5 July 2010 | 11 pages

Hindalco Industries (HALC.BO)

Our Preferred Non-Ferrous Play

Equity ☑
Target price change ☑
Estimate change ☑

- **Revising TP, maintain Buy** — We revise our TP downwards to Rs175 (from Rs217) on lower LME prices, lower EBITDA/t for Novelis (from $340/t earlier to $285-300/t), but more favourable FX rates. We continue to value Hindalco standalone at 8.5x Jun11 PE and other businesses at 7.5x EV/EBITDA. At our TP, Hindalco would trade at 7.4x Jun 2011E EV/EBITDA and 11.2x PE.

- **Hindalco is our top non-ferrous pick** — Hindalco is among the lowest-cost aluminium producers globally, well-integrated with captive power, bauxite and 30% of its own coal. We believe that Novelis' conversion margins should remain relatively steady despite recent LME price weakness. While Novelis' volumes could be impacted by the uncertain outlook in Europe, the can sheet business (more than 50% of Novelis' sales) should do relatively better than other sectors.

- **Novelis performance should be better** — EBITDA/t was ~$300 in 3Q & 4Q FY10. Novelis is now more EBITDA-driven and expects higher margins in the coming quarters. Management expects strong demand in Asia/South America (~30% of volumes) and moderate growth in North America/Europe. Management is hopeful of adj. EBITDA crossing $1bn (we forecast $850m in FY11 and $920m in FY12).

- **Aluminium: preferred metal** — We expect limited downside price risk as current prices already seem to be discounting a significant economic slowdown. Our new price forecasts: $2,090/t (FY11) and $2,273/t (FY12). Key positives: 1) a modest deficit in 2011 and 2012; 2) at current prices ($1,900/t) about 30% of production is sub-economic; 3) we expect production cuts in China (high end of cost curve) due to falling margins and government measures; 4) Inventory levels are high, but there is good potential for physically backed aluminium ETF.

- **Sensitivity to prices** — A 5% change in aluminium LME prices would impact FY11 PAT by 8%. A 5% change in Rs/US$ rate would impact PAT by 12%.

Buy/Medium Risk	1M
Price (02 Jul 10)	Rs144.10
Target price	Rs175.00
from Rs217.00	
Expected share price return	21.4%
Expected dividend yield	1.2%
Expected total return	**22.7%**
Market Cap	Rs275,728M
	US$5,919M

Price Performance (RIC: HALC.BO, BB: HNDL IN)

Figure 1. Hindalco – Statistical Abstract

YE 31 Mar	Net Profit (Rs m)	EPS (Rs)	EPS growth (%)	P/E (x)	EV/EBITDA (x)	ROE (%)
FY07	26,876	26.7	59%	5.4	3.1	21%
FY08	21,678	18.6	-31%	7.8	4.9	13%
FY09	26,692	18.2	-2%	7.9	7.6	17%
FY10E	10,361	5.4	-70%	26.6	7.2	6%
FY11E	29,229	15.3	182%	9.4	6.7	15%
FY12E	32,336	16.9	11%	8.5	6.6	14%

Source: Company Reports and Citi Investment Research and Analysis estimates. Price as on 2 July 2009.

