335
Alumina demand	18,698	25,117	29,008	31,878	35,066	38,572
Alumina imports	7,000	5,000	3,133	2,122	2,531	5,237
Alumina import requirement	4,898	4,417	3,133	2,122	2,531	5,237
Aluminium						
Aluminium smelter capacity	9,375	12,600	15,000	16,100	17,710	19,481
Aluminium smelter production	9,349	12,559	14,504	15,939	17,533	19,286
Smelter utilisation (%)	99.7	99.7	96.7	99.0	99.0	99.0
Aluminium consumption	8,648	12,347	14,076	15,061	16,567	19,052
Aluminium Consumption (% YoY)	21.5	42.8	14.0	7.0	10.0	15.0
Aluminium surplus/deficit	701	212	428	878	966	234

Source: Industry, I-Sec Research

Though near-term concerns exist, we expect demand to increase 1.5x over the next decade, reaching ~62mnte by '15E, with global demand CAGR of 6.4% over FY06-15E, primarily driven by China and other developing nations (with BRIC demand CAGR estimated at 11% till '15E).

Chart 3: Global aluminium consumption to double by '15E



Note: The above chart indicates both primary and secondary aluminium demand combined
Source: UC RUSAL, I-Sec Research

Global supply remains moderate

Global aluminium capacity has seen 5.7% and 8% CAGR through 1998-06 and '01-06 respectively. Bulk of these new capacities has been set up in China and other emerging nations. Notably, capacities are being increasingly directed towards regions with lower production costs (especially places with indigenous power).

Power shortage continues in China…

As per industry, ~600kte of production was lost due to the power crisis in Q4FY08, despite rapid restarts facilitated through army assistance. Chinese smelters are likely to be further squeezed in '08 owing to higher power costs. Power markets are expected to tighten as demand growth outstrips supply.

Chart 4: Annual power supply and demand growth in China

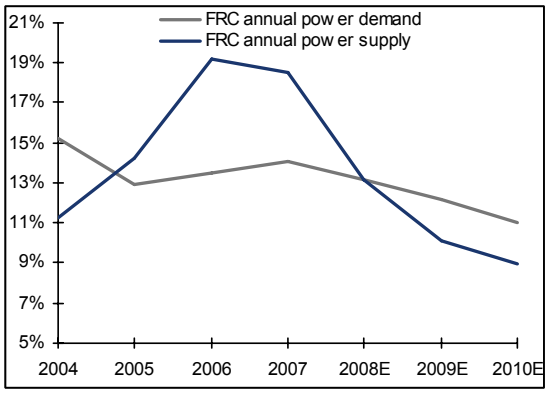
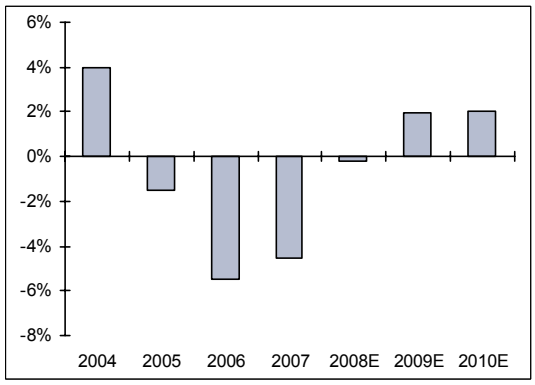


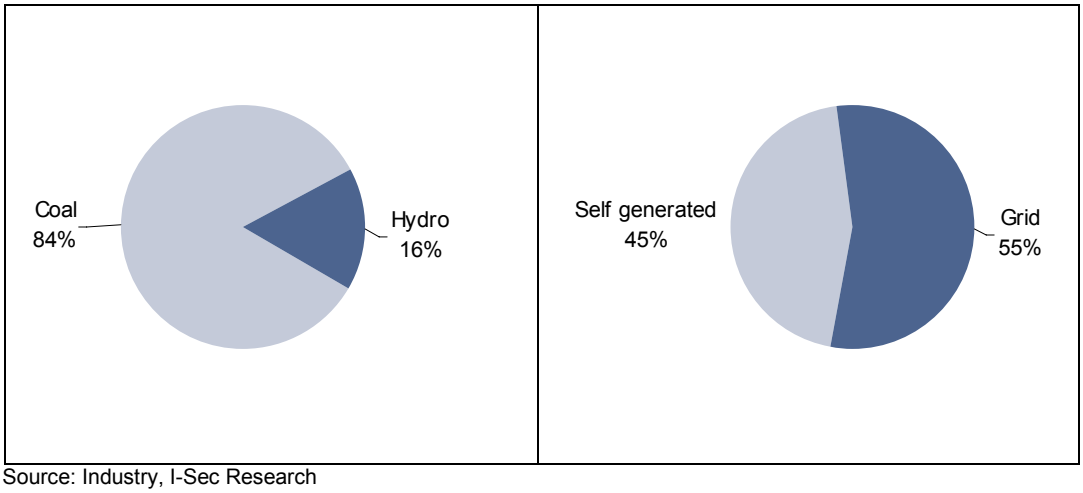
Chart 5: Power plant utilisation rate changes in China



Source: Industry, I-Sec Research

The National Development & Reform Commission (NDRC) has already removed preferential tariffs applicable for smelters. Four provinces have removed preferential tariffs, resulting in 50% increase in power costs in some cases. More than 40% of smelters have captive power, but rising prices on the grid will have an impact.

Chart 6: China's aluminium industry – Sources of power



Source: Industry, I-Sec Research

…and in South Africa as well

In South Africa, the electricity crisis and its origin are comparable to that in China –this short-term crisis (owing to peak seasonal demand, wet weather hampering coal movements and capacity curtailment for maintenance) has resulted in insufficient capacity generation.

Major concerns in the aluminium industry are power shortage for major industrial users, power buy-backs and price increase, which may result in curtailment of production. A major curtailment at the Bayside smelter (with 200ktpa capacity) has already been announced. This and other cut-backs are likely to reduce the output by 150kte.

China – Key to supply

While demand CAGR for aluminium in China was at +19% through '01-06, supply CAGR was at 23%. However, future growth in aluminium will be constrained by the availability of competitively priced energy and raw material. Also, there is an idle capacity of 1mnte and expected closures of 0.6mnte, which will pressurise supplies. Besides, an acute power shortage in China has been hampering production.

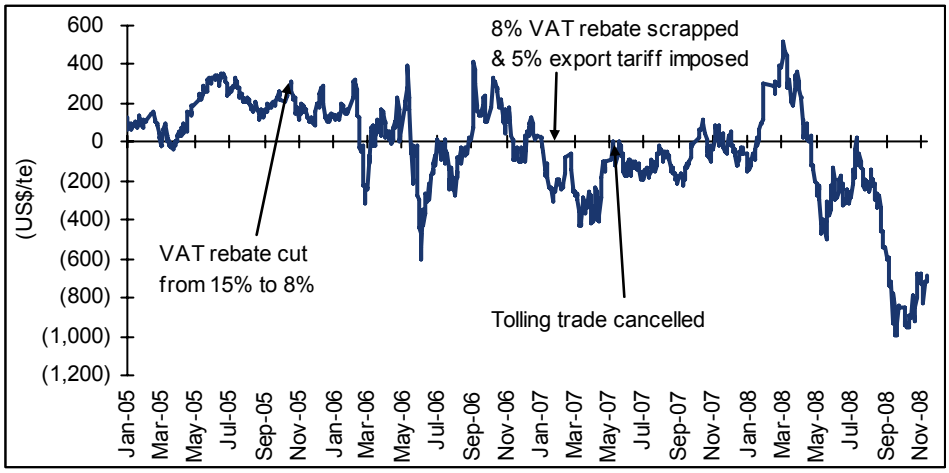
Decreasing SHFE & LME spreads & appreciating RMB unviable for smelting, thus keeping check on local production

Product prices of primary Chinese aluminium producers (such as Aluminum Corporation of China-CHALCO) are based on the SHFE (with reference to the LME).

Despite the significant narrowing down of the SHFE/LME spread in H2FY08, it was not enough to offset rising production costs and the revenue lost owing to lower alumina prices. Since the spread has opened up, earnings from aluminium will be subdued. Unless China becomes a sustained net importer of primary aluminium and aluminium products, the gap will not be reversed.

Further, given the LME pricing reference, the appreciation of the RMB presents a major obstacle to higher profitability. With products priced in a weakening currency and costs calculated in domestic terms, China's input costs are effectively rising faster than the product price.

Chart 7: SHFE/LME spread



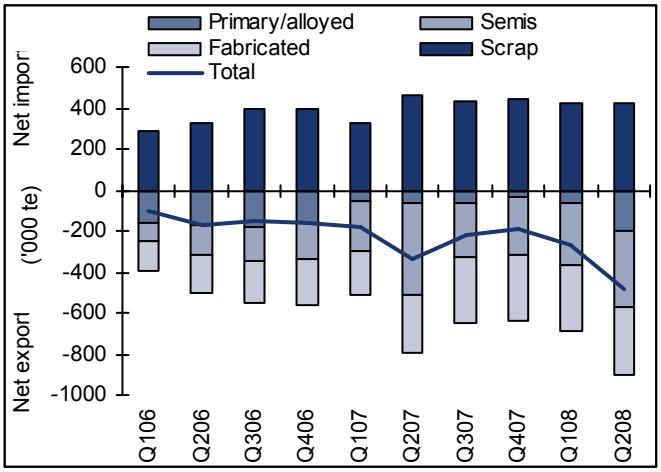
Source: Bloomberg, I-Sec Research

Chinese smelters' operating costs at ~Yuan18,000-19,000 (~US$2,500-2,600/te) lead to non-feasibility of smelters at current costs. This has resulted in closing down of 0.6mnte of aluminium (~2% of global supply) and 1mnte of alumina capacities in Q3FY09 (CHALCO and Hunan Changyuan being major players that have announced cutbacks recently).

Export loophole closed

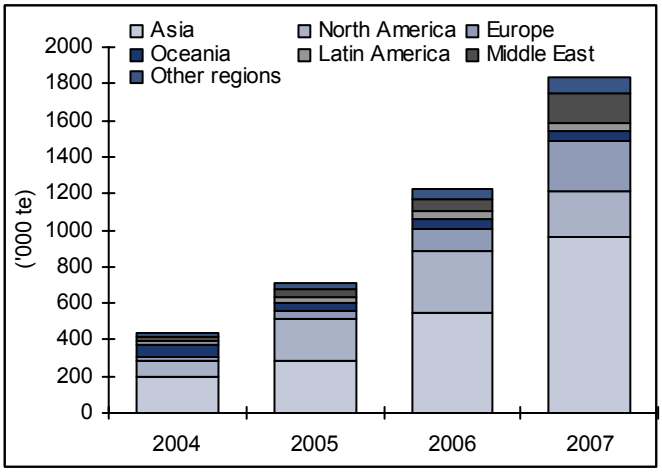
While previously, 15% export tax was levied on non-alloyed primary metal & extruded products (from mid-CY07), alloyed primary metal has also been brought under tax purview since August 20, '08. Semis and fabricated form the largest components of Chinese export, and most of the metal is exported to Asia. With the new tax under implementation, Asian imports of Chinese aluminium are slated to decrease (especially at current price levels).

Chart 8: China export break-up



Source: Norsk Hydro

Chart 9: Destination-wise breakup of Chinese exports



Source: Norsk Hydro

Capacity closures in China to help align global supply with demand

China, which is currently facing power shortage, has intensified efforts to control the growth of the power-intensive aluminium industry. In '06, China's idle capacity was ~1mnte of its total capacity of 11.5mnte.

Towards end-CY07, the Government further restricted the domestic aluminium industry via introducing new stipulations as regards minimum capacity, location and energy consumption so as to ensure sustainable growth in the sector.

Chart 10: Key Chinese policies for aluminium and alumina

Bauxite. New bauxite mining projects must have a minimum output capacity of 300,000tpa, and a lifespan of at least 15 years. Moreover, if total investment exceeds RMB500mn (US$67.3mn), the project requires approval from not only the provincial government and NDRC, but also the central government.

Alumina. New alumina projects must receive NDRC approval before commencing construction and, if using domestically-produced bauxite, they must have an initial annual capacity exceeding 800,000te and over 85% self-sufficiency in the required amount of bauxite.

Alumina projects that import bauxite must possess a minimum of 5 years of bauxite supply through a JV company, which is able to supply 60% of the bauxite needed for production, and is capable of producing at least 600,000tpa.

Aluminium. Electrolytic aluminium expansion projects also require NDRC approval, which will only be granted to projects related to environmental reform and outdated capacity replacement.

Proposed secondary aluminium projects require minimum annual capacity of 50,000te, while existing projects must exceed 20,000te or face de-commissioning. Moreover, approval will be limited to reconstruction or expansion projects with an annual output capacity of over 30,000te.

Aluminium processing projects should have a minimum output capacity of 100,000tpa, with a broad portfolio covering plate, strip, foil, extruded pipe and industrial profile. While single-product projects require capacity of at least 50,000tpa for plate and strip, 30,000tpa for foil and 50,000tpa for the extruded pipe and industrial profile.

Moreover, minimum of 35% of the total investment in all mining, smelting and recycling projects must be made in cash.

Source: Industry

Table 3: Production cut in China due to declining aluminium prices

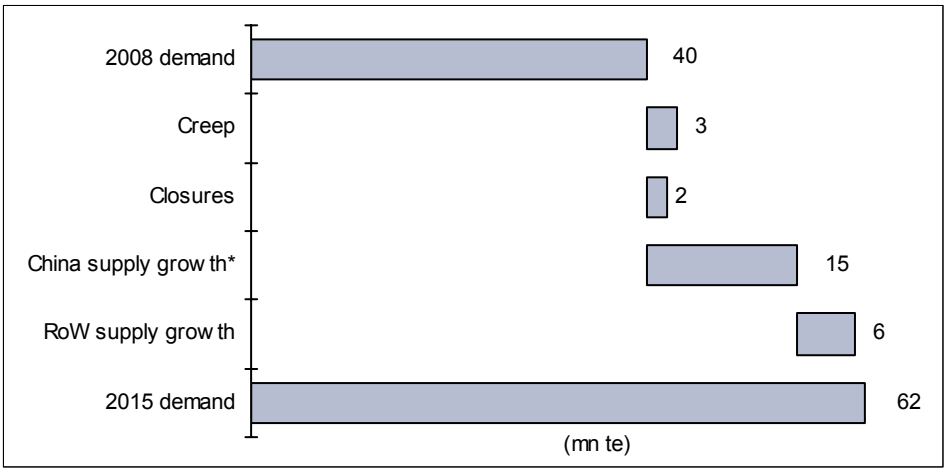
	Capacity (te)	Potential cut in production (te)	Comment
Chalco-Shangdong	70,000	70,000	
Chalco-Zhengzhou	60,000	40,000	
Chalco-Pingguo	140,000	25,000	
Chalco-Zunyi	242,000	-	
Aostar Aluminium	250,000	40,000	
Emei Aluminium	150,000	50,000	
Zhongfu	300,000	300,000	Has shut 50,000te, delayed startup of 250,000te.
Zhongfu-subsidiary	120,000		Has halted building 250,000te Henan Hong Kong
Longquan Aluminium	600,000	40,000	
HMHJ Aluminium	300,000	30,000	Has cut ~10%, delaying startup of 150,000te
Total capacity shut down		**595,000**	

Source: Industry data, I-Sec Research

Large new smelter capacity required to meet demand in '15E

We believe that over US$100bn total investment would be required over the next seven years to meet our demand estimates till CY15. This is equivalent to setting up six new 500ktpa smelters annually. Given delayed expansions and cutting back of non-critical capex (as displayed by Alcoa), we expect the aluminium cycle to reverse at least once, if not more, within the next seven years.

Chart 11: Estimated capacity changes over CY08-15E



Source: Norsk Hydro, I-Sec Research

Cost pressure persists

Energy and alumina costs represent the largest cost driver for the global aluminium industry. Energy costs are 31% of smelting costs and 33% of refining costs at present. On a combined basis, energy accounts for ~40% of the cost of producing aluminium.

Global energy costs – Still in escalation mode for smelters

The nature of power contracts is critical to industry assessment and company vulnerability to volatility in power markets. In '07: i) 21% of aluminium smelting capacity has power tariffs linked to aluminium price at present as against 36% in 1996 and ii) 69% of global smelters purchase power from the grid; these contracts may be fixed price or cost plus.

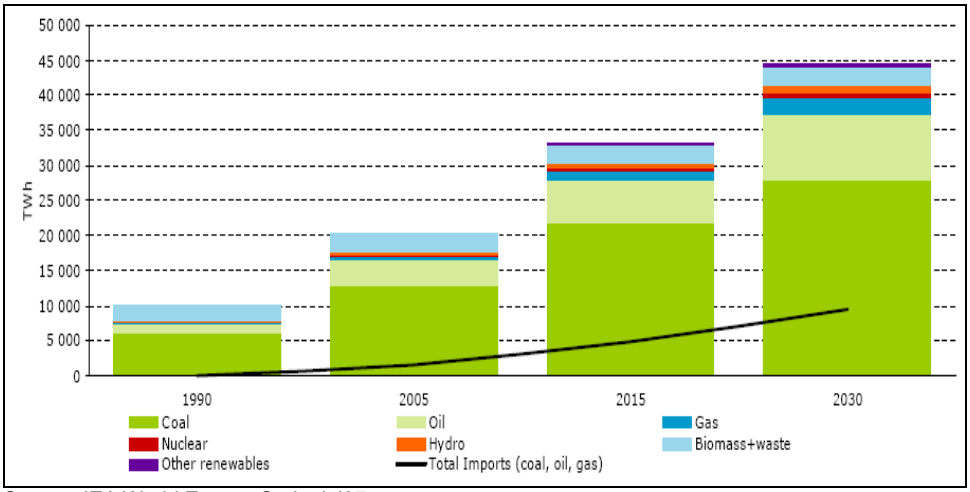
Table 4: Global aluminium power tariffs

	Self generated (%)	Elec Fixed (US$/ MWh)	Elec CSF (US$/ MWh)	Elec LME (US$/ MWh)	Elec Purchased (US$/MWh)	Average Elec power (US$/MWh)
China	45	2.1	41.2	0.0	39.6	42.3
Global average	31	3.2	22.3	6.2	27.7	30.5

Source: Industry, I-Sec Research

Industry power tariffs for the global aluminium industry have risen 10% per annum since '02, driven by increasing production (~50% of global production) from China, where power tariffs are 75% higher than rest of world (RoW), on an average. Also, the recent IEA data (Chart 12) suggests increasing Chinese dependence on energy imports.

Chart 12: China – Increasing dependence on energy import



Source: IEA World Energy Outlook '07

Chart 13: Strong increase in power prices in Chinese aluminium industry

Source: Norsk Hydro

Power contracts in US and Europe expire

Power contracts encompassing ~3.5mnte production in the US/Europe are set to expire within the next five years. While estimated average power price for this capacity stands at US$50/MWh '08, the corresponding estimated average market price in H1CY08 is US$90/MWh. At market power prices, the average cash operating cost would increase US$500-600/te. Given the weak market outlook, while this may not impact prices in the short term, it will act as a support to the LME in the long term.

CO2 emission trading system impacts production cost of primary aluminium

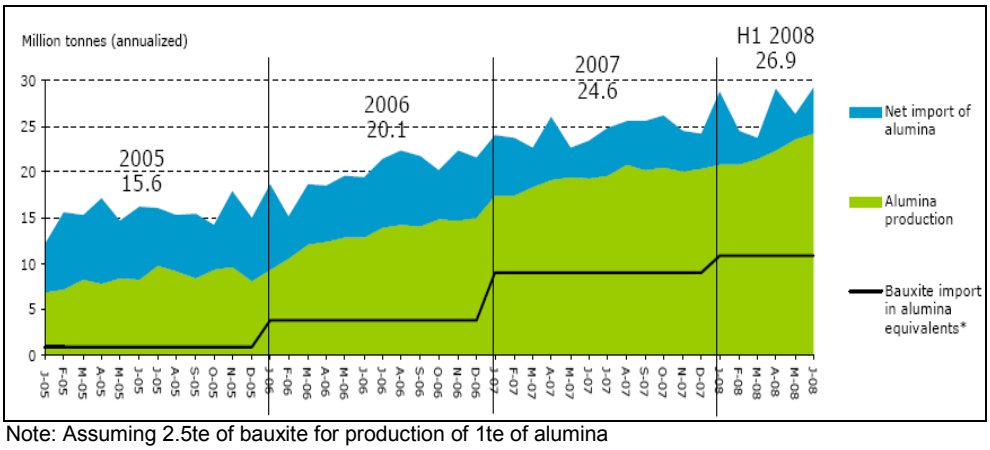
Aluminium smelting consumption of ~15,000kWh/te power amounts to 6te CO_2 per tonne of aluminium for a gas fired station and 12te for a coal fired station. Also, there is direct emission of ~2te CO_2 per tonne of aluminium. With price of CO_2 emissions estimated at ~US$40/te going forward, the industry will be impacted by US$80/te of direct emission costs and US$0-500/te indirect emission costs, dependant on power source and available power market.

While CO_2 emission costs have already impacted the energy forward market in Germany, it remains to be seen whether an effective trading system develops in China, as marginal costs reflect in prices only when they get added to the cost of a marginal producer.

Tight alumina market

Alumina production in China is likely to be curbed due to bauxite shortages as Indonesian exports have reduced on account of environmental safety measures as well as increased focus by the Indonesian Government on setting up a domestic smelter. Bauxite imports now account for nearly half the demand growth in China. Of the total 21.4mnte bauxite imports in '07, more than 90% was sourced from Indonesia. CHALCO, with the largest backward integration, has 30% of its bauxite requirements sourced from captive mines.

Chart 14: China – Increasing dependence on bauxite/alumina imports

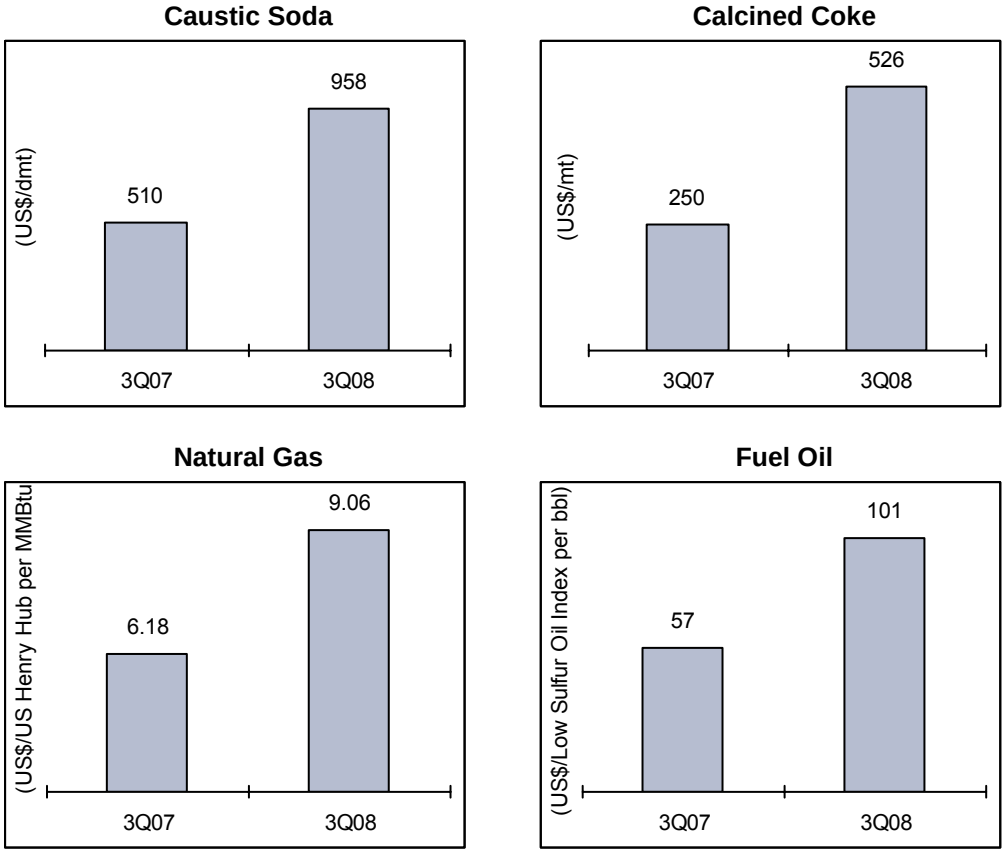


Note: Assuming 2.5te of bauxite for production of 1te of alumina
Source: Norsk Hydro

Industry facing significant input cost escalation from other fronts as well

As LME aluminium prices are falling well below operating costs of 1/3rd of global smelters on account of global credit concerns, input costs are yet to correct, thereby putting tremendous pressure even on global monoliths such as Alcoa, resulting in closure of Rockdale smelter.

Chart 15: Global escalation in input costs



Source: CMAI, Bloomberg

Rising costs slowing industry growth

Capacity expansions are likely to be held back due to increase in factor costs of energy, labour and alumina (including price effects on alumina, linked to expected higher LME), and:

- purchased energy prices are expected to increase further in the EU and US, driven by increasing CO_2 costs
- indigenous power locations are likely to disappear and low-cost opportunities will no longer be available
- construction costs have been recently increasing dramatically and are expected to grow further (Table 5).

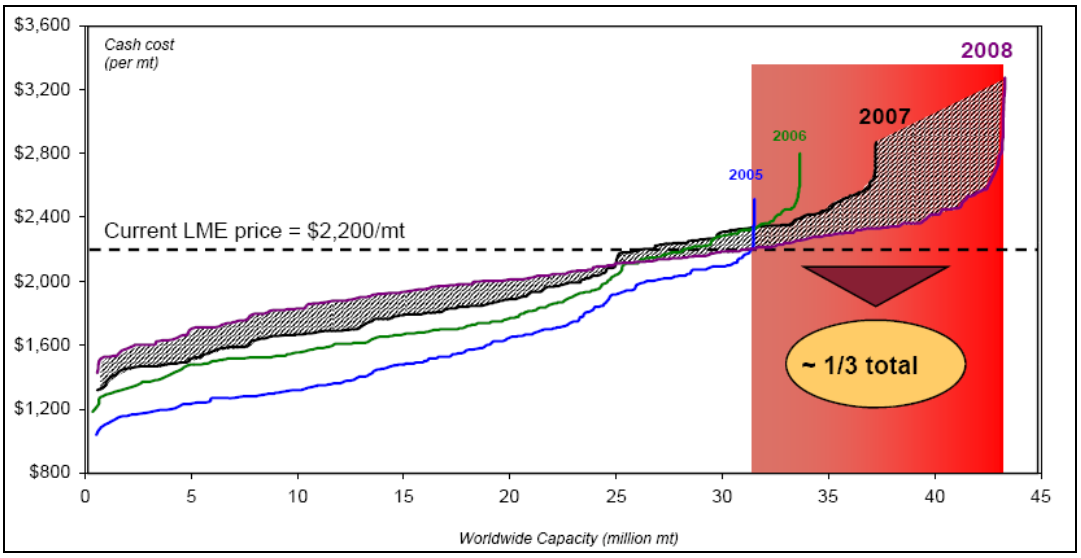
Table 5: Increasing construction costs

Capital costs (US$/te)	FY00-07 (Average)	FY08-15 (Average)	% Increase
Middle East	3,800	7,500	97.4
South America	4,000	5,700	42.5
Africa	4,000	4,900	22.5
South East Asia	N/A	4,500	
China	2,200	3,900	77.3
India	N/A	3,900	
CIS	2,500	3,400	36.0

Source: UC RUSAL, I-Sec Research

While extent of power subsidies enjoyed by Chinese smelters is uncertain (as many such smelters were constructed to serve as end-use for power capacity), one third of global aluminium players are loss making at current prices.

Chart 16: Global smelting cash cost curve



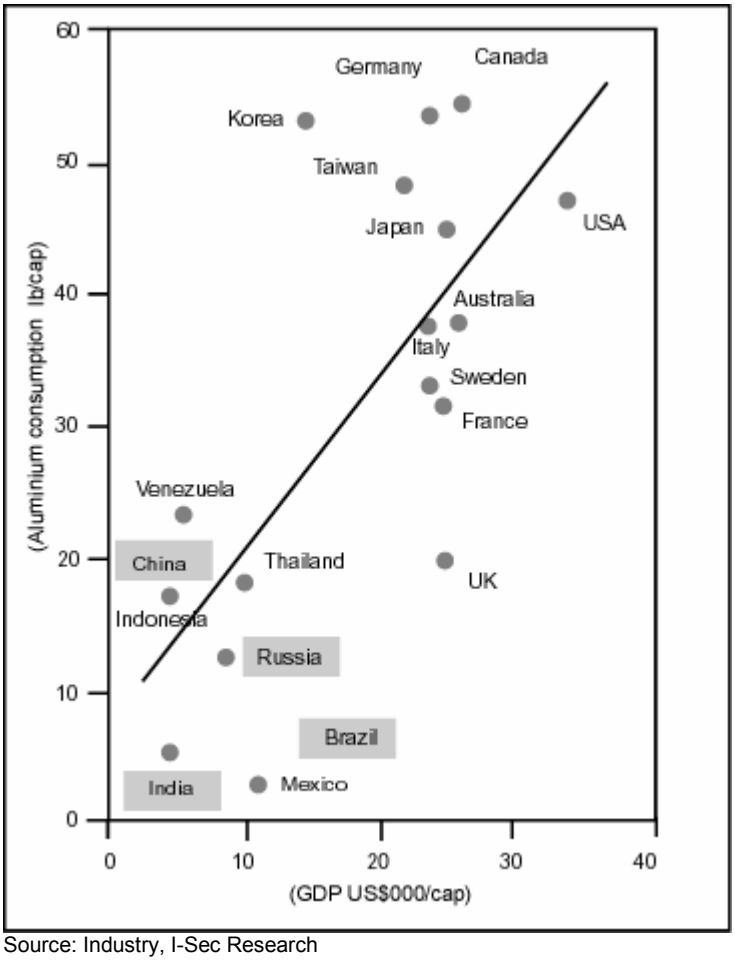
Note: The curves have been adjusted to reflect current LME, Forex and coke costs
Source: Alcoa

India – Well poised

Domestic demand

Aluminium demand in India has been historically weak, according to per-capita consumption growth (Chart 17). Per-capita consumption of aluminium stands an abysmal 5lb.

Chart 17: Global profile of aluminium consumption



Source: Industry, I-Sec Research

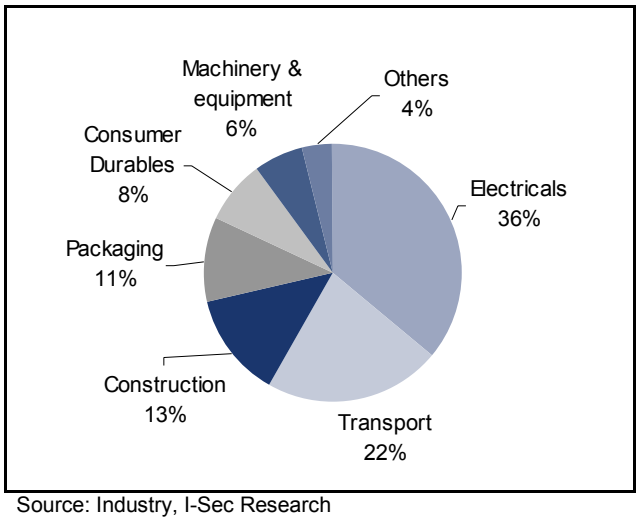
Per-capita aluminium consumption in India is lower than that in equivalent per-capita GDP countries such as Indonesia and is the lowest in the BRIC subset on account of low per-capita income and availability of cheap substitutes. Consequently, use of aluminium in key sectors such as construction, transport and packaging is limited.

However, with sustainable GDP growth of 5-6% and huge investment slated from the infrastructure sector, we believe per-capita consumption would only increase going forward.

Besides, key drivers for aluminium consumption in India are different from factors influencing global demand. For example, in the US, demand for aluminium has increased largely due to the wide use of aluminium in beverage cans (23% of Alcoa's revenues come from the packaging and consumer segment). In Europe, the construction sector accounts for a large portion of aluminium demand. However, in

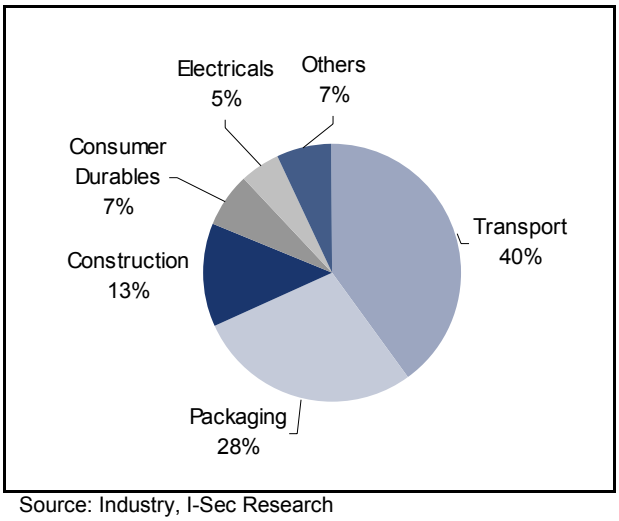
India, the power sector still remains the main demand driver (construction sector is mostly dominated by steel). Globally, power sector constitutes only 10% of total demand.

Chart 18: Domestic end use (India)



Source: Industry, I-Sec Research

Chart 19: Global end use (US)

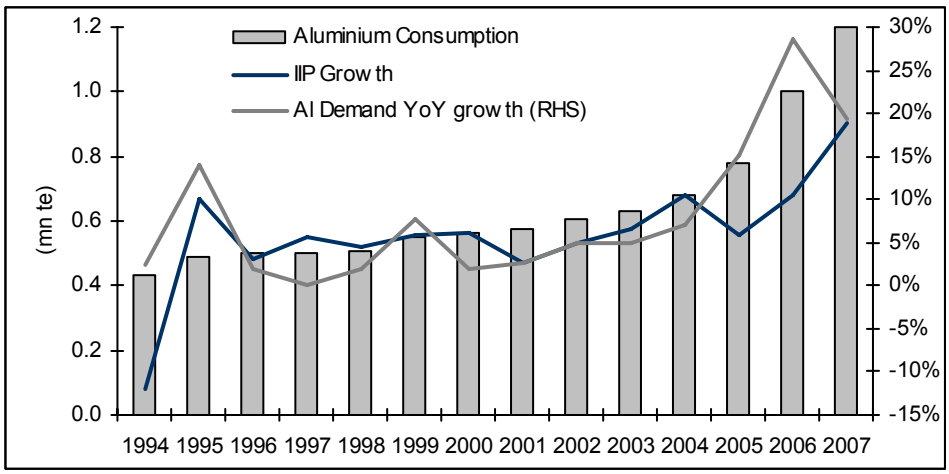


Source: Industry, I-Sec Research

Trends in aluminium demand

Though aluminium consumption has witnessed 10.2% CAGR through '00-06 on the back of strong GDP growth and impressive IIP growth, we believe the same rate will slightly moderate going forward.

Chart 20: Indian aluminium consumption growth



Source: Industry, I-Sec Research

Chart 20 shows a strong correlation between aluminium consumption growth and IIP growth; both have dipped YTDCY07. Thus, we believe strong domestic consumption will moderate versus that in the past.

We expect demand to post 4.8% CAGR through FY08-11E, in line with the expected GDP growth rate. Thus, a decline in growth of aluminium consumption demand has been factored in our assumptions.

Table 6: Sectoral CAGR in domestic aluminium consumption

(%)

Sector	CAGR (2008-2011E)
Electricals	5
Transport	4
Construction	4
Packaging	6
Consumer Durables	6
Machinery & equipment	5.5
Others	3

Source: Industry, I-Sec Research

Construction and power will continue to be the major demand drivers riding on the back of huge investments in the sector.

Domestic volumes set to grow

India to become net exporter from FY10E

Past growth and industry profitability has fuelled capacity additions in India. We expect domestic demand-to-capacity ratio to reduce going forward, leaving the surplus production for export.

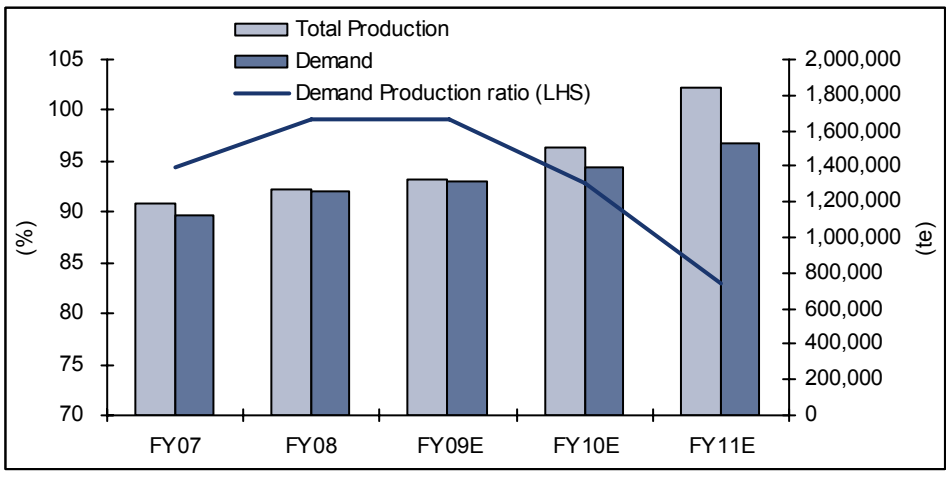
Table 7: Domestic demand supply balance

Production (te)	FY07	FY08	FY09E	FY10E	FY11E	FY12E
NALCO	358,734	360,457	357,838	365,711	383,996	450,000
MALCO	40,000	40,000	40,000	40,000	40,000	40,000
Hindalco	442,686	477,726	498,226	505,726	518,369	521,369
BALCO	315,002	358,328	375,000	345,000	345,000	345,000
Vedanta Aluminium				200,000	500,000	700,000
Total production	**1,156,422**	**1,236,511**	**1,331,064**	**1,456,437**	**1,787,366**	**2,056,369**
Demand	**1,118,727**	**1,261,405**	**1,318,168**	**1,397,258**	**1,523,012**	**1,675,313**
Net exportable surplus	**37,695**	**(24,894)**	**12,896**	**59,179**	**264,354**	**381,056**

Source: Industry, I-Sec Research

We estimate demand CAGR at 4.8% through FY08-11E, reflecting current slowdown in GDP growth rate.

Chart 21: Domestic demand capacity



Source: Industry, I-Sec Research

In light of the potential large capacities coming on-stream by FY11E, domestic demand may not be geared up enough to adequately utilise capacities, thereby resulting in exportable surplus.

Players such as Hindalco, Bharat Aluminium Company (BALCO), NALCO and Vedanta Aluminium have massive expansion plans, which will increase production to ~2mnte by FY12E from 1.2mnte in FY07. Thus, we believe that exports will significantly increase by FY11E.

Raw material advantage

Cost structures of aluminium players globally vary according to their backward linkages. Players who have captive power plants and bauxite mines lie on the lower quartile of the cost curve. India is the lowest cost producer of aluminium globally as all domestic players have their own bauxite mines and captive power plants.

Bauxite – Domestic scenario

India, which ranks fifth in terms of bauxite reserves, has an estimated reserve of over 2,600mnte. With expected consumption of 5mtpa, the reserves would last for over 500 years. Moreover, as quality of Indian ore is good (Gibbsite), lesser electricity is required in processing it.

India's bauxite production has increased ~65%, from 8.4mnte in '01 to ~13mnte in '06; bauxite exports have risen to 2.36mnte in '05-06 from 0.97mnte in '01-02.

Most domestic producers have captive bauxite mines, thereby boosting their profitability. Cost from mines for players such as NALCO stands at US$12/te. ~4te of bauxite is required to make 2te of aluminium.

Table 8: Bauxite costs per tonne of aluminium

Country	Company	Cost (US$)
Australia	Nabalco	43
Brazil	Alcan	66
Guinea	Frigula	64
Jamaica	Alpart	106
Germany	AOS	148
US	Alcoa	147
US	Kaiser	160

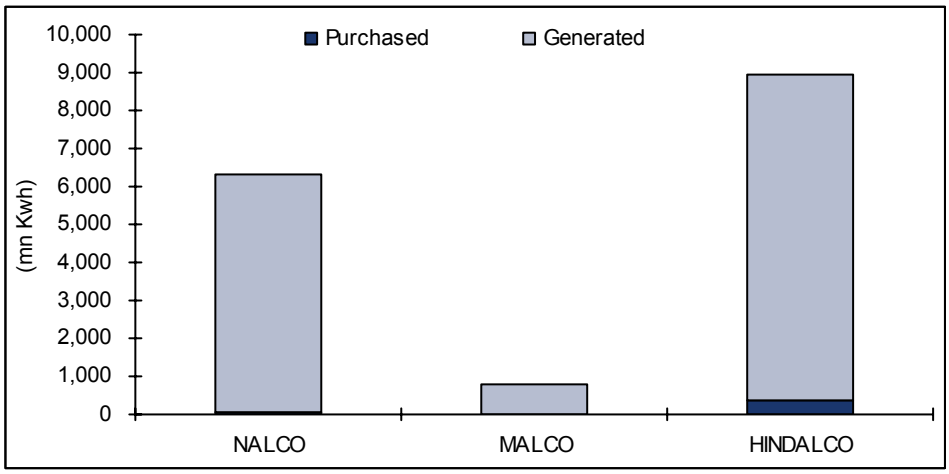
Source: Industry, I-Sec Research

Power – Captive play

Power constitutes ~40% of operating costs for aluminium production. Globally, power consumption per tonne of aluminium stands at 13,000-15,000KwH. Though at present, power consumption of Indian smelters is above global average, we believe this is due to technological snags and would reduce to global levels with time.

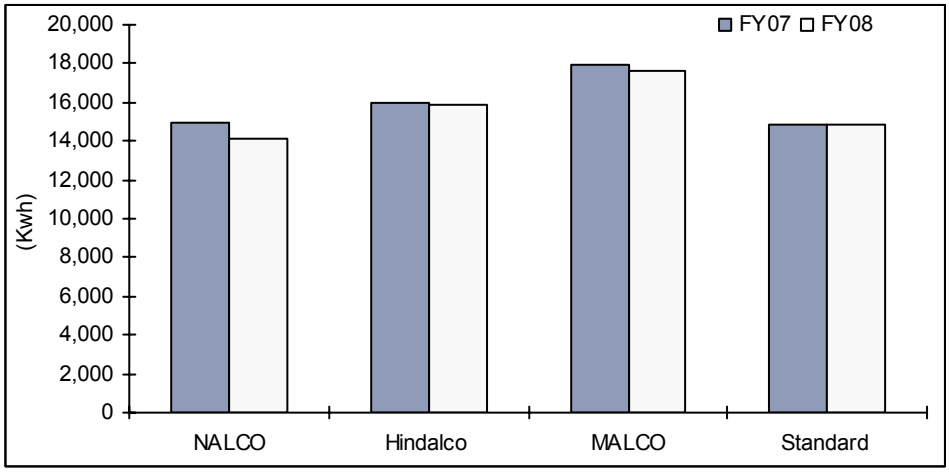
Domestic aluminium manufacturers have captive sources of power, which is not just less expensive but also assures continuous supply. However, increased prioritisation of thermal coal towards the power sector (vis-à-vis captive power plants) has resulted in players such as NALCO to import thermal coal, thereby leading to significant power cost escalation. However, despite domestic coal shortage, while at US$2,100/te of LME aluminium, 1/3rd of global capacities suffer operating loss, NALCO (at ~US$1,650/te of operating costs, including overheads) and Hindalco (at ~US$1,800/te) remain profitable.

Chart 22: Electricity usage – Purchased versus generated



Source: Annual reports – NALCO, Hindalco, MALCO

Chart 23: Electricity consumption per tonne of aluminium

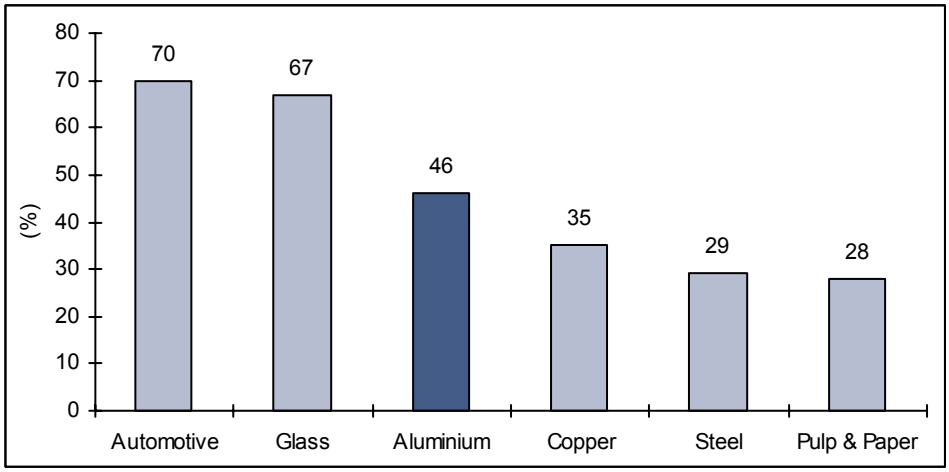


Source: Annual reports – NALCO, Hindalco, MALCO

Consolidation trend

The aluminium industry has seen substantial consolidation in the past and, at present, top five players account for 46% of the total production.

Chart 24: Estimated global market share of top-five players



Source: Industry, I-Sec Research

The global aluminium industry (except China) is highly concentrated, with 33% of total production of aluminium in '07 contributed by just three major aluminium producers, namely Alcoa, Rio-Tinto-Alcan and UC RUSAL.

Table 9: Top-six players still control large portion of pie

(mnte)

	CY98		CY06	
	Capacity	% of Total Capacity	Capacity	% of Total Capacity
Rio-Tinto-Alcan	2.75	11.0	4.523	11.6
Alcoa	4.5	18.0	4.251	10.9
UC Rusal	3.725	14.9	4.017	10.3
Chalco	1	4.0	3.588	9.2
BHP Billiton	1.05	4.2	1.365	3.5
Norsk Hydro	0.75	3.0	1.56	4.0
Total	**13.775**	**55.1**	**19.304**	**49.5**

Source: Industry, I-Sec Research

Consolidation in the aluminium industry has intensified recently, with '07 witnessing huge consolidation with:

- Rio Tinto acquiring Alcan in a US$38-bn deal to form the world's largest aluminium producer and bauxite miner (beating Alcoa).
- Merger of UC RUSAL, Sual and Glencore AG to form United Rusal. The combined entity is the largest alumina producer globally.
- The takeover of Novelis by Hindalco in a US$6-bn deal (the largest in Indian non-ferrous sector, as on date).

Table 10: Major acquisitions in aluminium space

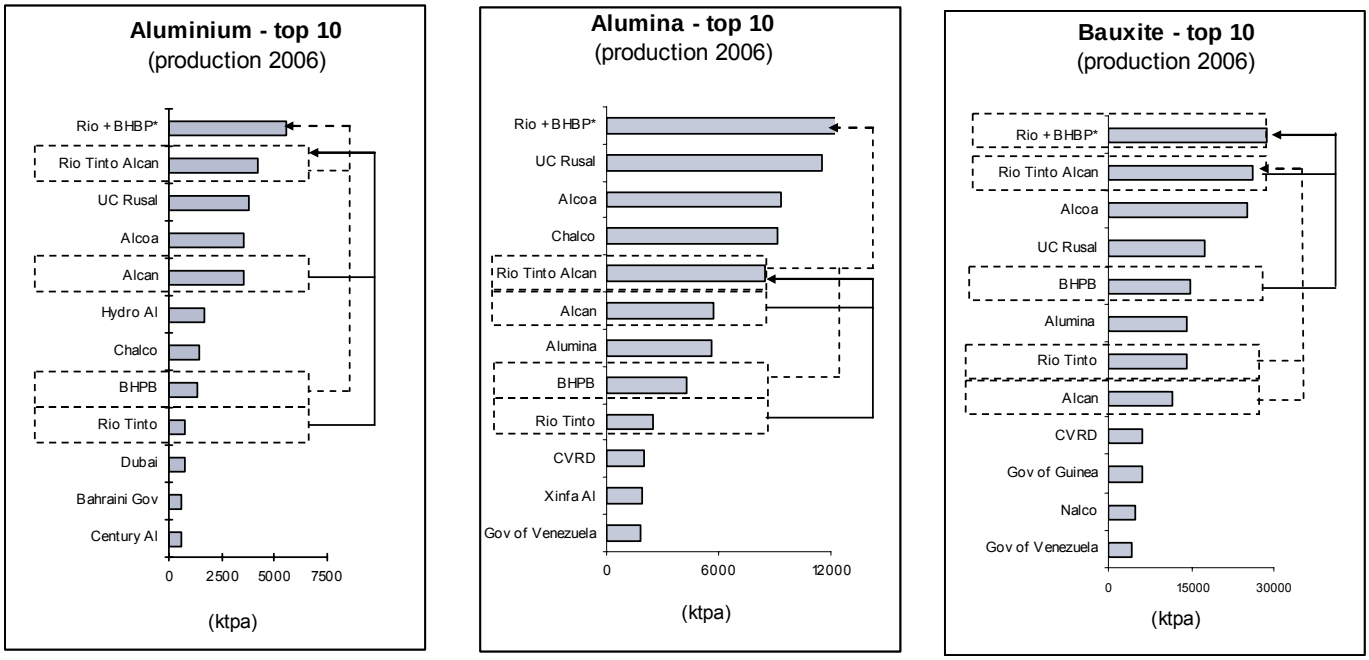
	Target Name	Acquirer Name	EV/EBITDA	Price (US$ mn)
11-Aug-99	Reynolds Metals Co	Alcoa Inc	11.33	1,705
16-Dec-99	Apollo Metals	Material Logistics	7.69	1,700
24-Feb-00	Comalco	Rio Tinto Plc	9.08	1,600
27-Mar-00	Aluminium of Korea	Consortium	10.67	1,600
3-Oct-00	Showa Aluminium Corporation	Showa Denko K	1.55	1,600
19-Feb-01	Sapa Ab	Elkem ASA	4.53	1,500
5-Jul-02	Sapa Ab	Elkem ASA	6.84	1,338
23-Jul-02	Indian Aluminium Co	Hindalco Industries	4.61	1,338
1-Aug-02	Sapa Ab	Elkem ASA	20.56	1,297
30-Jan-03	Indian Aluminium Co	Hindalco Industries	3.92	1,344
13-Mar-03	Xinjiang Joinworld Co -A	Shanghai Baoshan Yanghang Co	2.13	1,430
23-Jun-03	Remi Claeys Aluminium	Sapa Ab	3.45	1,389
7-Jul-03	Pechiney-A Shares	Alcan Inc	19.03	1,394
17-Jun-04	Lanzhou Aluminium Co	Aluminium Corp Of China -H	7.81	1,708
27-Jan-05	Tokai Aluminium Foil Co	Nippon Light Metal Co	13.83	1,840
10-Feb-05	Sapa Ab	Orkla ASA	6.18	1,856
11-Oct-05	Apar Industries	Credit Agricole Sa	8.34	1,942
8-Dec-06	Lanzhou Aluminium Co	Aluminium Corp Of China -H	24	2,836
8-Dec-06	Shandong Aluminium Ind-A	Aluminium Corp Of China -H	7.75	2,836
15-May-07	Tokai Aluminium Foil Co	Nippon Light Metal Co	3.31	2,824
3-Jul-07	Baotou Aluminium Co	Aluminium Corp Of China -H	14.28	2,783
12-Jul-07	Alcan Inc	Rio Tinto Plc	10.23	38,100

Source: LME, I-Sec Research

Consolidation in the aluminium industry is positive for the industry as production in the hands of few financially-stable companies would result in lower production cost due to cost synergies and better bargaining power. In fact, in an environment of rising raw material prices, global mergers and acquisitions have been increasingly focussed towards securing raw material linkages. One of the main reasons indicated by Rio Tinto during the Alcan acquisition was Alcan's cheap hydro-energy contracts.

Moreover, a consolidated industry would be able to resist low prices during recession and expand during a peak, reducing volatility in sales and profits. Unlike the global aluminium industry, the industry in China is fragmented, with ~1,000 manufacturers of primary aluminium. The largest aluminium company in China – Aluminium Corporation of China – produces ~14.9% of total aluminium produced in China. Since the industry is fragmented, it results in oversupply. With consolidation in China, these companies would stabilise and, hence, reduce oversupply in the overall market.

Chart 25: Aluminium, alumina and bauxite – Recent consolidation



Note: For the proposed acquisition of Rio Tinto by BHP Billiton
Source: Rio Tinto presentation

High consolidation in primary aluminium segment

The primary aluminium industry in India is characterised by a high degree of consolidation. Since '99-00, the industry has seen a lot of consolidation, bringing down number of players from five to three. NALCO, Hindalco, and the Sterlite Group account for the entire primary aluminium capacity in the country, leading to low-key competition. The industry structure is a result of its capital-intensive nature. The minimum economic size of a greenfield smelter is 250,000tpa, requiring capital investment of US$1-1.3bn. The average gestation period for a greenfield project is 48 months, while that for a brownfield project (modernisation/capacity addition by existing player) is 18-24 months.

India has large reserves of bauxite ore, with total recoverable bauxite ore reserves estimated at 2.6bnte. These are high-grade bauxite ores and require lesser energy for digestion. Consequently, all primary producers have integrated operations – from mining of bauxite and refining of alumina to smelting of alumina. Over the past few years, the primary aluminium producers have developed or acquired downstream capacities and augmented their presence in value-added segments such as rolled products, extruded products and foil.

Pricing & valuations to remain subdued in near term

There has been a sharp 40% retracement of aluminium from its top, in line with global commodity weakness, thereby pushing prices below cash-operation costs of one-third of global smelting capacities. While the exact impact of declining oil prices on the energy costs is yet to be ascertained, it would reduce cash costs for many smelters.

Inventories have reached an intermediate high and short-term demand outlook remains uncertain; near-term rise in prices on account of increased supply curtailments and increased energy costs looks unlikely and would suppress global and domestic multiples.

EV/EBITDA of global players has been de-rated 86% YTD, on an average. Domestic valuations are in line with global valuations. Given our long-term aluminium price assumptions of US$2,100/te and uncertain near-term Chinese demand outlook, we re-initiate coverage on NALCO with HOLD rating and initiate coverage on Hindalco with SELL.

Chart 26: Aluminium prices and inventories

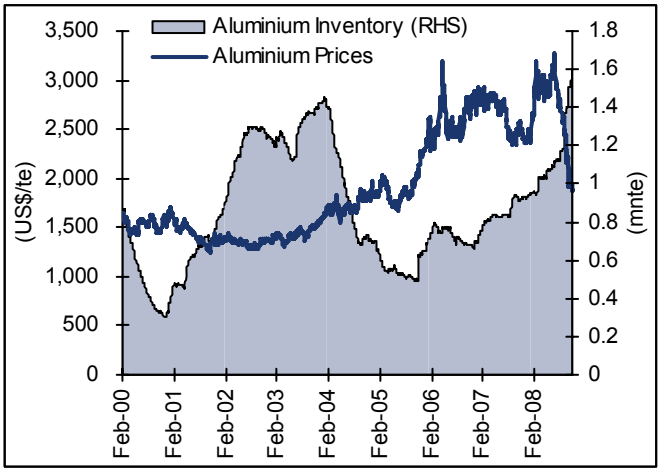
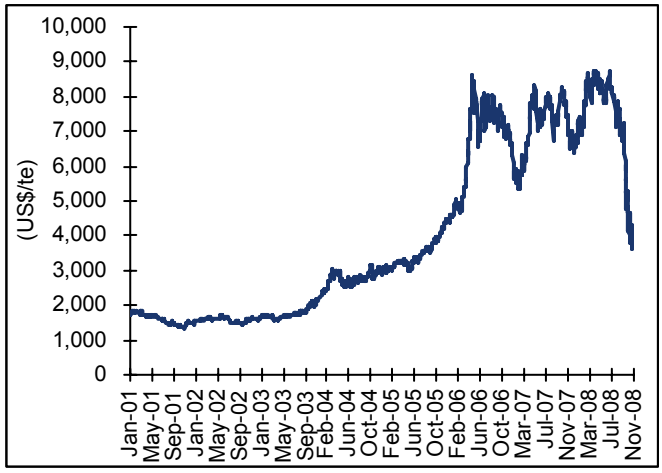


Chart 27: Aluminium forward prices (3 months)



Source: I-Sec Research

Table 11: I-Sec aluminium universe – Earnings estimates

	CMP (Rs)	EPS (Rs)		P/E (x)		EV/EBITDA (x)		Target price (Rating)	Upside (%)
		FY09E	FY10E	FY09E	FY10E	FY09E	FY10E	FY10E	
NALCO	176	27.3	18.0	6.4	9.7	3.4	4.8	180 (HOLD)	2.9
Hindalco	57	5.6	6.0	6.1	10.3	5.2	7.0	41 (SELL)	(28.1)

Source: I-Sec Research

Appendix

Table 12: Global aluminium production

('000 te)

Six months	Africa	North America	Latin America	Asia	West Europe	East /Central Europe	Oceania	Total
Jun-00	554	3,088	1,074	1,090	1,875	1,825	1,031	10,537
Dec-00	624	2,953	1,093	1,131	1,926	1,864	1,063	10,654
Jun-01	680	2,629	1,059	1,099	1,921	1,839	1,053	10,280
Dec-01	689	2,593	932	1,135	1,964	1,889	1,069	10,271
Jun-02	669	2,631	1,094	1,122	1,948	1,882	1,064	10,410
Dec-02	703	2,782	1,136	1,139	1,980	1,943	1,106	10,789
Jun-03	648	2,755	1,149	1,204	1,988	1,958	1,084	10,786
Dec-03	780	2,740	1,126	1,271	2,080	2,038	1,114	11,149
Jun-04	837	2,630	1,163	1,337	2,104	2,065	1,114	11,250
Dec-04	874	2,480	1,193	1,398	2,191	2,074	1,132	11,342
Jun-05	853	2,616	1,170	1,468	2,176	2,078	1,111	11,472
Dec-05	900	2,766	1,221	1,671	2,176	2,116	1,141	11,991
Jun-06	921	2,660	1,233	1,701	2,079	2,098	1,113	11,805
Dec-06	943	2,673	1,260	1,792	2,103	2,132	1,161	12,064
Jun-07	904	2,752	1,254	1,827	2,093	2,167	1,149	12,146
Dec-07	911	2,890	1,304	1,890	2,212	2,293	1,166	12,666
Jun-08	844	2,929	1,315	1,925	2,323	2,311	1,150	12,797
Jul-08	145	487	229	337	386	393	193	2,170
Aug-08	146	486	228	334	390	394	195	2,173
Sep-08	141	471	219	324	377	383	188	2,103

Source: International Aluminium Institute

Table 13: China's aluminium production

	2000	2001	2002	2003	2004	2005	2006	2007	Jan-Aug 08
China ('000te)	2,794	3,371	4,321	5,547	6,689	7,806	9,349	12,588	8,906
% of World production	13.2	16.4	20.4	25.3	29.6	33.3	39.2	50.7	52.0

Source: Industry, I-Sec Research

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Charts

Equity Research

November 17, 2008

BSE Sensex: 9385

INDIA

Hindalco

SELL

No light at end of tunnel

Rs57

Reason for report: Initiating coverage

Hindalco is among the largest, integrated, primary aluminium producers and the domestic leader in downstream, value-added segments. Novelis acquisition led to it becoming a global player, with 19% market share in downstream rolled-products segment. Hindalco has strong presence in copper business (custom smelting). Despite increasing cost pressures & declining metal prices in its aluminium business impacting margins, Hindalco plans to expand smelting capacities to 1.6mnte by FY14E at Rs294bn. Also, the leveraged Novelis acquisition would maintain current debt gearing at ~1.5x till FY11E. Continued margin pressures at Novelis, with muted domestic aluminium EBITDA, implies increased financial & operating leverage for consolidated operations. Initiate coverage with SELL.

- **Cost escalation & weak price outlook to impact domestic aluminium margin.** Due to increased cost of bauxite from 3rd-party mines (FY08 alumina costs: US$211/te for Hindalco v/s US$103/te for NALCO) and rise in input costs of aluminium fluoride & caustic soda, aluminium margin has dipped consistently in past few quarters. Given FY11E aluminium price assumption of US$2,100/te, we expect segmental EBITDA margin to fall 400bps over FY08-11E & dip 36% in FY10E.
- **Back-ended earnings with increased leverage.** Hindalco has capex plans of Rs294bn to expand aluminium capacity to 1.6mnte by FY14E, thus leading to back-ended earnings. Capex coupled with funding for Novelis will significantly leverage Hindalco's balance sheet to Rs326bn by FY11E, leading to ~1.5x debt gearing, with consolidated service & fixed charge coverage ratios declining to 2.2x & 1.2x respectively in FY11E, thus suppressing earnings and leading to possible dilutions.
- **Novelis – Margin pressure to continue.** The highly competitive & fragmented rolling-products industry, concentrated end-users, declining metal premiums and volumes in North America & Europe induced by current market turmoil will prevent significant improvement in margins, even post termination of the metal ceilings contract. CY06 acquisition EV/EBITDA of 11.3x (goodwill: Rs119bn) implies low recovered RoIC, and cashflows generated are unlikely to pay off debt.
- **Valuations.** Rise in cost pressures, back-ended earnings outlook, increased leverage, dilutive rights issue, expensive Novelis acquisition significantly dents short-term performance outlook. Expect FY10E YoY EBITDA & EPS to decline 32% & 41% (consensus: 9% & 6%) with RoCE declining to 5.1% in FY10E (cost of capital: 8.7%). Initiate coverage with SELL and SOTP target price of Rs41/share.

Market Cap	Rs99.9bn/US$2.0bn
Reuters/Bloomberg	HALC.BO/HNDL IN
Shares Outstanding (mn)	1,752
52-week Range (Rs)	200/40
Free Float (%)	68.6
FII (%)	13.0
Daily Volume (US$'000)	27,040
Absolute Return 3m (%)	(56.3)
Absolute Return 12m (%)	(73.7)
Sensex Return 3m (%)	(35.9)
Sensex Return 12m (%)	(53.6)

Year to March	FY08	FY09E	FY10E	FY11E
Revenue (Rs mn)	600,128	760,153	555,128	568,656
Net Income (Rs mn)	18,709	16,267	9,741	10,441
EPS (Rs)	10.7	9.3	5.6	6.0
% Chg YoY	(30.4)	(13.1)	(40.1)	7.2
P/E (x)	5.3	6.1	10.3	9.6
CEPS (Rs)	24.7	25.8	18.9	19.7
EV/E (x)	4.5	5.2	7.0	7.1
Dividend Yield	2.3	3.3	2.5	2.1
RoCE (%)	12.2	7.7	5.1	5.6
RoE (%)	10.4	5.8	4.1	5.6

Please refer to important disclosures at the end of this report

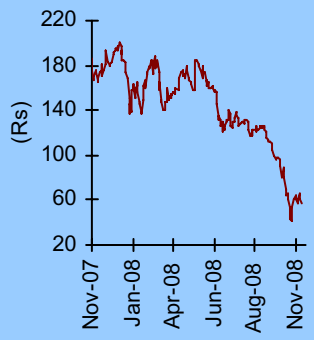
Metals

Shareholding pattern

	Mar '08	Jun '08	Sep '08
Promoters	31.4	31.4	31.4
Institutional investors	28.2	28.1	28.2
MFs and UTI	3.7	4.4	3.8
Insurance Cos.	10.5	10.5	10.4
FIIs	13.0	12.3	13.0
Others	40.4	40.5	40.4

Source: www.nseindia.com

Price chart



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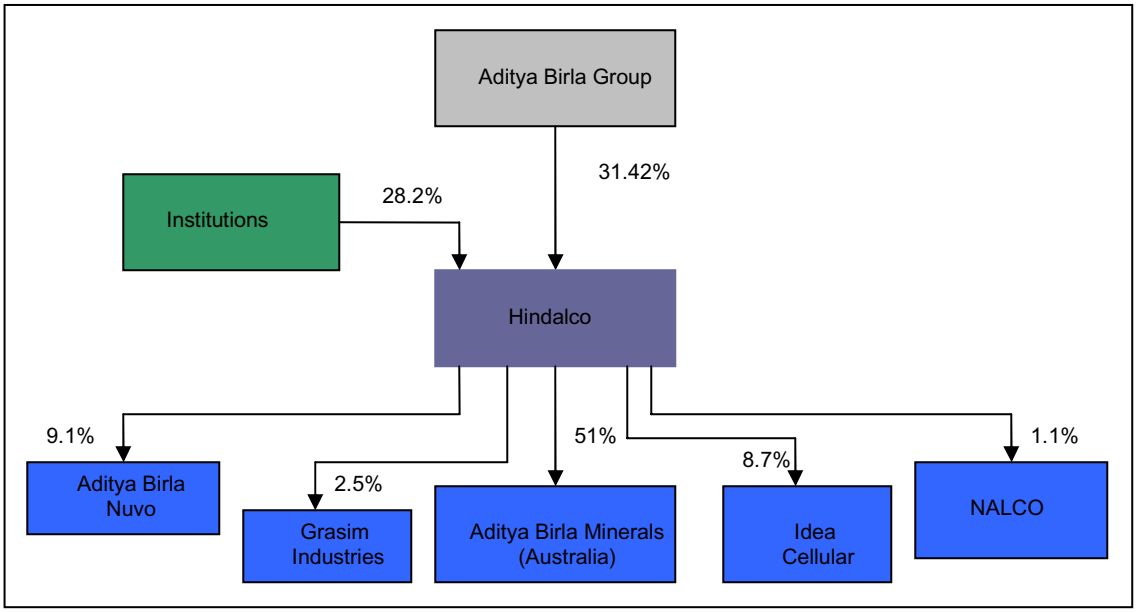
Expensive valuations

Hindalco, the flagship metals company of the Aditya Birla Group, is the domestic industry leader in aluminium and copper. With consolidated turnover of over US$14bn, Hindalco is one of the world's largest aluminium-rolling company as well as one of the biggest producers of primary aluminium in Asia. It is currently expanding its aluminium capacity to 1.6mnte from 0.6mnte at present at capex of Rs294bn.

While the Novelis (world leader in rolled products) acquisition (US$6bn) provides revenue hedge to aluminium prices, it has leveraged Hindalco, with debt-to-capital of over 60% and insufficient cashflows to pay off the leverage assumed for the acquisition.

Hindalco has set up a mega greenfield copper smelting & refining plant at Dahej in Bharuch district of Gujarat, India via Birla copper. This plant, with investment of Rs25,000mn, produces world class copper cathodes, continuous cast copper rods and precious metals, with ~10% of material linkages coming from two copper mines (Nifty and Mt Gordon) in Queensland and NSW, Australia under Aditya Birla Minerals (51% subsidiary of Hindalco).

Chart 1: Ownership structure



Source: Company data, I-Sec Research

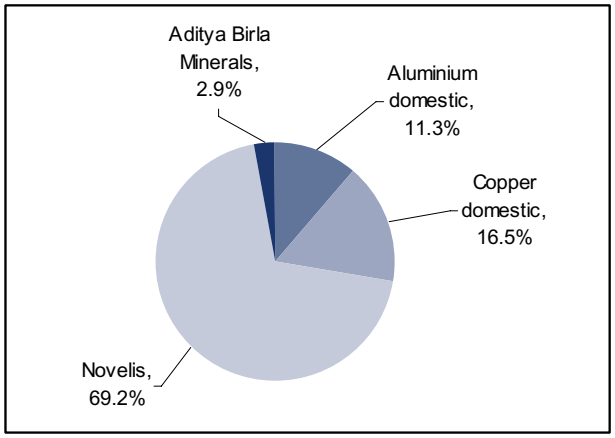
Table 1: Hindalco – SOTP valuation

	EV (Rs mn)	Comment
Hindalco Aluminium	119,525	FY10E EV/EBITDA of 5x
Birla copper	12,701	FY10E EV/EBITDA of 2x
ABML (@51% stake)	9,425	EV/ton of US$1,100/te of reserve
Novelis	151,222	FY10E EV/EBITDA of 8x
Total EV	283,447	
Net debt	226,867	
Equity value	56,580	
Fully-diluted no of shares	1,752	
SOTP value (Rs/share)	**32**	
Equity investments at 20% discount	14,803	
SOTP value (with investments)	**41**	

Source: Company data, I-Sec Research

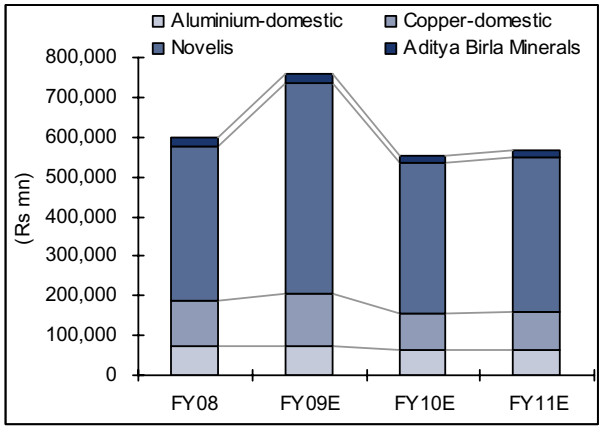
Our sum-of-the-parts (SOTP) valuations for Hindalco yield Rs41/share. Charts 2, 3, 4 & 5 show relative contribution of the company's different businesses to sales, EBITDA and enterprise value (EV).

Chart 2: Proportional contribution to net sales (FY10E) by different business units



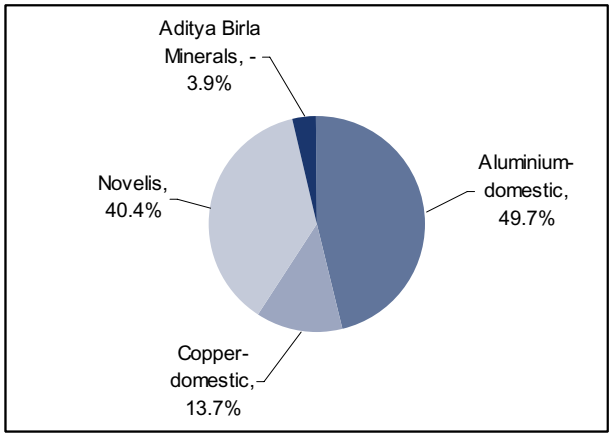
Source: Company data, -Sec Research

Chart 3: Proportional contribution to Hindalco's sales (time series)



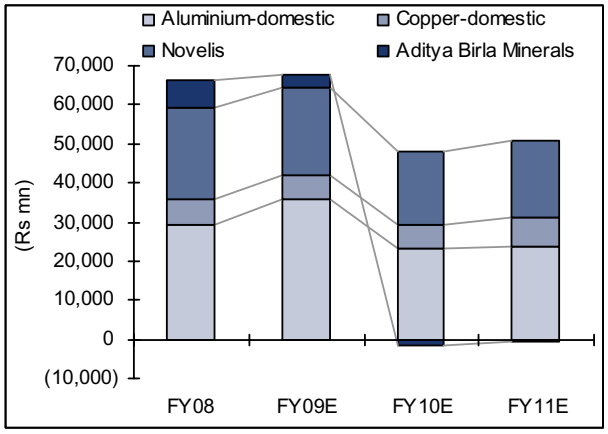
Source: Company data, -Sec Research

Chart 4: Proportional contribution to EBITDA (FY10E) by different business units



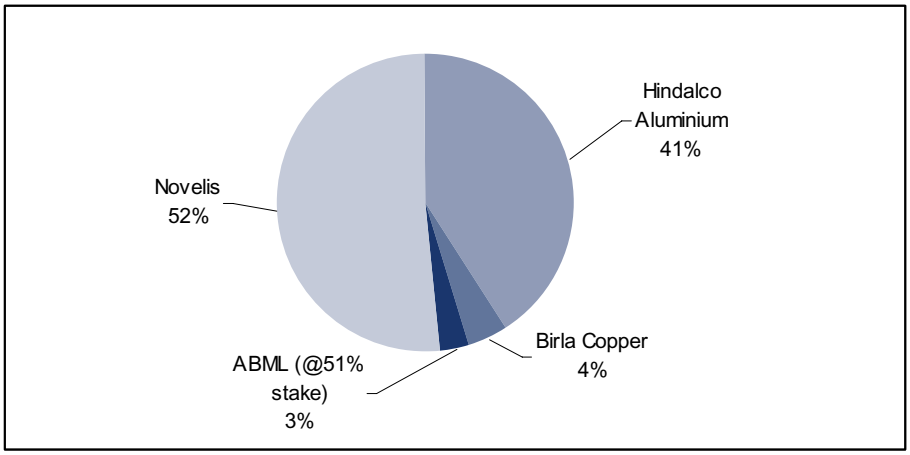
Source: Company data, -Sec Research

Chart 5: Proportional contribution to Hindalco's EBITDA (time series)



Source: Company data, -Sec Research

Chart 6: Proportional contribution to EV by different business units



Source: Company data, -Sec Research

Integrated operations…

With its bauxite & coal mines, Hindalco is well positioned to weather any unusual movements in commodity costs in domestic and international markets. Further, as aluminium production is a power-intensive business, captive power plants linked to the smelter reduce risk of exposure to power shortages. Hindalco's Renukoot and Hirakud smelting units are well equipped with captive power plants, with total power generating capacity of ~1,187MW.

Captive bauxite mining and alumina refining

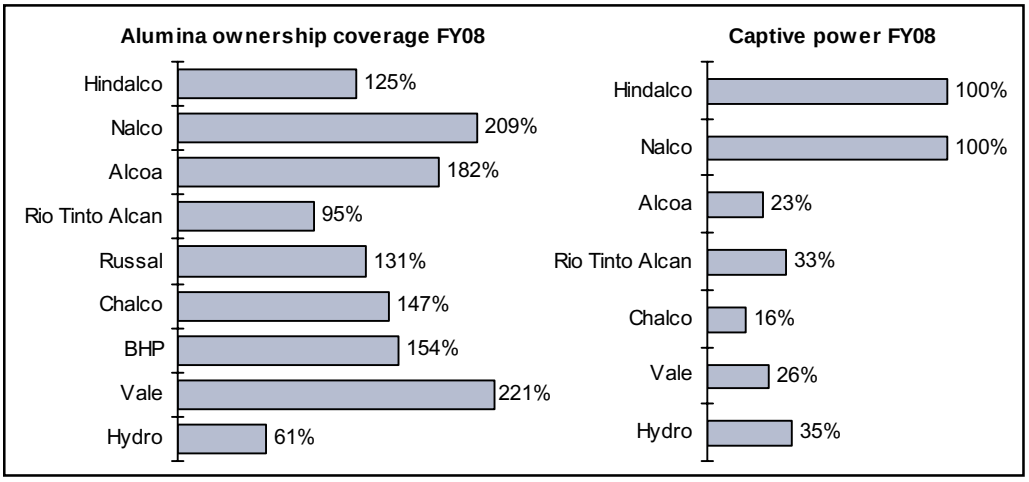
Hindalco's current smelting capacity of 0.5mtpa is well augmented by commensurate alumina refining and bauxite mining capacities. And since India has high quality bauxite mines, Hindalco enjoys the unique opportunity of sourcing raw material from pit heads located adjacent to smelters. However, due to cost escalation from third-party bauxite mines, Hindalco's production cost for aluminium has increased, but the company is still globally competitive. Further, Hindalco will produce 4.5mtpa bauxite through Utkal Alumina (its 100% subsidiary) by FY10E. The company expects to increase mining capacity to 8.5mtpa.

At present, the company's alumina refining capacity is 1.16mtpa, with ongoing brownfield expansion at Muri that will increase capacity to 1.6mtpa by FY10E.

Captive power and coal

Hindalco's total captive power capacity at 1,187.2MW is sufficient to address its current aluminium smelting needs. This capacity is spread across the company's Renusagar, Renukoot and Hirakud facilities. Hindalco has captive coal at its Talabira I coal mines in Orissa with 23mnte reserves for its Hirakud smelter, along with coal linkages from northern and central coal fields of CIL for Renukoot. Further, Mahan coal block has been allotted to the company along with Essar. Talabira II & III coal blocks have been allotted along with Mahanadi Coal Fields (MCL) and Neyveli Lignite, with 3mtpa production at 15% stake for Hindalco. The Tubed coal block in the Latehar project has also been jointly allotted to Hindalco with Tata Power.

Chart 7: Alumina and power ownership of stocks globally

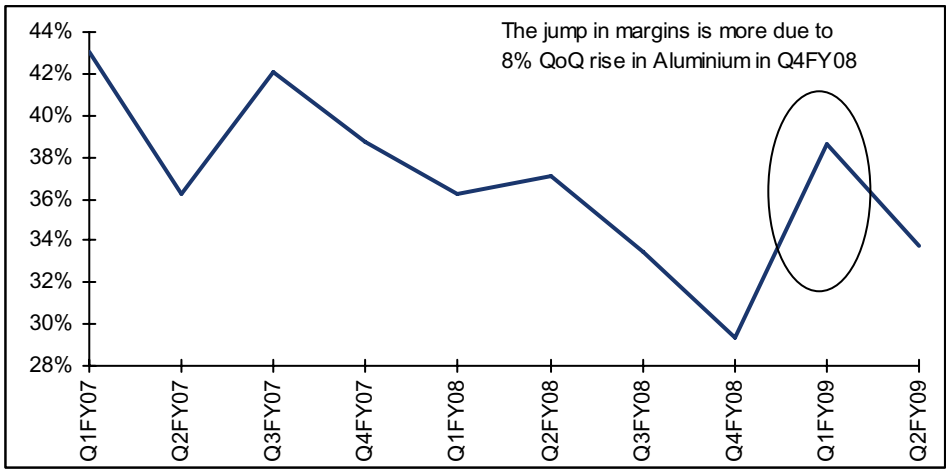


Source: Norsk Hydro

…yet, cost escalations evident

There has been significant cost escalation in the aluminium business mainly due to rising prices of inputs such as calcined coke and caustic soda. Besides, bauxite cost for Hindalco is ~3x that of NALCO's, primarily due to sourcing from third-party mines (which have seen cost increase in the recent past). Also, Hindalco is at a disadvantage to NALCO/BALCO owing to higher power costs, mainly due to drawing partial power from state electricity boards (SEBs), high transport cost of coal and distribution losses on account of power transfer from the Renusagar power plant.

Chart 8: Quarterly PBIT margins



Source: Company data, I-Sec Research

Calcined coke and caustic soda prices have witnessed global escalations, with calcined coke price increasing 110% YoY in FY08.

Chart 9: Raw material break-up of per tonne of aluminium (FY08)

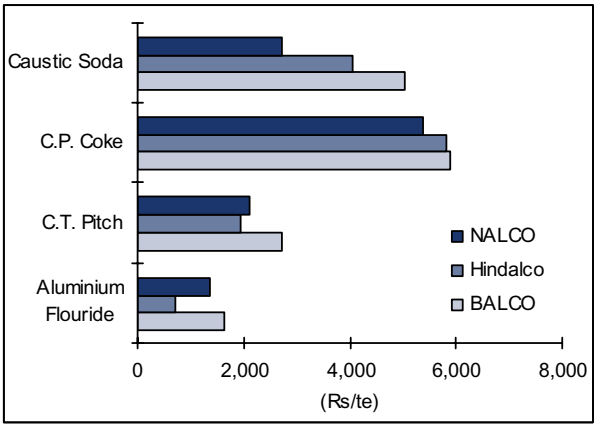
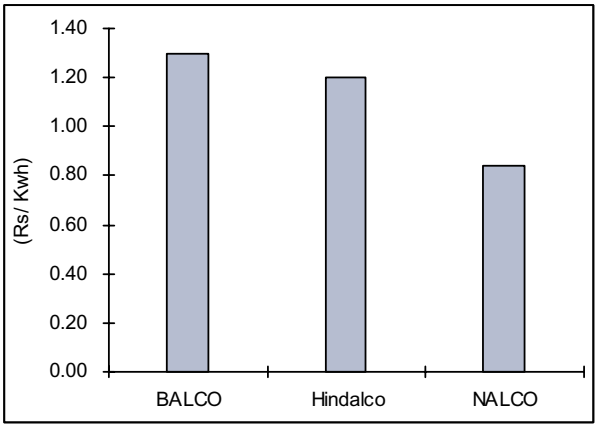


Chart 10: Power cost of Hindalco higher (FY08)

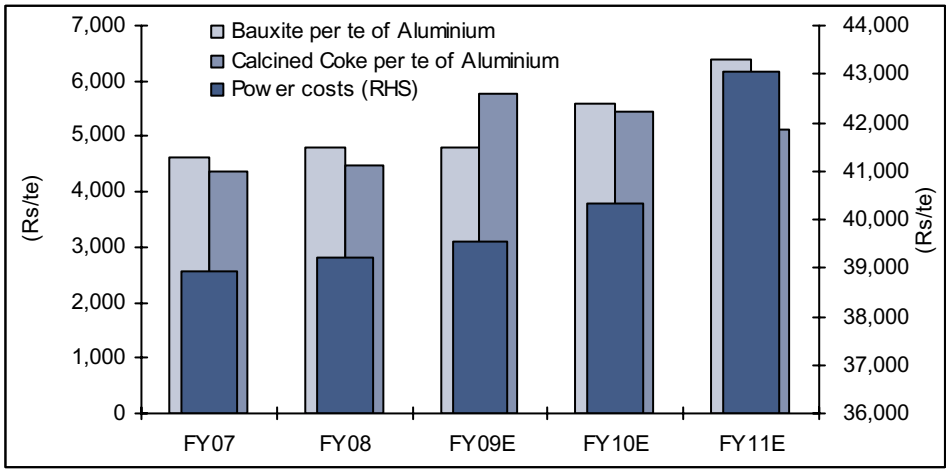


Source: Company data, I-Sec Research

We expect cost escalations to continue, given the: i) increased cost escalation in bauxite from third party mines and ii) increased power costs owing to higher coal mining costs and distribution losses, partly muted by decreasing fuel oil prices globally. Drawing of power from SEBs to meet power shortfalls at peak hours can also prove expensive as India's power shortage is set to amplify.

Thus, under current price assumptions, we expect EBITDA for the aluminium division to decline from 41% in FY08 to 37% in FY11E.

Chart 11: Increased cost pressures to continue



Source: I-Sec Research

Back-ended expansion fails to boost short-term earnings outlook

Hindalco has embarked on a major expansion drive in order to increase capacities and for backward integration. However delays in project execution have shifted expected dates for project commissioning, making the growth back-ended in our forecast horizon. In fact, as per latest management guidance, Hindalco will complete all greenfield projects by FY14E. Besides, total estimated capex of Rs294bn will significantly leverage Hindalco's financials, boosting estimated debt to ~Rs326bn by FY11E. The projects planned will increase the company's total smelting capacity to 1.6mtpa, with associated refining capacities of 4.5mtpa.

Brownfield expansions

Brownfield expansions involve expansion of refining and smelting capacities in Muri, Hirakud and Belgaum.

Muri (Jharkhand) – Alumina expansion. The company is progressively commissioning its alumina refining capacity expansion to 0.45mtpa by FY10E, from 0.18mtpa, with associated captive power plant of 340MW. The plant has reached a capacity of 0.21mtpa. Land. Construction work is deemed 99% complete by the management.

Hirakud (Orissa). Phase II (43ktpa) of expansion of the company's aluminium smelter to 143ktpa was commissioned in August '08, which will be further expanded to 151ktpa by Aug '09 in a phased manner. Scaling of power generation capacity to 367.5MW from 267.5MW is already complete.

Belgaum (Karnataka) alumina delayed indefinitely. Allotment of the lease for bauxite mines for expanding alumina refinery capacity to 650ktpa from 350ktpa is still awaited, casting significant doubts on possible timeline of completion.

Greenfield expansions

Greenfield expansion projects embarked on are: i) Utkal Alumina ii) Aditya Aluminium iii) Jharkhand and iv) Mahan Aluminium.

Utkal Alumina. The project entails establishing bauxite mining and alumina refining capacity to 4.5mtpa (with plans to expand capacity further to 8.5mtpa) and 1.5mtpa respectively by Jan '11E. 93% of the total land has been acquired, the environmental clearance for which has been obtained and with equipment being ordered. About Rs6.7bn has already been spent and a commitment of Rs25.7bn has been made. The company has technology tie-ups with Alcan for the project.

Aditya Aluminium. The integrated aluminium project with 1-1.5mtpa refinery, 260-350ktpa smelter and 900MW captive power plant is expected to be complete by Q1FY12E. Land acquisition and environmental clearances are complete, with EPC contracts for power project already been placed. Hindalco has received in-principle

approval for SEZ status for 855ha at Sambalpur, with 115ha already notified. The company has technology tie-ups with Alcan for the project.

Mahan Aluminium. Hindalco plans to set up an aluminium smelter and captive power plant with capacities of 359ktpa and 900MW respectively by Q2FY13E. The company has already been allocated a coal block jointly with Essar which is expected to start production by FY10. Hindalco has technology tie-ups with Alcan and has received in-principle approval for an SEZ for the project.

Jharkhand Aluminium. Hindalco has also signed an MoU with the Government of Jharkhand for setting up another 0.359mtpa aluminium smelter and 900MW power plant with captive coal mines at Latehar. The company has been allocated the Tubed coal mine jointly with Tata Power. The project is expected to be commissioned by Q2FY14E.

Chart 12: Alumina capacity expansion schedule (till FY11E)

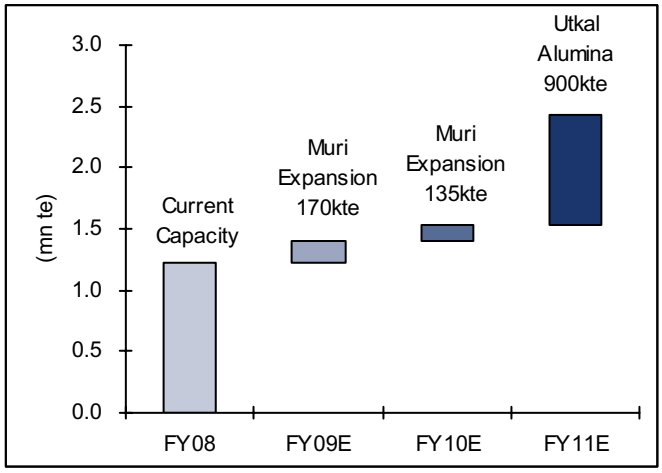
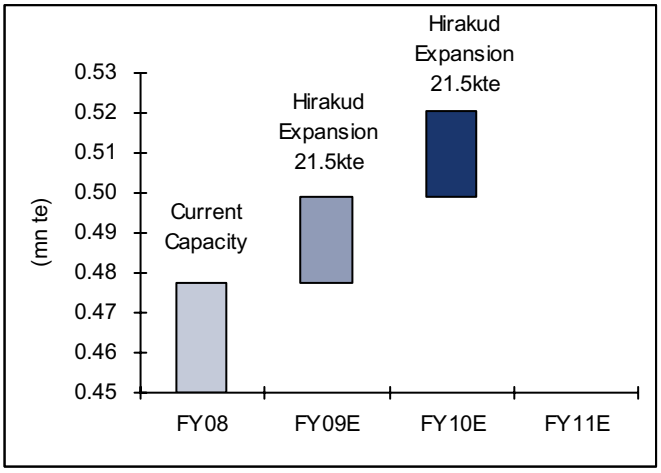


Chart 13: Aluminium capacity expansion schedule (till FY11E)

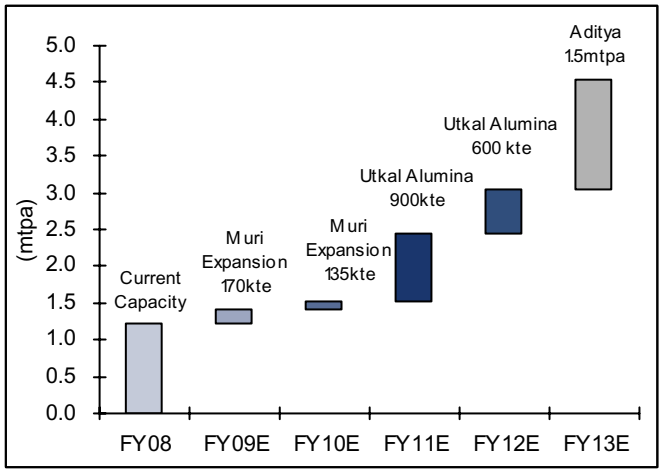


Source: Company data, I-Sec Research

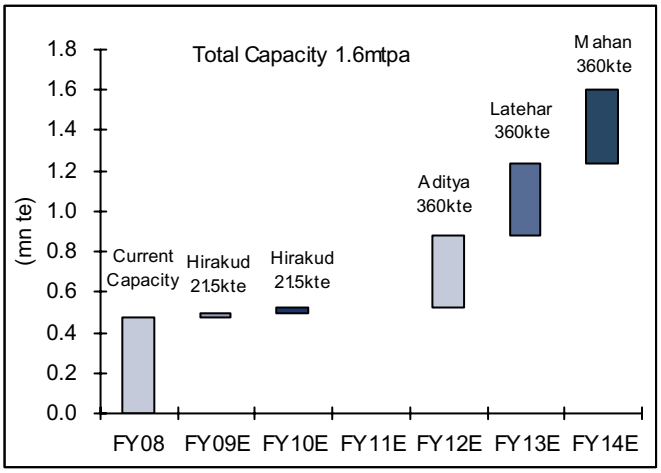
While alumina capacity will increase to 2.4mtpa & 4.5mtpa, aluminium capacity through brownfield expansion will expand to 0.52mtpa & 1.6mtpa by FY11E & FY14E respectively.

Chart 14: Expected capacity to come on-stream post FY11E

Alumina



Aluminium



Source: Company data, I-Sec Research

Investment schedule leading to increased leverage

Hindalco's proposed aluminium, alumina and power portfolio commands an estimated investment of ~Rs 294bn (Table 2).

Table 2: Investments in greenfield and brownfield projects

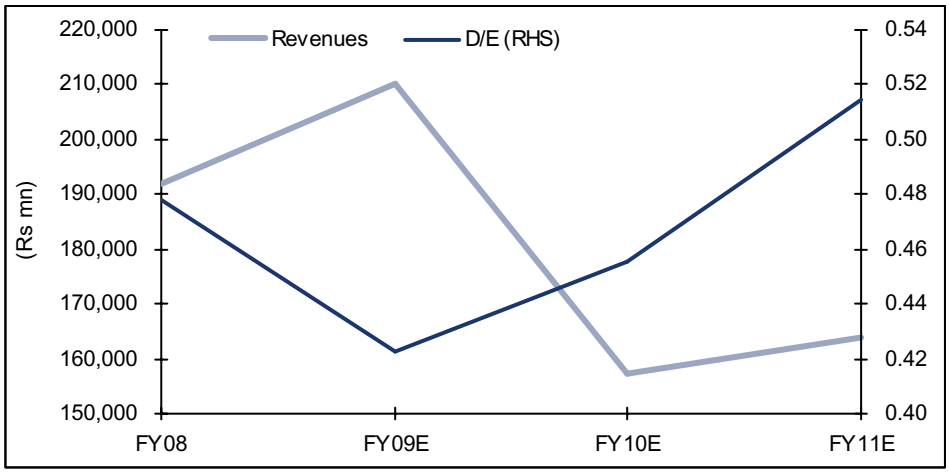
Greenfield	Total capex (Rs mn)
Utkal Alumina *1	
-Bauxite mining (4.2mnte)	
-Alumina (1.5mnte)	47,960
Aditya Aluminium	
-Bauxite mining (4.5mnte)	
-Alumina (1.5mnte)***2**	47,960
-Aluminium (0.36mnte)***3**	48,300
-Power (900MW)	31,500
Jharkhand	
-Aluminium (0.36mnte)	36,000
-Power (900MW)	31,500
Mahan	
-Aluminium (0.36mnte)	36,000
-Power (900MW)	31,500
Total	**310,720**
Amount already invested in FY08	**17,273**
Capex still to be incurred	**293,447**
Brownfield	**Total capex (Rs mn)**
Muri (Completed)	
-Alumina (0.34mnte)	7,960
Hirakud	
-Power (100MW) (Completed)	3,500
-Aluminium (0.043mnte) (Almost Completed)	6,880

*1 = Amount already invested in FY08 is Rs6,143mn
*2 = Amount already invested in FY08 is Rs6,140mn
*3 = Amount already invested in FY08 is Rs4,990mn
Note: We have not considered the second Alumina unit of 1.5mnte at Utkal
Source: Company data, I-Sec Research

While earnings from the capex will be back-ended, the increased expenditure will significantly leverage Hindalco's domestic operations even after accounting for cash generated from the rights issue.

Chart 15 shows the company's earnings decretion as against leverage gearing. Weakened Aluminium price outlook (combined with weak copper Tc/Rc outlook) leads to standalone Net Sales decline of 25% in FY10E, whereas D/E keeps on increasing.

Chart 15: Increasing leverage, with back-ended earnings



Source: Company data, I-Sec Research

Table 3: Domestic aluminium business – Key assumptions

Hindalco	FY07	FY08	FY09E	FY10E	FY11E
Alumina – Sales (te)	299,762	259,627	366,257	521,257	526,625
Aluminium – Sales (te)	441,355	473,118	498,226	505,726	518,369
Alumina – Realisations (US$/te)	542	565	483	400	420
Aluminium – Realisations (US$/te)	2,663	2,623	2,417	2,000	2,100
Revenues (Rs mn)	73,415	71,414	75,384	62,536	64,604
EBITDA (Rs mn)	31,871	29,194	35,794	22,986	23,901
Exchange rate	45.0	40.5	47.0	44.0	42.0

Source: Company data, I-Sec Research

Copper – Declining Tc/Rc mars custom-smelters story

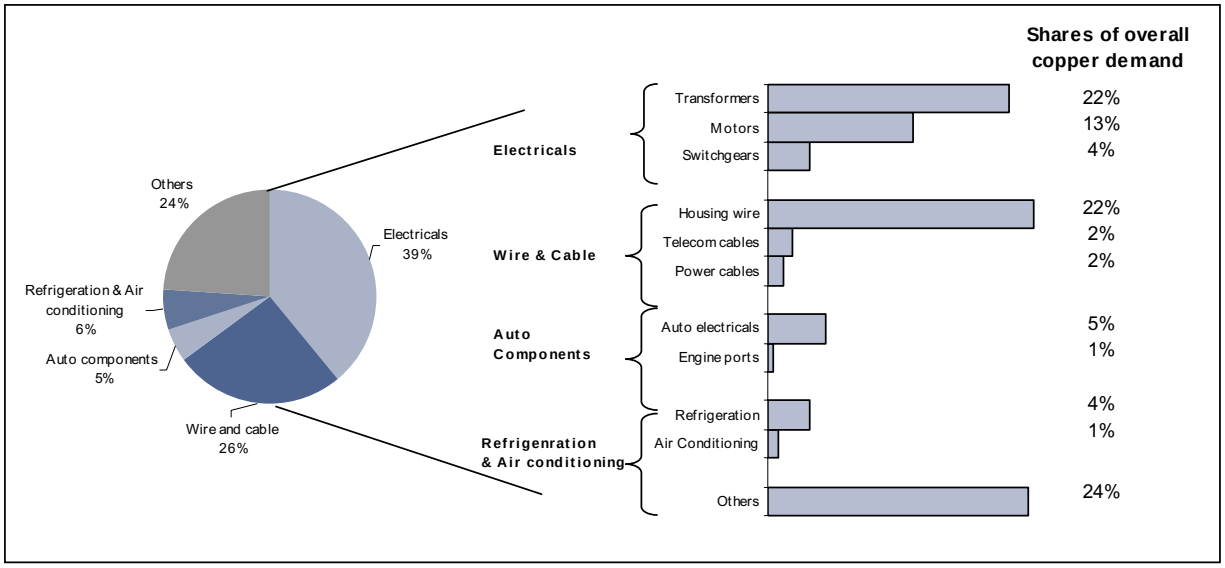
Hindalco's 0.5mtpa custom copper smelter is the world's largest facility. The company buys copper concentrate from miners and converts it into copper, for which it earns treatment and refining charges (Tc/Rc). It also runs a precious-metals refinery, producing gold and silver. Further, it produces di-ammonium phosphate (DAP) and sulphuric acid. The copper business accounted for 18.7% of Hindalco's standalone EBIDTA in FY08.

Though strong domestic demand…

In developed countries, building & construction contribute to over 40% of copper consumption; the contribution is much less in India, which is typical of emerging economies. Growth in copper consumption is largely infrastructure driven. Post soporific growth in copper consumption for several decades, when demand saw 3% CAGR from 1970-95, growth has been 13% on an average. This was despite 30% CAGR decline in demand from telecom cables over FY02-07 as copper cabling was substituted by optical fibre (this segment accounted for 21% of domestic copper demand in FY02 and a mere 2% in FY07).

Going forward, the Working Group on Power estimates 810kte of copper would be required for the 69GW addition in power capacity in the XIth Five Year Plan (FYP), with another 810kte to expand power capacity by 82GW. This also includes sharp increases in transmission capacity and the additional 78mn homes that are expected to get electrified. Even assuming a 70% target achievement, this would imply an incremental copper demand of 700,000te (16% of FY07 demand). Bulk of this investment, though, is expected to fructify from FY10E.

Chart 16: Segmental copper demand in India (%) – CY04-05

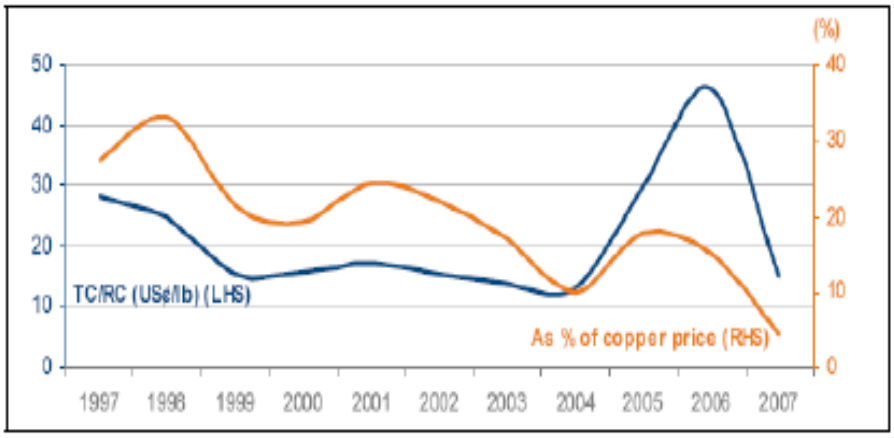


Source: Company data, I-Sec Research

…but marred by declining Tc/Rc

Copper Tc/Rc margins are largely dependant on the demand-supply scenario in the copper concentrate market. Tc/Rc margins rose in FY06 and FY07 on account of a surplus in the concentrate market; also, smelters earned price-participation from concentrate smelters. Tc/Rc margins were negotiated with a reference price of US¢90/lb, while smelters paid 10% of any rise above this price via price participation.

Chart 17: Tc/Rc movements



Source: Industry

Commissioning of new smelters in the Asian region and production losses at mines have led to deficit in the concentrate market. Furthermore, price participation clauses were removed post annual contract negotiations in FY08. We expect the concentrate market to remain in deficit over the next two years, keeping Tc/Rc margins under pressure. Hindalco procured 67% of its concentrate requirement from the contract market, 25% from the spot market and the rest from its mines in Tasmania in FY08. Going forward, the company plans to increase share of concentrate procurement on a long-term basis, given deficit in the market.

Chart 18: Copper Tc/Rc driven by concentrate balance

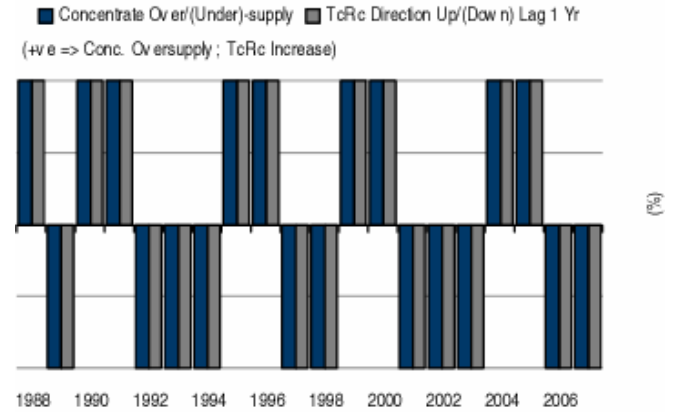
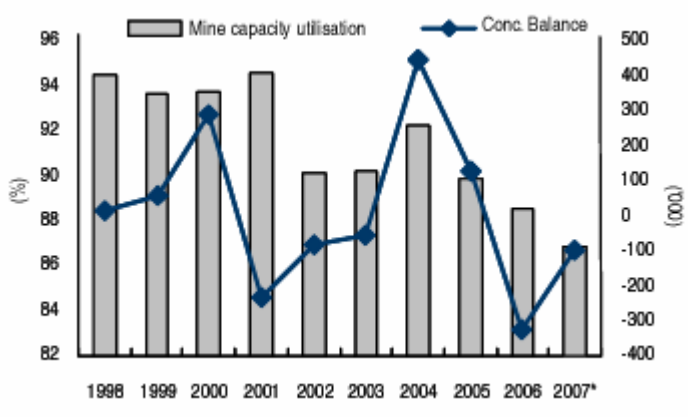


Chart 19: Mine utilisation falling, but concentrate in deficit



Source: Industry, I-Sec Research

This concentrate deficit is despite declining utilisation at the mines – news flow suggests much of the new capacity is in less developed/politically sensitive areas, leading to continuing disruptions in mining activity due to weather, infrastructure constraints and sometimes strikes by mine workers (e.g. BHP Billiton, Xstrata etc). We believe that copper is likely to remain in deficit until '10, even if global demand grows only 3.6% annual and longer if demand is stronger from emerging markets.

Thus, Hindalco will continue to suffer from lower outlook of copper Tc/Rc. In fact, Hindalco has been able to garner smelting contracts from BHP Billiton for FY09 at discounted Tc/Rc rates of US$45/te/US¢3.5/lb.

Table 4: Hindalco copper – Key assumptions and estimates

	FY07	FY08	FY09E	FY10E	FY11E
Sales (mnte)					
Cathode	181,093	181,641	225,000	225,000	225,000
CC Rods	109,700	138,543	155,000	175,000	190,000
Tc/Rc (¢/lb)	**22.0**	**18.0**	**14.0**	**16.0**	**18.0**
Revenues (Rs mn)	110,105	120,660	132,688	91,226	95,299
Operating profit (Rs mn)	7,516	6,730	6,007	6,350	7,218
Margins (%)	6.8	5.6	4.5	7.0	7.6

Source: Company data, I-Sec Research

Increased volumes in FY09 will boost topline, but operationally, we see no positive surprise from the division in the short term. With no further capacity expansion announced in Dahej, Hindalco is likely to be soon replaced by Sterlite as the leading domestic copper producer, with the latter eating into the company's 45% market share in India.

Aditya Birla Minerals – Declining copper prices takes its toll

Aditya Birla Minerals (ABML) is the 51% subsidiary of Hindalco, listed on the Australian Stock Exchange, owning two copper mines in Australia (Mount Gordon and Nifty). ABML witnessed a strong FY08, with topline registering 105% growth on the back of increased production from the Nifty sulphide mines and robust copper prices.

ABML's copper volumes increased 41% YoY in FY08. Going forward, we expect volumes to accrue, mainly due to: i) increased base of production from the Nifty sulphide mines, ii) new mining of the Esperanza South mine at Mt Gordon and iii) installation of a vent shaft and a haulage shaft at Mt Gordon to further increase capacity and decrease costs.

However declining copper prices (with our FY11E price assumption of US$4,000/te for FY10E), leads to EBITDA loss of Rs1,786mn for FY10E, with PAT at (Rs3,894)mn.

Table 5: ABML – Key assumptions & estimates

	FY07	FY08	FY09E	FY10E	FY11E
Volume (te)	58,416	82,385	73,100	80,000	87,150
Realisations (US$/te)	5,395	7,318	6,373	4,000	4,200
Revenues (AU$ mn)	323.6	664.2	582	457	523
EBITDA (AU$ mn)	28.4	215.6	89	(51)	(14)
PAT (AU$ mn)	**(0.74)**	**154.8**	**36.4**	**(110.6)**	**(85.6)**

Source: Company data, I-Sec Research

Segmental revenue and EBITDA analysis – Domestic operations

Table 6 indicates relative contribution of copper and aluminium to Hindalco's Indian operations. While aluminium contributes only 38% of consolidated topline, it contributes 81.3% of consolidated EBITDA, implying that the business is a high-margin one. Being a custom smelter and given the tight concentrate market, Hindalco is likely to always remain marginally inefficient in copper production. As a result, the company has witnessed increased management focus on the aluminium business, with investment of Rs294bn in the pipeline.

Table 6: Segmental breakup

(Rs mn)

	FY08	FY09E	FY10E	FY11E
Net revenues	**187,914**	**206,833**	**153,808**	**160,260**
Aluminium	71,414	75,384	62,536	64,604
Contribution (%)	*38.0*	*36.4*	*40.7*	*40.3*
Copper	116,500	131,449	91,272	95,656
Contribution (%)	*62.0*	*63.6*	*59.3*	*59.7*
EBITDA	**35,924**	**41,802**	**29,336**	**31,119**
Aluminium	29,194	35,794	22,986	23,901
Contribution (%)	81.3	85.6	78.4	76.8
Copper	6,730	6,007	6,350	7,218
Contribution (%)	18.7	14.4	21.6	23.2

Source: Company data, I-Sec Research

Sensitivity to alumina, aluminium and copper

Table 7 reflects the high sensitivity of Hindalco's EBITDA and PAT to aluminium price and volume changes versus alumina. This is owing to the high-margin nature of the alumina business and most of the alumina being converted to aluminium, with only 0.26mtpa alumina being sold outside. Thus, Hindalco is largely shielded from unfavourable alumina price movements and is long on aluminium. However, FY11E onwards, Hindalco will be relatively long on alumina, with Utkal Alumina coming to the fore; hence, the equation will be tilted towards alumina FY11E onwards.

Table 7: Sensitivity to aluminium & copper sales and realisations

Sensitivity of 5% Change on	Aluminium sales (units)	Aluminium price (US$/te)	Alumina sales (units)	Alumina price (US$/te)	Copper sales (units)	Copper price (US$/te)
FY10 EBITDA	1.4%	9.8%	1.4%	1.4%	1.1%	0.2%
FY10 PAT	0.6%	11.7%	1.7%	1.7%	1.3%	0.2%

Source: Company data, I-Sec Research

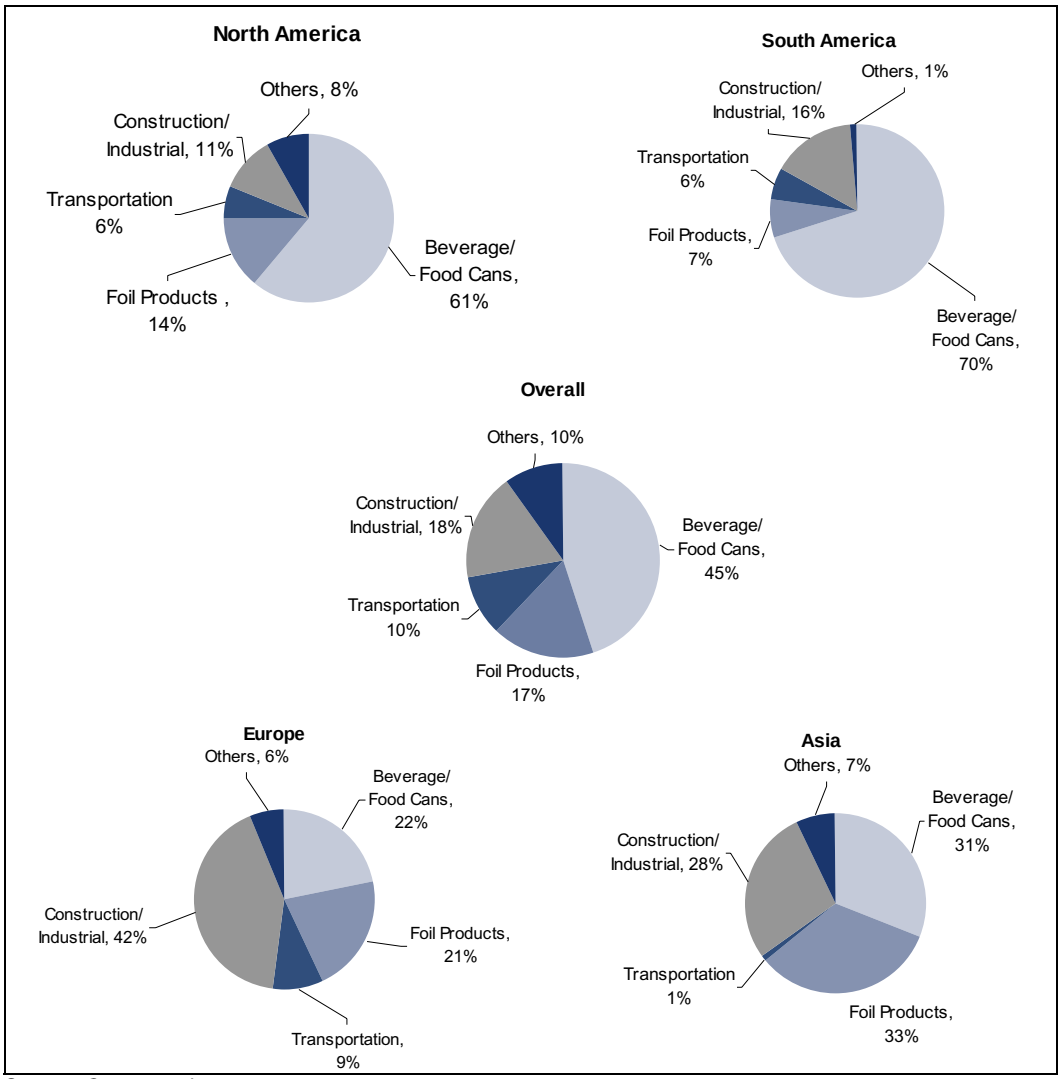
Novelis acquisition –margin pressures to continue

Novelis – Gobal leader in rolled & other value added products

Novelis is the world leader in aluminium rolling, with 33 manufacturing capacity spread across 11 countries, producing an estimated 19% of the world's flat-rolled aluminium product. High quality assets and technology helps Novelis produce quality aluminium sheets and foil products for its customers in high-value markets, including automotive, transportation, packaging, construction and printing.

The company is also a world leader in recycling of used aluminium beverage cans. It currently recycles more than 38-40bn used beverage cans annually, which is 80% of the cans recycled globally.

Chart 20: Global product portfolio of Novelis



Source: Company data

Novelis is the global leader in production of beverage/food cans and foil products and is second only to Alcoa in North America (a major market), as far as industrial/construction and transportation segments are concerned.

Being a converter helps mute metal price risks

Novelis being a converter of primary aluminium into rolled products earns its margins by charging its customers on the following basis:

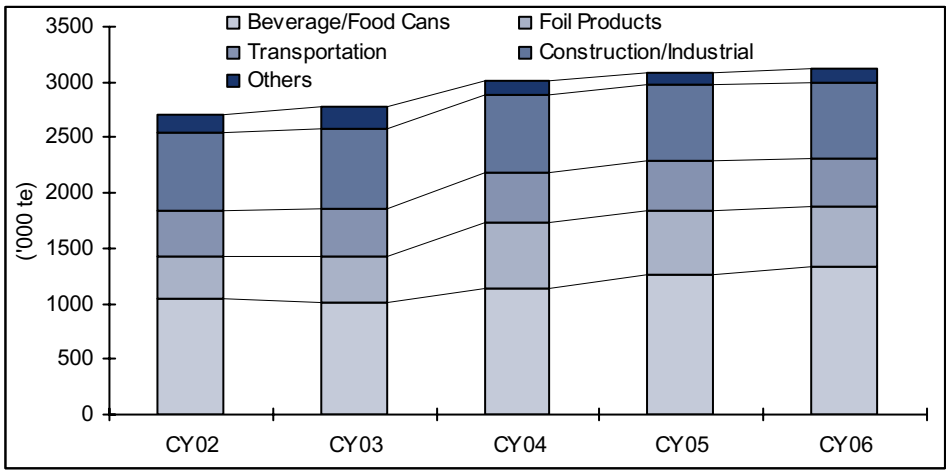
- Pass through aluminium price component based on LME prices and local market premia + margin over metal prices
- Conversion charge based on cost of rolling products and competitive market conditions
- Use of recycled aluminium, which provides sourcing flexibility and reduces volatility of input material, providing better margins to Novelis
- Tolling charges, where the company rolls customer-owned metal

As a result, the customer absorbs most of the raw material price risk, reducing volatility in profitability and cashflows for producers. Thereby, Novelis acts as an effective hedge to Hindalco from unfavourable aluminium price movements.

Market overview – Risks emanating from high exposure in industrial/construction segment

On one hand, significant exposure in cans does not exhibit earnings volatility due to business cycle fluctuations and, in the total product portfolio, significantly derisks Novelis business; on the other, material exposure (22% of total sales in FY08) in the construction & industrial segment (which is highly exposed to US and Europe slowdown) is likely to keep volumes under pressure.

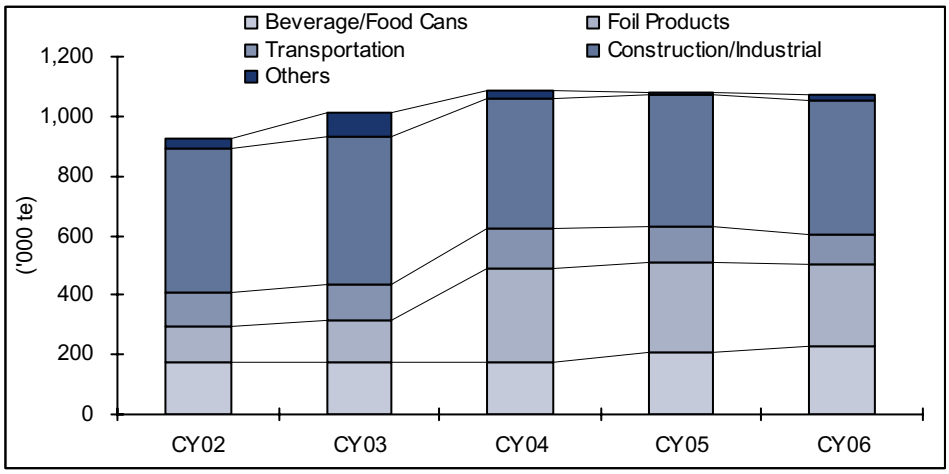
Chart 21: Exposure in industrial/construction remains high (Overall)



Source: Company data, I-Sec Research

In fact, construction/industrial segment forms the largest component of Novelis' product offering in Europe which will face considerable stress given the current market slowdown.

Chart 22: Novelis – Product portfolio (Europe)



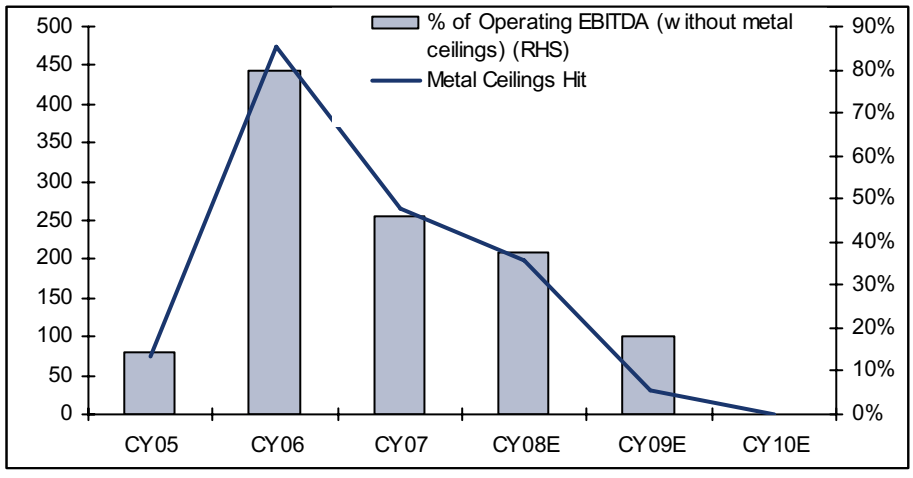
Source: Company data, I-Sec Research

Metal price ceilings dwindling

Post spin-off from Alcan, Novelis entered into a fixed-price ceilings contract with some of its can customers in North America to gain market share. Novelis management expected aluminium prices to decline; however, aluminium prices touched new highs on the LME. The management thus decided to form a liability reserve amounting to the current value of potential losses, to be accreted to the topline till the life of these contracts. Currently, the contracts contribute 8% of the company's total volume sales and ~40% of Novelis's EBITDA.

However, contract sales are declining and dipped to 10% of Novelis's volume sales in CY07 from 20% in CY06 and are expected to progressively reduce to 0% by CY10E. Thus, incrementally, till CY10E, we are likely to witness EBITDA accretion to the tune of US$78mn in Novelis.

Chart 23: Decreasing metal ceilings for Novelis

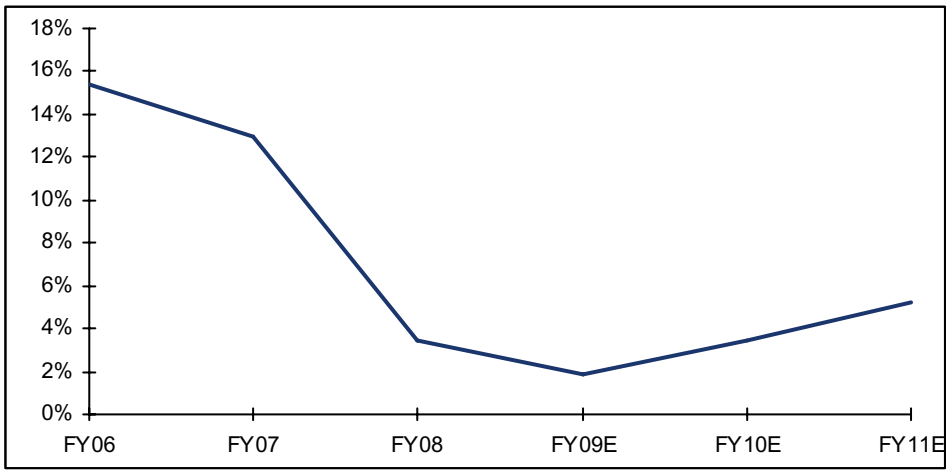


Source: I-Sec Research

Expensive acquisition

Hindalco paid US$6.1bn as EV for Novelis. Even at normalised EBITDA (adjusting for metal price ceilings contract), the acquisition price paid translates to FY10E EV/EBITDA of 13.1x. For a pure converter such as Novelis, the acquisition multiple paid by Hindalco looks expensive. For the like-to-like listed peer, Daiki Aluminium, FY10E EV/EBITDA stands at 7.2x, whereas integrated players such as Rio Tinto Alcan and Alcoa are garnering FY10E EV/EBITDA of 7.2x and 5.1x respectively. Chart 24 indicates no significant improvement in normalised RoIC, implying the fixed return nature of Novelis' business.

Chart 24: RoIC on normalised earnings (post adjusting for extraordinaries)



Source: I-Sec Research

Margin pressures to continue

We believe that Novelis's performance would improve only if conversion margins rise significantly, which seems difficult to achieve as:

- In the aluminium rolling business, Novelis competes with fully-integrated players such as Alcoa and Rio Tinto Alcan and non-integrated players such as Aleris and Kobe Steel. The integrated aluminium producers can work with lower conversion margins, as earnings from making aluminium compensate for lower conversion margins. Besides, surging power costs will increasingly impact the un-hedged energy cost component of metal manufacturing for Novelis.
- Beverage cans account for ~43% of total product shipments**.** Buyers of cans are highly consolidated, which means pure rolled product manufacturers are in a weak bargaining position.
- The company expects to produce 150kte of fusion technology-related products by FY11E, which is insignificant compared with expected 3.6mnte shipments for FY11E and would not add any substance to margins.

Thus, going forward, we do not expect EBITDA margin to improve significantly from normalised levels at present (~5%).

Cashflows implying high financial leverage – Leading to rights issue

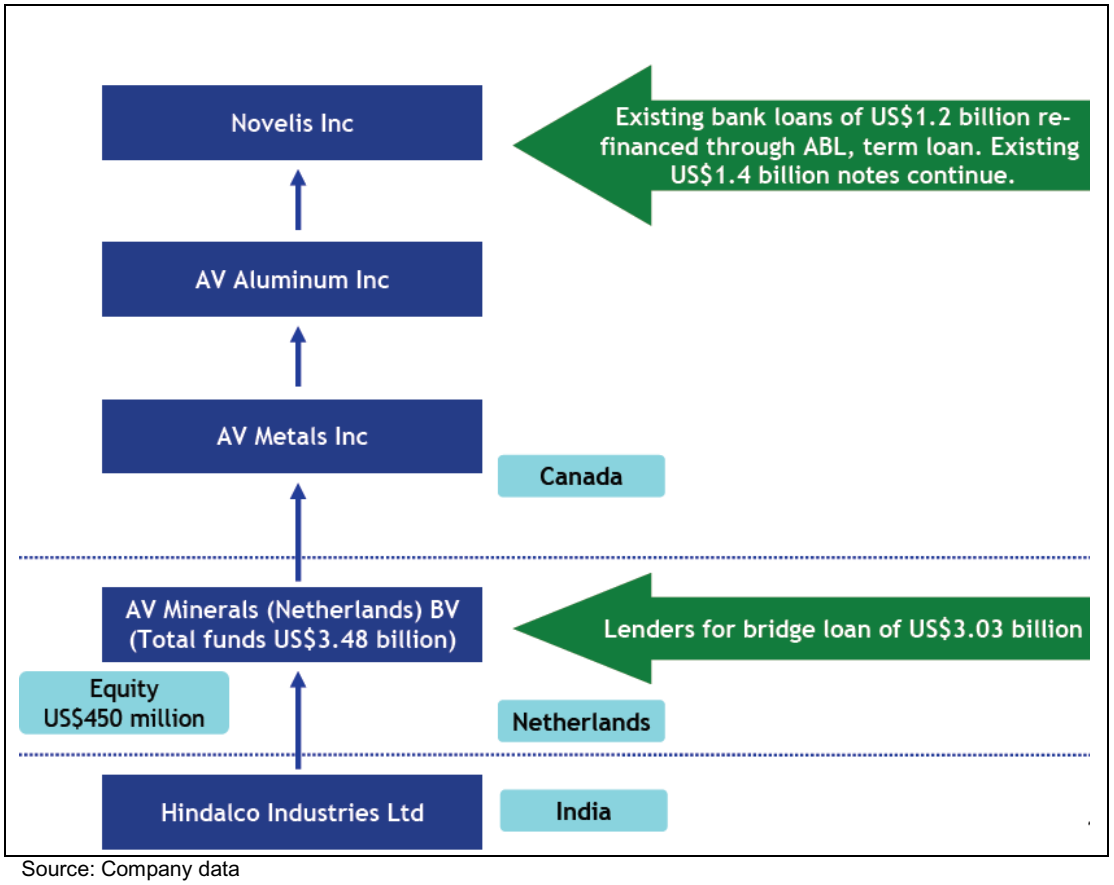
Hindalco acquired Novelis in May '07 at an EV of US$6.1bn or 10.2x its CY06 normalised EBIDTA. The acquisition was largely financed via debt, with Hindalco's direct equity exposure limited to US$450mn (through Hindalco's treasury). Table 8 shows the structure of the acquisition.

Table 8: Funding for Novelis acquisition

Source	US$ mn
Bank loans with recourse on Hindalco (taken by SPV, AV Minerals)	2,800
Essel Mining & Industries	300
Hindalco's treasury	450
Term loans (non-recourse) – Novelis' books	1,000
High yield loans (non-recourse) – Novelis' books	1,400
Total	5,950

Source: Company data, I-Sec Research

Chart 25: Structure for loans for Novelis acquisition



Source: Company data

We believe that Novelis's cashflow will be significantly dented, if Hindalco decides to pay off its SPV's (AV Minerals) debt (besides Novelis's own debt costs) through Novelis's cashflows. Table 9 indicates that the cashflow accretion from Novelis is marginal and will be pressurised by metal ceilings contracts till FY10E.

Table 9: Residual cashflows just enough to pay off debt

(US$ mn)

	FY08	FY09E	FY10E	FY11E
Underlying EBITDA	**578**	**480**	**424**	**466**
Interest costs for Novelis	204	241	231	297
Interest costs for AV Metals	217	147	103	54
Total interest costs due to acquisition	421	388	334	351
Residual cashflow	**157**	**92**	**90**	**115**

Source: I-Sec Research

Hence, though Novelis will contribute positively to the company's operational cashflows, generated cashflow will be insufficient to repay the debt from Novelis' or subsidiary's books, implying that the company will continue to face high financial leverage. Notable, this has induced Hindalco to issue highly dilutive rights in the ratio of 3:7 to raise capital worth Rs500bn for repaying bridge loans on AV Minerals' books.

Thus, going forward, we do not expect any significant value accretion from Novelis to Hindalco mainly on account of: i) expensive acquisition undertaken, ii) low-margin nature of Novelis' business and iii) insignificant cashflows to undertake repayment of debt in either subsidiary or Novelis's books. Exposure to volatile industrial/construction market is a downward risk to our estimates.

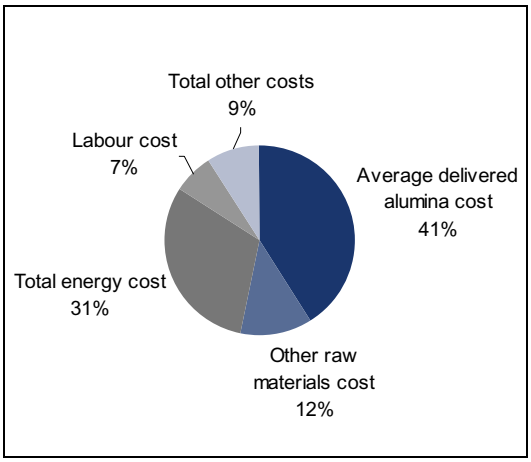
Key risks

Higher-than-expected increase in aluminium prices driven by ensuing power shortages in South Africa and China, mostly induced by shortage in non coking coal. Electricity Supply Commission (ESCOM; South African national power supplier) is reducing supply to power-intensive industries such as aluminium and ferro-chrome. ESCOM is considering buying back contracted power from industrial users. The aluminium industry will be heavily affected and the Bayside smelter (200ktpa capacity) will be partially curtailed.

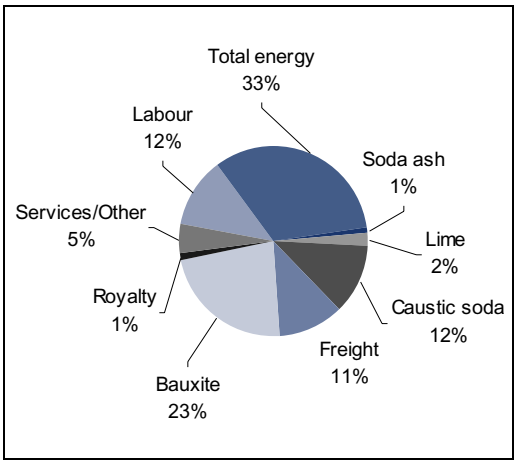
Rains in China and power cut in South Africa have reduced production by 1mnte aluminium in FY08. Global players such as Norsk Hydro's power costs have risen.

Chart 26: Aluminium and alumina costs – Breakup

Aluminium



Alumina



Source: Industry, I-Sec Research

Higher-than-expected increase in aluminium prices led by increased power costs and loss of production due to power shortage may result in greater-than-expected rise in aluminium prices.

Margin accretion in Novelis via rising value-add & differentiated sales

We believe that Novelis, being a converter and facing intense competition, will not be able to significantly gain margins. However, the company has had a break-through as regards technology in aluminium fusion (a new process that simultaneously casts multiple alloy layers into a single aluminium rolling ingot). This marks the commencement of any company achieving commercial production of multi-alloy aluminium ingots, which will eventually allow Novelis to realise better prices. Besides, value-added sales to auto OEMs (with who Novelis has tie-ups) such as Nissan and Toyota and differentiated offerings of fusion technology can boost margins in the auto component business. This is an upside risk to our earnings estimate for Novelis.

Valuations

The stock stays highly leveraged, with ~Rs326bn debt (higher than current market cap) in consolidated books by FY11E. Further, the highly dilutive rights issue (40% dilution) of Rs50bn to pay down bridge loans (AV Minerals) of ~US$3bn would act as an overhang. Also, further dilution cannot be ruled out going forward, given high debt profile and huge expansion capex.

Return ratios would deteriorate with RoE declining to 4.1% in FY10E from 12.2% in FY08.

We have also compared Hindalco to global aluminium peers, thereby assessing that the stock is trading at a significant premium to them, with FY10E P/E and EV/EBITDA at 10.2x and 7x respectively. Further, the below-average dividend yield, in an uncertain economic environment (due to an ongoing capital expansion), fails to provide any cashflow certainty to investors.

Table 10: Valuation ratios of peers

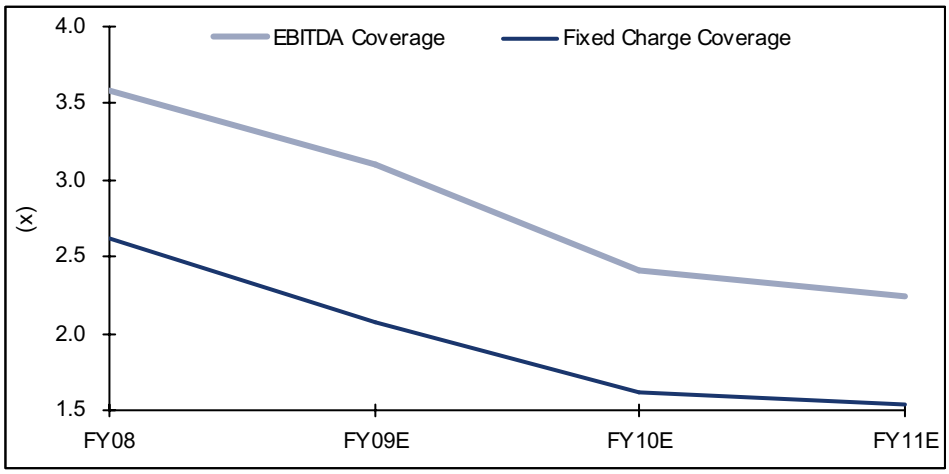
	Dividend (%)				EV/EBITDA (x)				P/E (x)			
	FY08	FY09E	FY10E	FY11E	FY08	FY09E	FY10E	FY11E	FY08	FY09E	FY10E	FY11E
Alcoa Inc	6.1	6.1	6.1	5.7	3.9	5.7	6.9	5.4	4.3	7.0	11.4	6.1
Norsk Hydro ASA	27.8	7.0	5.5	6.4	1.3	2.5	2.6	2.3	2.7	6.8	7.7	6.2
Rio Tinto plc	3.1	4.1	4.9	5.5	7.6	4.2	4.7	4.4	6.6	4.2	4.4	4.1
Aluminum Corp of China	8.0	2.5	2.2	3.1	6.3	12.3	11.6	8.5	3.5	9.8	10.0	8.8
Nippon Light Metal Co	4.5	3.1	3.2	3.2	6.1	6.4	5.8	5.4	4.8	-	8.8	6.4
Yunnan Aluminium Co-A	3.7	2.7	1.3	4.8	5.9	10.2	7.4	6.2	8.1	10.8	9.5	-
Jiaozuo Wanfang Aluminum-A	4.2	4.6	3.2	2.7	4.0	5.1	7.5	4.7	5.4	6.7	7.8	9.8
Alro Slatina	16.6	18.0	23.5	26.5	3.0	3.3	2.7	2.4	5.0	4.8	3.7	3.2
Hulamin	3.1	4.1	5.0	5.2	7.4	7.0	5.4	5.2	58.2	10.1	9.9	9.6
Century Aluminum Company	-	-	-	-	2.2	2.0	3.0	2.3	2.2	2.4	5.6	2.4
Hindalco	**2.3**	**3.3**	**2.5**	**2.1**	**4.5**	**5.2**	**7.0**	**7.1**	**5.3**	**6.1**	**10.3**	**9.6**
NALCO	4.3	3.4	3.4	3.4	3.3	3.4	4.8	4.0	6.8	6.4	9.8	9.2
Alumina	22.0	16.3	14.6	14.5	3.9	9.3	8.2	6.3	2.9	6.6	8.3	5.1
Global average	**8.1**	**5.8**	**5.8**	**6.4**	**4.6**	**5.9**	**6.0**	**5.0**	**8.9**	**6.8**	**8.2**	**6.7**

Source: I-Sec Research

High leverage to mar earnings outlook

Hindalco's expansion plan of Rs294bn to increase aluminium capacity to 1.6mtpa will increase leverage on its books to the tune of Rs326bn by FY11E, i.e. consolidated D/E of ~1.5x. Given the back-ended earnings, increased leverage will suppress valuations, as cashflow produced by Novelis will not be enough to pay off the leverage, as reflected in the EBITDA coverage and fixed charge coverage ratios that chart a declining trend.

Chart 27: Coverage ratios on persistent decline



Source: Company data, I-Sec Research

Rights issue of Rs50bn to further dilute earnings base

Hindalco has raised bridge loans of US$3bn (under AV Minerals) for financing the Novelis acquisition, which had to be refinanced by November 10, '08, for which the company has raised Rs50bn through rights issue at ~3:7. Based on fully-diluted equity of Rs1,307mn, this resulted in 526mn new shares (dilution of 40%), which would take total equity base to 1,752mn shares, thereby leading to fully-diluted FY11E EPS of Rs6.

The company also raised US$1bn five-year maturity foreign currency loans at LIBOR+315bps to repay the remaining bridge loans (with US$1bn to be provided by Hindalco's treasury).

SOTP valuation at Rs41/share

Increased cost pressures, back-ended earnings outlook, increased leverage, dilutive rights issue of Rs50bn, expensive Novelis acquisition not producing enough cashflows in the near future to pay debt, with no near-term upside triggers significantly dents short-term performance outlook. We expect FY10E EBITDA and EPS to decline 32% and 41% YoY versus consensus estimates of 9% and 6% respectively, with RoCE declining to 5.1% in FY10E (vis-à-vis cost of capital at 8.7%). Initiate coverage with SELL rating and SOTP target price of Rs41/share. At our target price, the stock trades at FY10E P/E and EV/EBITDA of 7.4x and 6.4x respectively.

Historical bands

Historically, the stock has traded at P/E and EV/EBITDA band of 8-20x and 4-8x respectively.

Chart 28: P/E

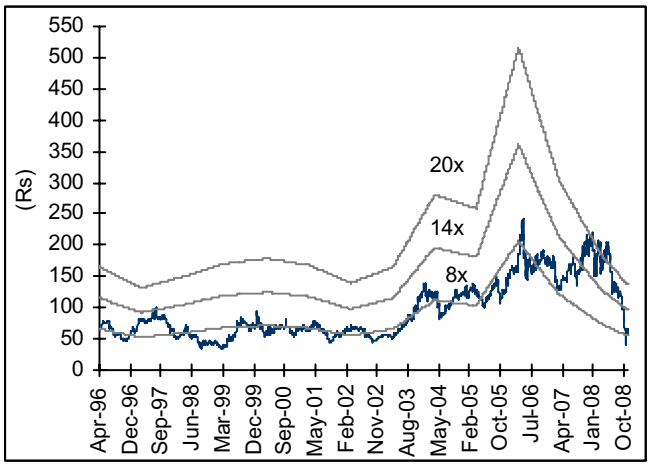
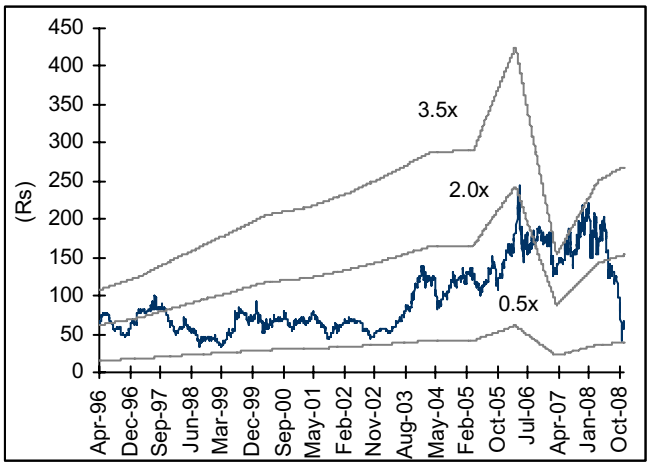
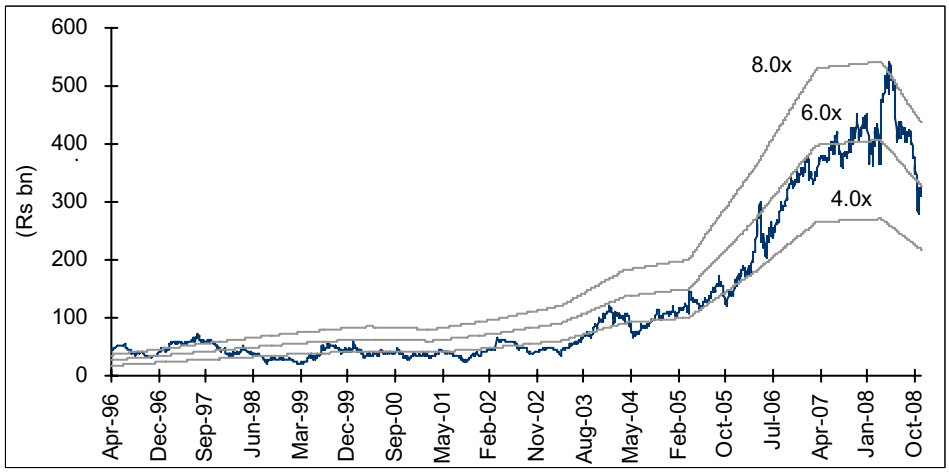


Chart 29: P/BV



Source: Company data, I-Sec Research

Chart 30: EV/EBITDA



Source: I-Sec Research

Financials – Consolidated

Table 11: Earnings statement

(Rs mn, year ending March 31)

	FY07	FY08	FY09E	FY10E	FY11E
Gross Sales					
Less: Excise Duty					
Net Sales	**190,589**	**596,963**	**756,926**	**551,756**	**565,116**
Other Operating Income	2,572	3,165	3,226	3,372	3,541
Total Operating Income	**193,161**	**600,128**	**760,153**	**555,128**	**568,656**
Less:					
Raw materials consumed	117,729	418,698	569,148	412,459	419,355
Other manufacturing Expenses	1,445	6,887	9,362	6,784	6,898
Personnel cost	5,716	43,415	59,015	42,768	43,483
Selling and Admin Expenses	9,882	35,068	24,078	19,709	19,469
Total Operating Expenses	**148,855**	**533,778**	**703,969**	**512,423**	**520,422**
EBITDA	**44,306**	**66,351**	**58,439**	**44,817**	**50,251**
EBITDA (Adjusted for Metal price ceilings)	**44,306**	**66,351**	**67,731**	**46,219**	**50,251**
Depreciation & Amortisation	8,646	24,565	28,911	23,455	24,045
Other Income	4,091	6,560	6,530	8,142	8,258
EBIT	**39,751**	**48,346**	**45,351**	**30,907**	**34,463**
Less: Gross Interest	3,135	18,491	21,874	19,151	22,404
Recurring Pre-tax Income	**36,616**	**29,855**	**23,476**	**11,755**	**12,059**
Add: Extraordinary Income	(1,502)	5,407	-	-	-
Less: Extraordinary Expenses					
Less: Taxation	9,586	9,098	6,419	3,157	2,403
--Current Tax	9,586	9,098	6,419	3,157	2,403
Net Income (Reported)	**25,528**	**26,164**	**17,057**	**8,598**	**9,655**
Recurring Net Income	**27,030**	**20,757**	**17,057**	**8,598**	**9,655**
Less: Minority Interest	**161**	**2,206**	**949**	**(984)**	**(627)**
Add:- Equity In the interest in Associates	**(12)**	**(159)**	**(159)**	**(159)**	**(159)**
Recurring Net Income (After Minority interest and share of associates)	**26,881**	**18,709**	**16,267**	**9,741**	**10,441**
Dividend	2,022	2,285	3,329	2,453	2,103
Dividend Tax		392	571	420	360
Dividend plus Tax	2,022	2,676	3,900	2,874	2,463

Source: Company data, I-Sec Research

Table 12: Consolidated balance sheet

(Rs mn, year ending March 31)

	FY07	FY08	FY09E	FY10E	FY11E
ASSETS					
Current Assets, Loans & Advances					
Cash & Bank balance	10,345	17,169	34,522	47,112	42,100
Inventory	48,123	111,109	119,019	94,412	96,432
Sundry Debtors	15,485	67,174	85,923	62,262	63,635
Loans and Advances	12,732	19,291	24,885	18,140	18,579
Other Current Assets	-	-	19,881	18,612	17,766
Total Current Assets	**86,685**	**214,742**	**284,230**	**240,538**	**238,512**
Current Liabilities & Provisions	**44,110**	**172,037**	**169,198**	**141,019**	**137,035**
Current Liabilities					
Sundry Creditors					
Other Current Liabilities					
Total Current Liabilities and Provisions	**44,110**	**172,037**	**169,198**	**141,019**	**137,035**
Net Current Assets	**42,575**	**42,706**	**115,032**	**99,519**	**101,478**
Investments	**78,741**	**107,924**	**85,984**	**51,054**	**25,677**
Strategic & Group Investments	86	5,744	5,744	5,744	5,744
Other Marketable Investments	78655	102180	80240	45310	19933
Equity	78,655	102,180	80,240	45,310	19,933
Debt					
Total Investments	**78,741**	**107,924**	**85,984**	**51,054**	**25,677**
Goodwill	**1,594**	**88,329**	**87,608**	**82,016**	**78,288**
Goodwill on Acquisition	**-**	**30,998**	**20,558**	**17,858**	**13,018**
Fixed Assets					
Gross Block	141,115	341,870	353,539	362,370	414,139
Less Accumulated Depreciation	50,346	73,733	102,644	126,099	150,144
Net Block	90,769	268,137	250,895	236,270	263,995
Add: Capital Work in Progress	19,169	24,571	54,559	122,531	148,925
Less: Revaluation Reserve					
Total Fixed Assets	**109,939**	**292,708**	**305,454**	**358,801**	**412,921**
Total Assets	**232,849**	**562,664**	**614,635**	**609,248**	**631,382**
LIABILITIES AND SHAREHOLDERS' EQUITY					
Borrowings					
Long Term Debt	84,429	323,524	323,408	314,171	326,222
Total Borrowings	**84,429**	**323,524**	**323,408**	**314,171**	**326,222**
Deferred Tax Liability	**11,716**	**49,514**	**40,568**	**38,823**	**37,660**
Share Capital					
Paid up Equity Share Capital	1043	1226	1752	1752	1752
No. of Shares outstanding (mn)	*1,043*	*1,226*	*1,752*	*1,752*	*1,752*
Face Value per share (Rs)	1	1	1	1	1
Minority Interest	8,567	16,166	17,114	16,130	15,503
Reserves & Surplus	**127,094**	**172,235**	**231,794**	**238,372**	**250,245**
Share Premium	21,631	44,507	92,016	92,044	92,044
General & Other Reserve	105,463	127,727	139,777	146,327	158,200
Net Worth	**128,138**	**173,461**	**233,546**	**240,124**	**251,997**
Total Liabilities & Shareholders' Equity	**232,849**	**562,664**	**614,636**	**609,248**	**631,382**

Source: Company data, I-Sec Research

Table 13: Cashflow statement

(Rs mn, year ending March 31)

	FY07	FY08	FY09E	FY10E	FY11E
Cash Flow from Operating Activities					
Reported Net Income	26,881	18,709	16,267	9,741	10,441
Add:					
Depreciation & Amortisation	13,991	23,388	28,911	23,455	24,045
Provisions	0	0	0	0	0
Deferred Taxes	0	0	0	0	0
Less:					
Other Income	4,091	6,560	6,530	8,142	8,258
Net Extra-ordinary income	(1,502)	5,407	0	0	0
Operating Cash Flow before Working Capital change (a)	**38,283**	**30,130**	**38,648**	**25,053**	**26,229**
Changes in Working Capital					
(Increase) / Decrease in Inventories	(7,172)	(62,985)	(7,911)	24,608	(2,021)
(Increase) / Decrease in Sundry Debtors	(3,001)	(51,689)	(18,749)	23,661	(1,373)
(Increase) / Decrease in Operational Loans & Adv.	(4,760)	(6,559)	(5,594)	6,745	(439)
(Increase) / Decrease in Other Current Assets	0	0	(19,881)	1,269	846
Increase / (Decrease) in Sundry Creditors	0	0	0	0	0
Increase / (Decrease) in Other Current Liabilities	0	0	0	0	0
Working Capital Inflow / (Outflow) (b)	**(14,933)**	**(121,233)**	**(52,135)**	**56,283**	**(2,987)**
Net Cash flow from Operating Activities (a) + (b)	**23,350**	**(91,103)**	**(13,487)**	**81,336**	**23,242**
as a % of Operating Cash Flow					
Cash Flow from Capital commitments					
Purchase of Fixed Assets	(47,773)	(206,157)	(41,657)	(76,803)	(78,164)
Purchase of Investments	24,712	90,105	10,061	(22,014)	3,170
Consideration paid for acquisition of undertaking					
Cash Inflow/(outflow) from capital commitments (c)	(23,061)	(116,052)	(31,596)	(98,817)	(74,994)
Free Cash flow after capital commitments (a) + (b) + (c)	**290**	**(207,155)**	**(45,083)**	**(17,481)**	**(51,752)**
Cash Flow from Investing Activities					
Purchase of Marketable Investments	**(39,028)**	**(29,183)**	**21,940**	**34,930**	**25,377**
(Increase) / Decrease in Other Loans & Advances	0	0	0	0	0
Other Income	4,091	6,560	6,530	8,142	8,258
Net Cash flow from Investing Activities (d)	**(34,938)**	**(22,623)**	**28,471**	**43,072**	**33,635**
Cash Flow from Financing Activities					
Issue of Share Capital during the year	0	183	526	0	0
Proceeds from fresh borrowings	35,395	239,095	(116)	(9,237)	12,051
Buyback of Shares		0	0	0	0
Dividend paid including tax	(2,022)	(2,676)	(3,900)	(2,874)	(2,463)
Others			37,456	(891)	3,518
Net Cash flow from Financing Activities (e)	**33,373**	**236,602**	**33,965**	**(13,002)**	**13,106**
Total Increase / (Decrease) in Cash (a) + (b) + (c) + (d)+ (e)	**(1,275)**	**6,824**	**17,353**	**12,590**	**(5,012)**
Opening Cash and Bank balance	**11,620**	**10,345**	**17,169**	**34,522**	**47,112**
Closing Cash and Bank balance	**10,345**	**17,169**	**34,522**	**47,112**	**42,100**
Increase/(Decrease) in Cash and Bank balance	(1,276)	6,824	17,353	12,590	(5,012)

Source: Company data, I-Sec Research

Table 14: Key ratios

(Rs mn, year ending March 31)

	FY07	FY08	FY09E	FY10E	FY11E
Per Share Data (Rs)					
EPS(Basic Recurring)	14.5	13.8	9.3	5.6	6.0
Diluted Recurring EPS	15.3	10.7	9.3	5.6	6.0
Recurring Cash EPS	20.3	24.7	25.8	18.9	19.7
Dividend per share (DPS)	1.2	1.3	1.9	1.4	1.2
Book Value per share (BV)	73.1	99.0	133.3	137.1	143.8
Growth Ratios (%)					
Operating Income	71.0	210.7	26.7	(27.0)	2.4
EBITDA	77.1	49.8	(11.9)	(23.3)	12.1
Recurring Net Income	80.0	(23.2)	(17.8)	(49.6)	12.3
Diluted Recurring EPS	(88.1)	(30.4)	(13.1)	(40.1)	7.2
Diluted Recurring CEPS	(88.3)	21.8	4.4	(26.5)	3.9
Valuation Ratios (x)					
P/E	3.7	5.3	6.1	10.3	9.6
P/CEPS	2.8	2.3	2.2	3.0	2.9
P/BV	0.8	0.6	0.4	0.4	0.4
EV / EBITDA	2.1	4.5	5.2	7.0	7.1
EV / Operating Income	0.5	0.5	0.4	0.6	0.6
EV / Operating FCF	2.5	9.9	7.8	12.6	13.7
Operating Ratio (%)					
Raw Material/Sales	34.5	19.7	55.3	103.2	73.0
SG&A/Sales	2.3	1.7	4.6	4.4	3.5
Other Income / PBT	11.2	22.0	27.8	69.3	68.5
Effective Tax Rate	27.3	25.8	27.3	26.9	19.9
NWC / Total Assets	13.8	4.5	13.1	8.6	9.4
Inventory Turnover (days)	121.7	58.9	63.0	80.2	70.5
Receivables (days)	26.8	25.3	36.9	49.0	40.7
Payables (days)	38.7	25.9	56.0	121.5	108.8
D/E Ratio (x)	0.8	2.2	1.6	1.5	1.4
Return/Profitability Ratio (%)					
Recurring Net Income Margins	13.7	3.4	2.2	1.5	1.7
RoCE	20.4	12.2	7.7	5.1	5.6
RoNW	13.7	10.4	5.8	4.1	5.6
Dividend Payout Ratio	7.5	12.2	20.5	25.2	20.1
Dividend Yield	2.0	2.3	3.3	2.5	2.1
EBITDA Margins	22.9	11.1	7.7	8.1	8.8

Source: Company data, I-Sec Research

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Charts

Equity Research

November 17, 2008

BSE Sensex: 9385

INDIA

National Aluminium Company

HOLD

Strained by weak price outlook

Rs176

Reason for report: Re-initiating coverage

National Aluminium Company (NALCO) is India's largest alumina exporter with 1.6mnte alumina and 0.35mnte aluminium capacity and captive bauxite mines & power plants ensuring low operation cost globally. However, with staggered brownfield expansion, focus on low-end product mix & increasing spot exposure in alumina, NALCO has transposed to a pure price leverage story. Increased dependence on imported coal (to eventually reduce with increased captive coal mining) and margin headwinds induced by increased employee costs (Sixth Pay Commission) will pressurise near-term margins. We believe CMP of Rs176/share, down 68% from its peak (with one-year forward rolling P/E & EV/EBITDA at 3% & 11% discount respectively to past 10 years' average multiples), with current cash in books constituting 31.2% of market cap fairly discounts weak aluminium price outlook and is inline with global peers, given short-term margin pressures. Re-initiate coverage on NALCO with HOLD and price target of Rs180/share.

- **Increasingly price leveraged…**Brownfield expansions (phase II) announced by NALCO have now staggered to FY11E. NALCO has retained focus on low-end products such as ingots & alumina (despite 50,000te rolling plant capacity), with no shift in product mix in the near future. With increased spot exposure in alumina sales (from 20% in FY05 to 40% in FY08) and softening of aluminium price cycle, leverage to alumina & aluminium prices has increased. New expansions of domestic refineries in Andhra Pradesh and smelters in Iran & Indonesia have made insignificant progress to imply short-term earnings upside.
- **…however, retains lowest-cost producer status.** NALCO is one of the lowest cost producers of alumina & aluminium globally, equipped with captive bauxite mines (~210mnte) and power facilities (960MW). Current cost of power is ~Rs1.4/Kwh due to expensive imports substituting disruption in linkage coal supplied by Coal India (CIL). However, we believe this to be temporary. Thermal coal prices have corrected ~51% from the peak and captive coal mining (70mnte reserves) is expected to commence in FY10E with benefits accruing FY11E onwards. With extensive backward linkage, cash cost of aluminium production stands at US$1,650/te.
- **Fairly valued for now.** At CMP of Rs176/share, the stock trades at FY10E EV/EBITDA of 4.8x v/s 6x global average, justified by NALCO's increased price leverage & no near-term volume accretion. NALCO's balance sheet remains strong, with Rs35bn cash and CMP discounting the weak price outlook and 34% FY10E EPS de-growth. Re-initiate NALCO with HOLD and target price of Rs180/share.

Market Cap	Rs113.3bn/US$2.3bn
Reuters/Bloomberg	NALU.BO/NACL IN
Shares Outstanding (mn)	644
52-week Range (Rs)	566/108
Free Float (%)	12.8
FII (%)	4.1
Daily Volume (US$'000)	5,190
Absolute Return 3m (%)	(55.1)
Absolute Return 12m (%)	(58.2)
Sensex Return 3m (%)	(35.9)
Sensex Return 12m (%)	(52.6)

Year to March	FY08	FY09E	FY10E	FY11E
Revenue (Rs mn)	51,342	55,641	46,489	49,712
Net Income (Rs mn)	16,569	17,610	11,601	12,374
EPS (Rs)	25.7	27.3	18.0	19.2
% Chg YoY	(30.6)	6.3	(34.1)	6.7
P/E (x)	6.8	6.4	9.7	9.1
CEPS (Rs)	30.1	31.7	23.2	25.6
EV/E (x)	3.3	3.4	4.8	4.0
Dividend Yield	4.3	3.4	3.4	3.4
RoCE (%)	28.0	26.1	15.7	15.6
RoE (%)	20.2	18.5	7.8	8.7

Please refer to important disclosures at the end of this report

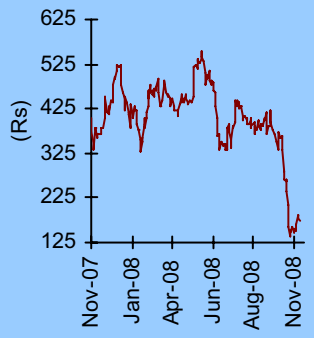
Metals

Shareholding pattern

	Mar '08	Jun '08	Sep '08
Promoters	87.2	87.2	87.2
Institutional investors	9.5	9.4	9.3
MFs and UTI	0.3	0.2	0.2
Insurance Cos.	4.4	4.4	4.3
FIIs	4.1	4.0	4.1
Others	3.4	3.4	3.5

Source: BSE

Price chart



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Increasingly price leveraged…

The full effect of brownfield expansion (phase II) announced by NALCO (previously scheduled to be completed by December '08) will be staggered to FY11E. Also, new expansions of domestic refineries (in Andhra Pradesh) and smelters in Iran and Indonesia have not made significant progress to lead to short-term earnings upside. Further, NALCO has retained its focus on low-end products such as ingots and alumina (despite 50,000te rolling plant capacity), with no shift in product mix in the near future. With increased spot exposure in alumina sales (from 20% in FY05 to 40% in FY08) and softening of aluminium price cycle, leverage to alumina and aluminium prices has increased.

No significant short-term EPS accretion from expansion

At present, NALCO is in the process of executing its previously announced brownfield expansion through an investment of Rs50bn, which will ramp-up the existing aluminium smelting capacity from 0.36mnte to 0.48mnte and will be entirely funded through internal accruals. The expansion will also encompass corresponding increase in alumina refining, bauxite mining and power generation and become operational by December '08 (Table 1). We estimate brownfield expansion to ramp-up by FY11E.

Table 1: Expansions in the offing

(mtpa)

Project segment	Present capacity	Capacity post expansion - phase II	Phase III expansion
Bauxite Mine	4.8	6.3	6.85
Alumina Refinery	1.6	2.1	2.275
Aluminium Smelter	0.34	0.46	-
Captive Power Plant (MW)	960	1,200	-

Source: Company data

Also, greenfield projects are not expected over the next three years as these projects are in the initial stages and have 3-4 years of gestation period (Table 2).

Table 2: Greenfield expansions in planning stage

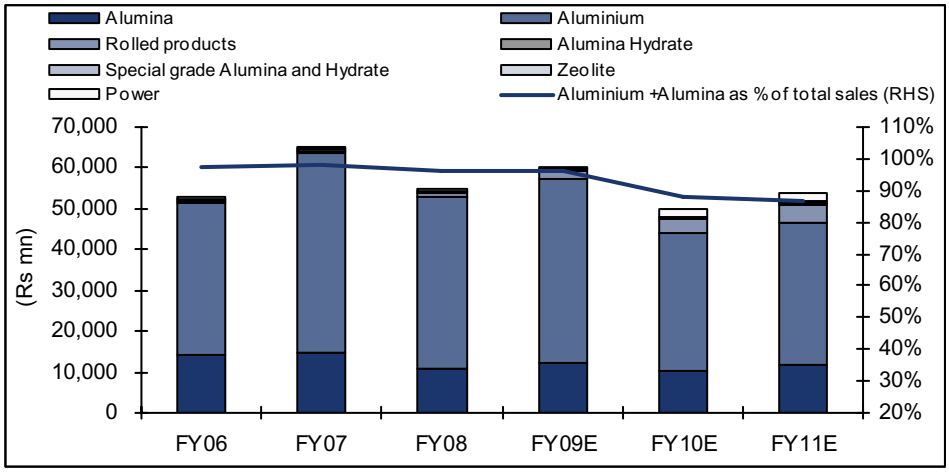
Projects	Location	Details	Status
Aluminium park	Orissa	JV with Industrial Infrastructure Development Corporation (IDCO). The park will facilitate setting up of ancillary industries at Angul	MoU expected to be signed over the next three months
Aluminium wagon	Orissa	JV with BEML. To manufacture aluminium rail wagons	NALCO to provide extrusions after third-party conversion of its billets and ingots
Cement	Angul	EoI was invited to set up a cement plant out of fly ash of Angul power plant. The project will involve investment of Rs3bn	Offers of Shree Cement and Cement Manufacturing Company have been short listed for JV. Bidders need mining lease for limestone in Orissa and have submitted applications
Wind power	Damanjodi, Orissa	To set up a 50MW wind farm at Damanjodi	Wind data is currently being collected at Damanjodi
CT Pitch	Orissa	NALCO is interested to set up a liquid CT Pitch of 25,000-50,000mtpa capacity through a JV	NALCO's equity participation could be between 26% and 40%. Currently in discussion with Neelachal Ispat Nigam (NINL)
Alumina Refinery (0.5mnte)	Andhra Pradesh	NALCO is in discussions with the state government for coal linkages.	Bauxite mine of ~80mnte allocated. Coal mining permissions are awaited. The project will take 3-4 years to be commissioned
Smelter (0.5mtpa)	Indonesia	NALCO signed an MoU with the Government of Indonesia to set up a 0.5mtpa smelter and a 1,250MW captive power plant. The company plans to invest ~Rs140bn in the greenfield project, for which Tanjung Enim and Tanjung Api-Api are the probable sites. The consultants have favoured Tanjung Api-Api based its their preliminary site-survey and studies	Feasibility report is being prepared
Smelter	South Africa	To set up smelter and power plant in South Africa. Planned investment of Rs160bn	MoU signed with South African Government for JV
Smelter	Iran	JV with ALPHA. To set up 0.31mnte smelter in two phases, with project costs of Rs80mn	JV with ALPHA, wherein Kerman Development Organisation is the major partner. MoU was signed in March '08

Source: Company data

Low-end value mix with increased spot sales mix

NALCO has retained its focus on low-end products such as ingots and alumina (despite having 50,000te rolling plant capacity), with no significant shift in the product mix in the near future. Also, with high proportion of total sales (~92%) being contributed by alumina and aluminium, the profitability will be highly affected by declining metal price environment.

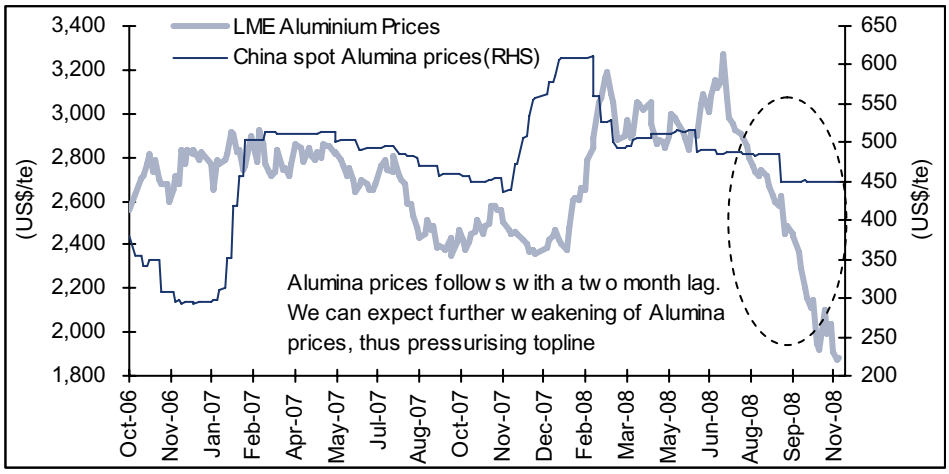
Chart 1: Alumina and primary aluminium sales constitute major part of revenue



Source: Company data, I-Sec Research

Also, NALCO's sales mix with excess alumina has changed considerably in the past three years. Prior to '05, NALCO used to sell 80% of its surplus alumina through three-year long-term contracts, wherein prices moved within a stipulated band linked to a percentage of LME aluminium prices (upper end of the band at 14.5%). To capture the benefit of any sharp spurt in the spot market, NALCO subsequently reduced the ratio of the three-year contracts to 33% and sold the remaining equally in the spot market and on one-year contract basis. As this raised concerns on lower proportion of contract sales in a falling alumina price scenario, the management has once again changed the sales mix in favour of long-term contracts, albeit of one-year duration. However, shorter contract tenure and higher proportion of cash sales are key risks in a falling commodity price scenario.

Chart 2: Aluminium and alumina prices



Source: Bloomberg, I-Sec Research

Table 3: Sensitivity – NALCO's EPS highly leveraged to alumina and thereby aluminium prices

FY10E (Rs/share)		LME aluminium prices (US$/te)				
		1,800	1,900	2,000	2,100	2,200
Alumina realisations (% of aluminium price)	11%	11.5	13.9	16.3	18.7	21.1
	12%	12.3	14.7	17.2	19.6	22.1
	13%	13.0	15.5	18.0	20.5	23.0
	14%	13.8	16.3	18.8	21.4	23.9
	15%	14.5	17.1	19.7	22.2	24.8

Source: I-Sec Research

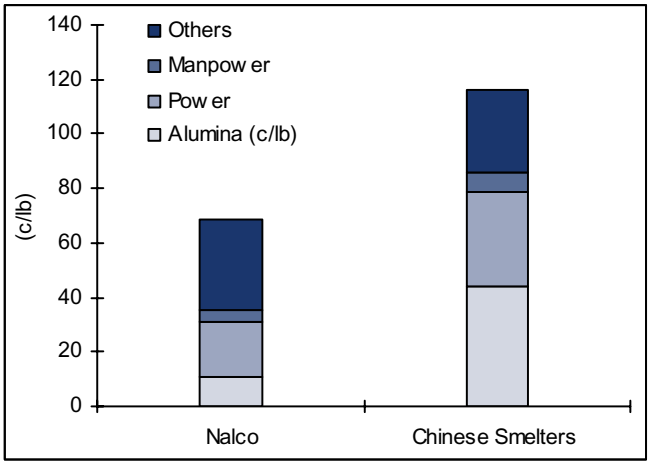
NALCO – To remain cost competitive globally

Disruption in linkage coal supplied by CIL is a key concern. Recently, the company has imported thermal coal at ~US$150-160/te to bridge the shortfall, which is expected to reach ~0.7mnte in FY09E. This would increase the cost of power production (excluding fuel) 74% YoY to Rs1.46/kwh by FY10E. Also, increase in staff costs through the Sixth Pay Commission (which demands settling of 40% arrears from January '06 in FY09E and the rest in FY10) will increase overall employee expenses 14% in FY09E.

Globally cost competitive…

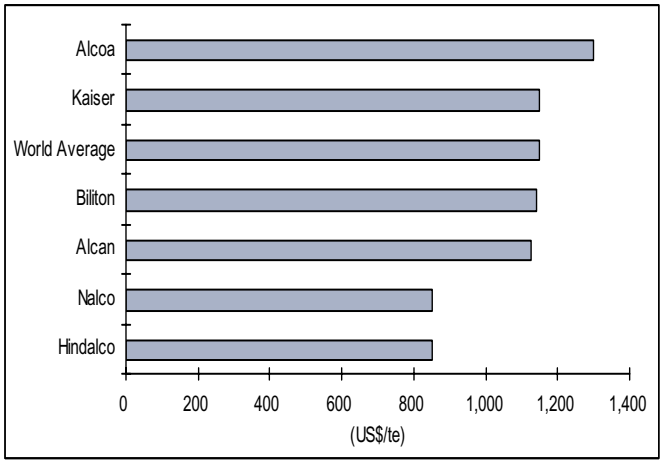
NALCO retains its position as a cost competitive company, both domestically and globally, driven by India's inherent advantage, in terms of abundantly available high quality bauxite (with ~210mnte gibbsite reserves allocated to NALCO) and low power costs due to captive power plants backed by allocated coal mines in Mahanadi coal fields.

Chart 3: NALCO cost competitive versus Chinese smelters



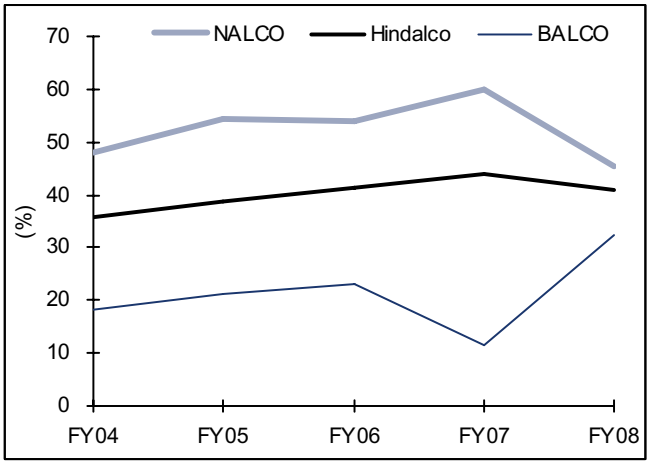
Source: Company data, I-Sec Research

Chart 4: NALCO cost competitive (operating costs excluding overheads) globally



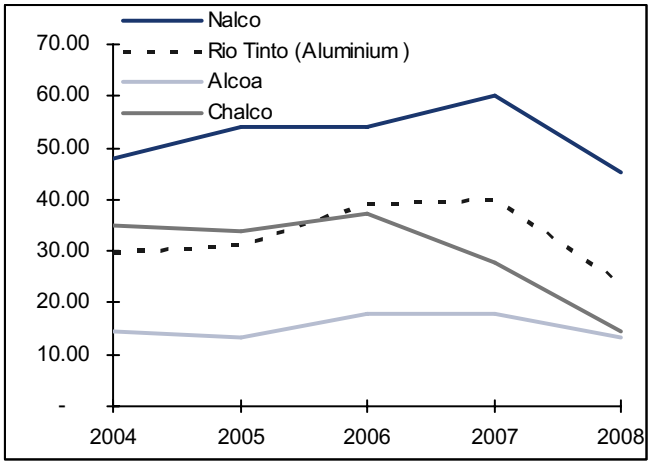
Source: Company data, I-Sec Research

Chart 5: Domestic EBITDA – Peer comparison



Source: Company data, I-Sec Research

Chart 6: International EBITDA – Peer comparison



Source: Company data, I-Sec Research

…visible margin pressures to be short-lived

Disruption in linkage coal supplied by CIL is a key concern. Recently, the company imported thermal coal at ~US$150-160/te to bridge the shortfall. This increases the cost of power production (excluding fuel) 74% YoY to Rs1.46/kwh in FY09E.

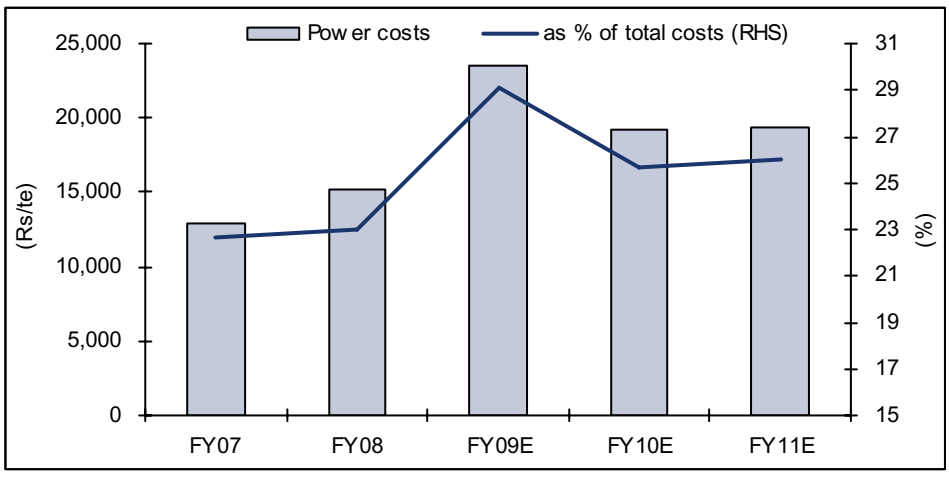
Also, increase in staff costs through Sixth Pay Commission (which demands settling of 40% arrears from January '06 in FY09E and the rest in FY10E) will increase the overall employee expenses 14% in FY09E.

Coal linkage crucial for managing cost of production

At present, power accounts for ~32% of NALCO's total manufacturing cost with per unit cost at Rs1.46. Given the acute shortage of coal mined from CIL (with the company missing its annual production targets), coal supplies are being prioritised to power utilities (as has been the case earlier). High reliance on linkage coal thus is a key risk to NALCO's profitability going forward as both options (e-auctions and imports) are more expensive than linkage cost. NALCO sources most of its coal through linkages at Rs700/te. At present, we have factored-in an overall thermal coal requirement of 4.6mnte for FY09E, with 16% of the requirement to be met through imported coal. While NALCO has been allotted Utkal-E coal block in Orissa with ~70mnte reserves, the development capex of ~3.5bn can yield potential output of 2-2.5mnte by FY11E (with no significant upside in short term).

However, coal prices have declined 51% from their peak, which will alleviate cost pressures. Further, earlier, most of NALCO's raw material (ex-coal) purchases were on one-year contract basis. However, the company has been forced to move to floating-rate contracts and buy in the spot market as most vendors are not conceding to fixed-price contracts. Effectively, for FY09, most coke & oil-based products are purchased on spot, which will result in greater cost relief in a declining commodity price scenario.

Chart 7: Power costs peaking in FY09 (per tonne of aluminium)

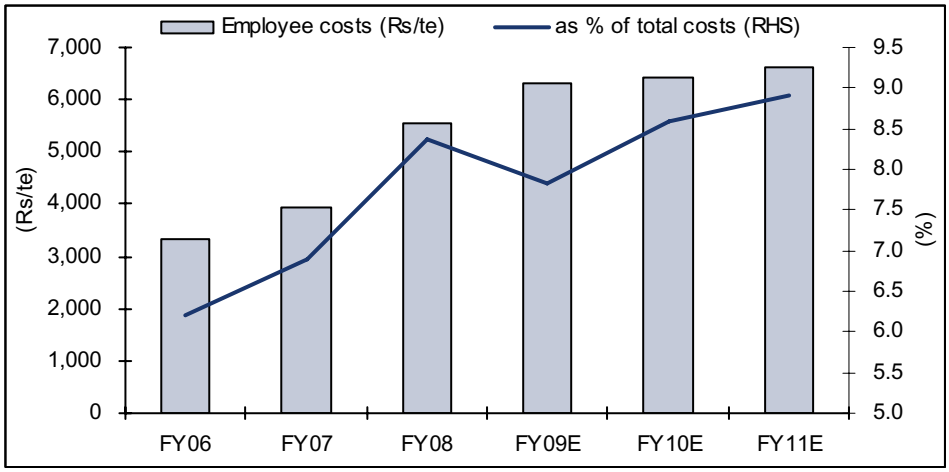


Source: Company data, I-Sec Research

Sixth Pay Commission implies higher employee cost burden

NALCO's employees are ~7,400 at present, with employee expenses accounting for ~8% of aluminium costs (at the operating level). Thus, the wage revision effected on account of the Sixth Pay Commission recommendations is an important variable for NALCO's operating margins. Our estimates factor-in FY09E & FY10E employee cost at Rs6.3bn and Rs6.4bn respectively, including arrears from January '06 (40% of arrears to be cleared in FY09E and the remaining in FY10E).

Chart 8: Increased employee costs (per te of aluminium)



Source: Company data, I-Sec Research

Key risks

Sharper-than-expected rupee depreciation

While the rupee has already depreciated 13% YTD, further retracement of capital can strengthen the US dollar vis-à-vis rupee, thereby posing an upside risk to our earnings estimate. With exports of >50% alumina and ~30% aluminium, NALCO's earnings remains highly leveraged to the US dollar.

Table 4: Sensitivity of NALCO's EPS to US$/INR

Rs/US$	42	43	44	45	46	47
FY10E EPS (Rs)	15.8	16.9	18	19.1	20.2	21.3

Source: I-Sec Research

Aluminium prices

With increasing uncertainty related to demand growth in China, all base metals have undergone sever de-rating – Aluminium down ~40% YoY. At levels of ~US$2,100/te, one-third of the global capacity is witnessing cash loss (with increased power and raw material costs). Any positive surprise on Chinese aluminium demand growth (current expectations of ~14% in '08) and decrease in inventory can push up aluminium prices.

Brownfield expansion – Improved execution

At present, NALCO is implementing a brownfield capacity expansion of Rs50bn to take the total aluminium capacity to 0.46mnte. Capacity expansion is expected to come online by December '08, with full ramp-up and stabilisation by FY11E (given current weak demand scenario). Rapid implementation of the brownfield capacity can present upside risk to our earnings estimates.

Key assumptions

Table 5: Assumptions

(mnte)

	FY07	FY08E	FY09E	FY10E	FY11E
Exchange Rate (Rs /US$)	45.3	40.50	47.00	44.00	42
Realisations					
- Alumina prices (US$/te)	390	270	317	272	282
% Change (YoY)	7.1	(30.8)	17.3	(14.1)	3.5
- Aluminium prices	2,663	2,516	2,417	2,000	2,100
% Change (YoY)	31	(6)	(4)	(17)	5
Production					
-Bauxite	4.6	4.7	4.6	4.8	5.3
% Change (YoY)	(4.8)	1.3	(2.5)	5.0	9.9
- Alumina	1.5	1.6	1.5	1.6	1.8
% Change (YoY)	(7.3)	6.6	(2.5)	5.0	9.9
- Aluminium	0.36	0.36	0.36	0.37	0.38
% Change (YoY)	(0.1)	0.5	(0.7)	2.2	5.0
Sales (Qty)					
Alumina					
- Export	0.78	0.86	0.83	0.89	1.01
% Change (YoY)	(10.6)	11.0	(3.9)	7.3	13.7
- Captive consumption	0.68	0.69	0.69	0.70	0.74
% Change (YoY)	(3.2)	1.5	(0.7)	2.2	5.0
Aluminium					
- Domestic	0.26	0.24	0.25	0.25	0.25
% Change (YoY)	1.2	(7.1)	4.5	(3.5)	2.5
- Exports	0.09	0.10	0.09	0.09	0.09
% Change (YoY)	(3.2)	8.81	(6.87)	(3.49)	2.47

Source: Company data, I-Sec Research

We have assumed flat FY10E aluminium sales, discounting for the current weak economic scenario. However, given NALCO's large domestic market share, we believe that risks are biased to the upside (even in a ~6% GDP growth scenario).

Valuations

We believe that the current market price of Rs176/share, down 68% from its peak (with one-year forward rolling P/E and EV/EBITDA at 3% and 11% discount respectively to past 10 years average multiples) with current cash constituting 31.2% of market cap, fairly discounts weak aluminium price outlook, and is inline with global peers, given the short term margin pressures. We re-initiate coverage on NALCO with HOLD and price target of Rs180/share.

Table 6: Valuations – Peer comparison

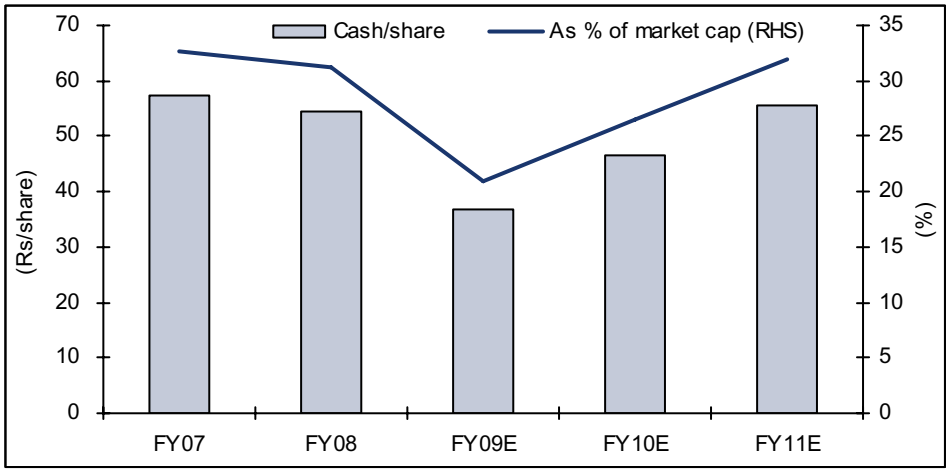
	EV/EBITDA (x)				P/E (x)			
	FY08	FY09E	FY10E	FY11E	FY08	FY09E	FY10E	FY11E
Alcoa Inc	3.9	5.7	6.9	5.4	4.3	7.0	11.4	6.1
Norsk Hydro ASA	1.3	2.5	2.6	2.3	2.7	6.8	7.7	6.2
Rio Tinto Plc	7.6	4.2	4.7	4.4	6.6	4.2	4.4	4.1
Aluminum Corp Of China -H	6.3	12.3	11.6	8.5	3.5	9.8	10.0	8.8
Nippon Light Metal Co	6.1	6.4	5.8	5.4	4.8	-	8.8	6.4
Yunnan Aluminium Co-A	5.9	10.2	7.4	6.2	8.1	10.8	9.5	-
Jiaozuo Wanfang Aluminum-A	4.0	5.1	7.5	4.7	5.4	6.7	7.8	9.8
Alro Slatina	3.0	3.3	2.7	2.4	5.0	4.8	3.7	3.2
Hulamin	7.4	7.0	5.4	5.2	58.2	10.1	9.9	9.6
Century Aluminum Company	2.2	2.0	3.0	2.3	2.2	2.4	5.6	2.4
Hindalco	4.5	5.2	7.0	7.1	5.3	6.1	10.3	9.6
NALCO	**3.3**	**3.4**	**4.8**	**4.0**	**6.8**	**6.4**	**9.7**	**9.1**
Alumina	3.9	9.3	8.2	6.3	2.9	6.6	8.3	5.1
Global average	**4.6**	**5.9**	**6.0**	**4.9**	**8.9**	**6.8**	**8.2**	**6.7**

Source: Bloomberg, I-Sec Research

Strong cash position – Significantly de-leveraged

NALCO enjoys huge cash position at Rs35bn in its books and, hence, is significantly de-leveraged as regards immediate capacity expansion project.

Chart 9: Strong cash position

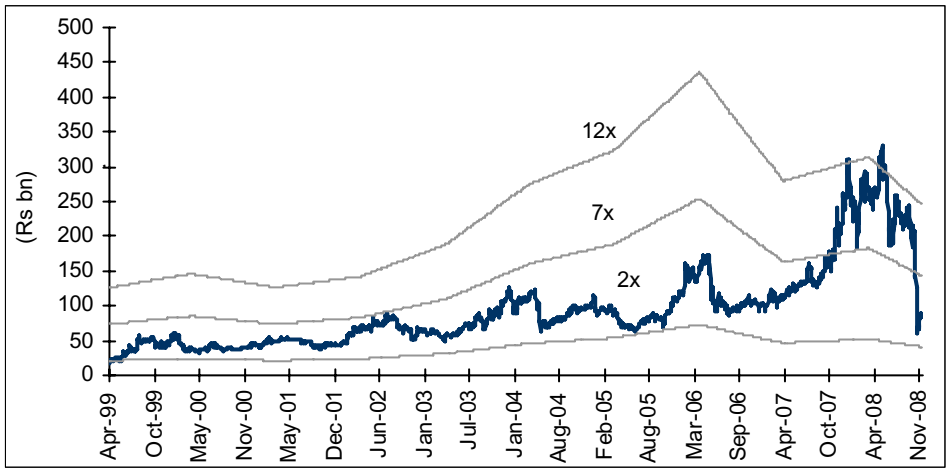


Source: I-Sec Research

At current market price of Rs176/share, the stock trades at FY10E P/E and EV/EBITDA of 9.7x and 4.8x vis-à-vis global average of 8.2x and 6x respectively, with the discount in EV/EBITDA being justified by NALCO's increased leverage to aluminium prices, with no near term volume accretion. We believe that current market price is already discounting for a weak aluminium price outlook and 34% EPS de-growth in FY10E.

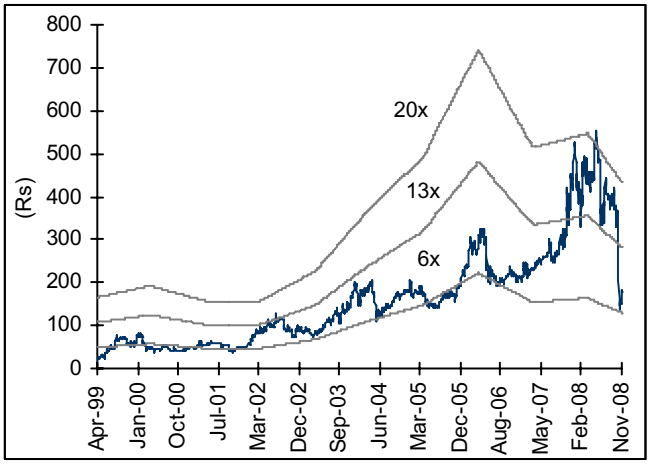
Re-initiate coverage on NALCO with HOLD and target price of Rs180/share.

Chart 10: EV/EBITDA



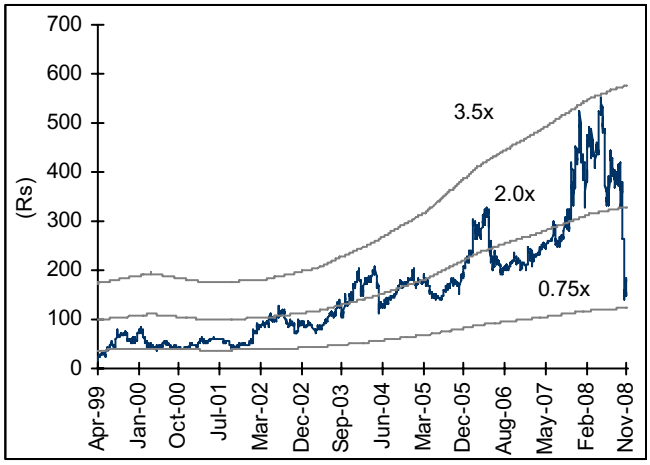
Source: I-Sec Research

Chart 11: P/E



Source: I-Sec Research

Chart 12: P/BV



Source: I-Sec Research

Financials – Consolidated

Table 7: Earnings statement

(Rs mn, year ending March 31)

	FY07	FY08	FY09E	FY10E	FY11E
Gross Sales	65,269	55,061	59,994	50,153	53,609
Less: Excise Duty	5,743	4,857	5,280	4,413	4,718
Net Sales	**59,525**	**50,205**	**54,715**	**45,739**	**48,891**
Other Operating Income	906	1,138	926	750	820
Total Operating Income	**60,432**	**51,342**	**55,641**	**46,489**	**49,712**
Less:					
Inventory Changes					
Raw materials consumed	5,576	5,744	6,421	5,866	6,034
Power & Fuel	8,431	9,947	14,092	13,206	13,935
Personnel cost	3,929	5,530	6,313	6,439	6,632
Selling and Admin Expenses	2,841	3,394	4,099	4,280	4,462
Total Operating Expenses	**24,106**	**28,006**	**29,547**	**29,409**	**30,678**
EBITDA	**36,325**	**23,336**	**26,093**	**17,080**	**19,033**
Depreciation & Amortization	3,171	2,811	2,831	3,370	4,130
Other Income	3,110	4,410	3,220	3,735	3,705
EBIT	**36,264**	**24,935**	**26,481**	**17,445**	**18,608**
Less: Gross Interest	11	15	-	-	-
Recurring Pre-tax Income	**36,253**	**24,920**	**26,481**	**17,445**	**18,608**
Add: Extraordinary Income	(60)	(254)	-	-	-
Less: Extraordinary Expenses					
Less: Taxation	12,390	8,351	8,871	5,844	6,234
--Current Tax	12,390	8,351	8,871	5,844	6,234
Net Income (Reported)	**23,803**	**16,315**	**17,610**	**11,601**	**12,374**
Recurring Net Income	**23,863**	**16,569**	**17,610**	**11,601**	**12,374**
Dividend	4,832	3,866	3,866	3,866	3,866
Dividend Tax	726	657	657	657	657
Dividend plus Tax	5,558	4,523	4,523	4,523	4,523

Source: Company data, I-Sec Research

Table 8: Balance sheet

(Rs mn, year ending March 31)

	FY07	FY08	FY09E	FY10E	FY11E
ASSETS					
Current Assets, Loans & Advances					
Cash & Bank balance	36,865	35,165	23,616	29,974	35,895
Inventory	6,350	6,867	6,972	6,885	7,183
Sundry Debtors	341	607	450	376	402
Loans and Advances	6,185	7,776	6,746	5,013	5,358
Total Current Assets	**49,741**	**50,413**	**37,783**	**42,247**	**48,837**
Current Liabilities & Provisions	**12,186**	**15,409**	**14,166**	**14,100**	**14,709**
Total Current Liabilities and Provisions	**12,186**	**15,409**	**14,166**	**14,100**	**14,709**
Net Current Assets	**37,555**	**35,004**	**23,617**	**28,147**	**34,129**
Investments	**-**	**1,150**	**1,150**	**1,150**	**1,150**
Strategic & Group Investments					
Other Marketable Investments	-	1,150	1,150	1,150	1,150
Equity	-	1,150	1,150	1,150	1,150
Debt					
Total Investments	**-**	**1,150**	**1,150**	**1,150**	**1,150**
Fixed Assets					
Gross Block	90,353	91,381	94,381	144,951	152,951
Less Accumulated Depreciation	53,232	56,063	58,895	62,264	66,394
Net Block	37,121	35,318	35,487	82,687	86,557
Add: Capital Work in Progress	8,404	23,346	47,653	3,000	1,000
Less: Revaluation Reserve					
Total Fixed Assets	**45,525**	**58,664**	**83,139**	**85,687**	**87,557**
Total Assets	**83,080**	**94,819**	**107,906**	**114,984**	**122,836**
LIABILITIES AND SHAREHOLDERS' EQUITY					
Borrowings					
Total Borrowings	**0**	**0**	**0**	**0**	**0**
Deferred Tax Liability	**6,127**	**6,074**	**6,074**	**6,074**	**6,074**
Share Capital					
Paid up Equity Share Capital	6,443	6,443	6,443	6,443	6,443
No. of Shares outstanding (mn)	*644*	*644*	*644*	*644*	*644*
Face Value per share (Rs)	10	10	10	10	10
Reserves & Surplus	**70,509**	**82,301**	**95,389**	**102,467**	**110,318**
General & Other Reserve	70,509	82,301	95,389	102,467	110,318
Net Worth	**76,952**	**88,744**	**101,832**	**108,910**	**116,761**
Total Liabilities & Shareholders' Equity	**83,080**	**94,819**	**107,906**	**114,984**	**122,835**

Source: Company data, I-Sec Research

Table 9: Cash Flow Statement

(Rs mn, year ending March 31)

	FY07	FY08	FY09E	FY10E	FY11E
Cash Flow from Operating Activities					
Reported Net Income	23,803	16,315	17,610	11,601	12,374
Add:					
Depreciation & Amortisation	3,065	2,831	2,831	3,370	4,130
Provisions	0	0	0	0	0
Deferred Taxes	0	0	0	0	0
Less:					
Other Income	3,110	4,410	3,220	3,735	3,705
Net Extra-ordinary income	(60)	(254)	0	0	0
Operating Cash Flow before Working Capital change (a)	**23,817**	**14,990**	**17,222**	**11,236**	**12,800**
Changes in Working Capital					
(Increase) / Decrease in Inventories	(434)	(517)	(106)	88	(298)
(Increase) / Decrease in Sundry Debtors	(47)	(265)	157	74	(26)
(Increase) / Decrease in Operational Loans & Adv.	(1,353)	(1,591)	1,030	1,733	(345)
(Increase) / Decrease in Other Current Assets	0	0	0	0	0
Increase / (Decrease) in Sundry Creditors	0	0	0	0	0
Increase / (Decrease) in Other Current Liabilities	0	0	0	0	0
Working Capital Inflow / (Outflow) (b)	**(1,834)**	**(2,373)**	**1,081**	**1,894**	**(669)**
Net Cash flow from Operating Activities (a) + (b)	**21,983**	**12,617**	**18,303**	**13,130**	**12,130**
as a % of Operating Cash Flow					
Cash Flow from Capital commitments					
Purchase of Fixed Assets	(6,823)	(15,970)	(27,307)	(5,917)	(6,000)
Purchase of Investments					
Consideration paid for acquisition of undertaking					
Cash Inflow/(outflow) from capital commitments (c)	(6,823)	(15,970)	(27,307)	(5,917)	(6,000)
Free Cash flow after capital commitments (a) + (b) + (c)	**15,161**	**(3,353)**	**(9,004)**	**7,213**	**6,130**
Cash Flow from Investing Activities					
Purchase of Marketable Investments	**0**	**(1,150)**	**0**	**0**	**0**
(Increase) / Decrease in Other Loans & Advances	0	0	0	0	0
Sale of Fixed Assets					
Sale of Investments					
Consideration received for sale of undertaking/division					
Other Income	3,110	4,410	3,220	3,735	3,705
Net Cash flow from Investing Activities (d)	**3,110**	**3,260**	**3,220**	**3,735**	**3,705**
Cash Flow from Financing Activities					
Issue of Share Capital during the year	0	0	0	0	0
Proceeds from fresh borrowings	0	0	0	0	0
Buyback of Shares	(0)	0	0	0	0
Dividend paid including tax	(5,558)	(4,523)	(4,523)	(4,523)	(4,523)
Others	2,215	2,916	(2,427)	1,314	398
Net Cash flow from Financing Activities (e)	**(3,343)**	**(1,607)**	**(6,950)**	**(3,209)**	**(4,125)**
Net Extra-ordinary Income (f)					
Total Increase / (Decrease) in Cash (a) + (b) + (c) + (d)+ (e) + (f)	**14,928**	**(1,701)**	**(12,734)**	**7,739**	**5,710**
Opening Cash and Bank balance	**21,937**	**36,865**	**35,165**	**23,616**	**29,974**
Closing Cash and Bank balance	**36,865**	**35,165**	**23,616**	**29,974**	**35,895**
Increase/(Decrease) in Cash and Bank balance	14,928	(1,701)	(12,734)	7,739	5,710

Source: Company data, I-Sec Research

Table 10: Ratios

(Year ending March 31)

	FY07	FY08	FY09E	FY10E	FY11E
Per Share Data (Rs)					
EPS(Basic Recurring)	37.0	25.7	27.3	18.0	19.2
Diluted Recurring EPS	37.0	25.7	27.3	18.0	19.2
Recurring Cash EPS	42.0	30.1	31.7	23.2	25.6
Dividend per share (DPS)	7.5	6.0	6.0	6.0	6.0
Book Value per share (BV)	119.5	137.8	158.1	169.1	181.3
Growth Ratios (%)					
Operating Income	21.3	(15.0)	8.4	(16.4)	6.9
EBITDA	34.8	(35.8)	11.8	(34.5)	11.4
Recurring Net Income	50.3	(30.6)	6.3	(34.1)	6.7
Diluted Recurring EPS	50.3	(30.6)	6.3	(34.1)	6.7
Diluted Recurring CEPS	37.6	(28.3)	5.5	(26.8)	10.2
Valuation Ratios (x)					
P/E	4.7	6.8	6.4	9.7	9.1
P/CEPS	4.2	5.8	5.5	7.5	6.8
P/BV	1.5	1.3	1.1	1.0	1.0
EV / EBITDA	2.1	3.3	3.4	4.8	4.0
EV / Operating Income	1.3	1.5	1.6	1.8	1.5
EV / Operating FCF	3.5	6.1	4.8	6.2	6.2
Operating Ratio (%)					
Raw Material/Sales	10.7	9.4	11.4	11.7	12.8
SG&A/Sales	8.0	9.3	12.6	11.8	14.5
Other Income / PBT	8.6	17.7	12.2	21.4	19.9
Effective Tax Rate	34.2	33.9	33.5	33.5	33.5
NWC / Total Assets	0.8	(0.2)	0.0	(1.6)	(1.4)
Inventory Turnover (days)	82.1	133.1	131.6	111.4	110.0
Receivables (days)	2.2	2.7	3.5	2.5	2.8
Payables (days)	150.1	184.5	200.8	175.0	175.0
D/E Ratio (x)	0.1	0.1	0.1	0.1	0.1
Return/Profitability Ratio (%)					
Recurring Net Income Margins	37.6	29.7	29.9	23.1	23.2
RoCE	48.9	28.0	26.1	15.7	15.6
RoNW	44.1	20.2	18.5	7.8	8.7
Dividend Payout Ratio	20.3	23.3	22.0	33.3	31.3
Dividend Yield	2.9	4.3	3.4	3.4	3.4
EBITDA Margins	60.1	45.5	46.9	36.7	38.3

Source: Company data, I-Sec Research

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Charts

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