Pradeep Mahtani
+91-22-6631-9882
pradeep.mahtani@citi.com

Raashi Chopra, CFA
+91-22-6631-9862
raashi.chopra@citi.com

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

Fiscal year end 31-Mar	2008	2009	2010E	2011E	2012E
Valuation Ratios					
P/E adjusted (x)	8.2	9.2	26.6	9.4	8.5
EV/EBITDA adjusted (x)	4.9	7.7	6.7	6.0	5.8
P/BV (x)	1.0	1.5	1.6	1.4	1.2
Dividend yield (%)	1.3	0.2	0.5	1.2	1.2
Per Share Data (Rs)					
EPS adjusted	17.67	15.70	5.41	15.27	16.90
EPS reported	17.67	15.70	5.41	15.27	16.90
BVPS	140.94	93.23	89.92	104.24	120.29
DPS	1.85	0.25	0.75	1.75	1.75
Profit & Loss (RsM)					
Net sales	600,128	656,252	601,707	646,575	678,612
Operating expenses	-546,874	-626,647	-561,644	-594,342	-615,031
EBIT	**53,254**	**29,604**	**40,063**	**52,232**	**63,581**
Net interest expense	-18,491	-12,323	-11,662	-11,450	-18,191
Non-operating/exceptionals	0	0	0	0	0
Pre-tax profit	**34,763**	**17,281**	**28,401**	**40,783**	**45,390**
Tax	-11,889	8,046	-16,368	-11,313	-12,431
Extraord./Min.Int./Pref.div.	-1,196	1,365	-1,672	-241	-623
Reported net income	**21,678**	**26,692**	**10,361**	**29,229**	**32,336**
Adjusted earnings	21,678	26,692	10,361	29,229	32,336
Adjusted EBITDA	78,137	59,982	68,055	80,053	95,446
Growth Rates (%)					
Sales	210.7	9.4	-8.3	7.5	5.0
EBIT adjusted	34.0	-44.4	35.3	30.4	21.7
EBITDA adjusted	61.5	-23.2	13.5	17.6	19.2
EPS adjusted	-23.8	-11.2	-65.5	182.1	10.6
Cash Flow (RsM)					
Operating cash flow	**53,999**	**45,812**	**32,980**	**70,482**	**70,612**
Depreciation/amortization	24,883	30,378	27,992	27,820	31,865
Net working capital	6,863	18,053	3,976	710	-13,144
Investing cash flow	**-152,437**	**-23,672**	**-46,833**	**-105,150**	**-144,634**
Capital expenditure	-27,507	-25,988	-48,486	-109,640	-148,880
Acquisitions/disposals	-133,910	-6,788	-500	-500	-500
Financing cash flow	**129,222**	**-67,303**	**3,356**	**33,505**	**76,826**
Borrowings	127,123	-91,954	-10,070	46,075	98,152
Dividends paid	-101	-3,532	-2,686	-1,119	-3,135
Change in cash	**35,354**	**-48,201**	**-10,497**	**-1,163**	**2,804**
Balance Sheet (RsM)					
Total assets	**726,467**	**644,672**	**656,806**	**735,886**	**861,007**
Cash & cash equivalent	119,349	71,148	61,020	59,498	62,373
Accounts receivable	67,174	66,733	62,657	62,321	62,252
Net fixed assets	292,391	304,744	325,238	407,058	524,072
Total liabilities	**537,448**	**473,270**	**468,390**	**518,822**	**611,864**
Accounts payable	108,661	96,078	104,682	104,413	102,752
Total Debt	323,524	283,098	273,028	319,103	417,254
Shareholders' funds	**189,019**	**171,402**	**188,416**	**217,064**	**249,144**
Profitability/Solvency Ratios (%)					
EBITDA margin adjusted	13.0	9.1	11.3	12.4	14.1
ROE adjusted	14.4	16.1	6.3	15.7	15.1
ROIC adjusted	14.7	9.7	6.3	9.7	9.7
Net debt to equity	108.0	123.7	112.5	119.6	142.4
Total debt to capital	63.1	62.3	59.2	59.5	62.6

For further data queries on Citi's full coverage universe please contact CIR Data Services Asia Pacific at CIRDataServicesAsiaPacific@citi.com or +852-2501-2791

Powered by: dataCentral

Estimate Revisions

Figure 2. Hindalco – Estimate Changes, FY11-12E

	FY11E			FY12E		
	Old	**New**	**% chg**	**Old**	**New**	**% chg**
Average Aluminium LME ($/t)	2,350	2,090	-11%	2,416	2,273	-6%
Copper TcRc (USc/lb)	13.8	13.8	0%	20.0	20.6	3%
Rs/$ rate	43.5	44.5	2%	41.0	41.5	1%
No. of shares (m)	1,914	1,914	0%	1,914	1,914	0%
Standalone						
Net sales (Rs bn)	236.9	217.9	-8%	253.3	241.4	-5%
EBITDA (Rs bn)	44.4	38.2	-14%	53.3	49.2	-8%
Net profit (Rs bn)	25.9	21.3	-18%	26.3	23.1	-12%
Novelis						
Net sales (Rs bn)	446.2	427.9	-4%	441.3	434.3	-2%
EBITDA (Rs bn)	43.3	37.6	-13%	42.1	38.1	-10%
Consolidated						
Net sales (Rs bn)	683.8	646.6	-5%	697.7	678.6	-3%
EBITDA (Rs bn)	92.0	80.1	-13%	103.9	95.4	-8%
Net profit (Rs bn)	38.0	29.2	-23%	38.6	32.3	-16%
EPS (Rs)	19.9	15.3	-23%	20.2	16.9	-16%

Source: Citi Investment Research and Analysis estimates. Note – EBITDA includes other income

Valuation

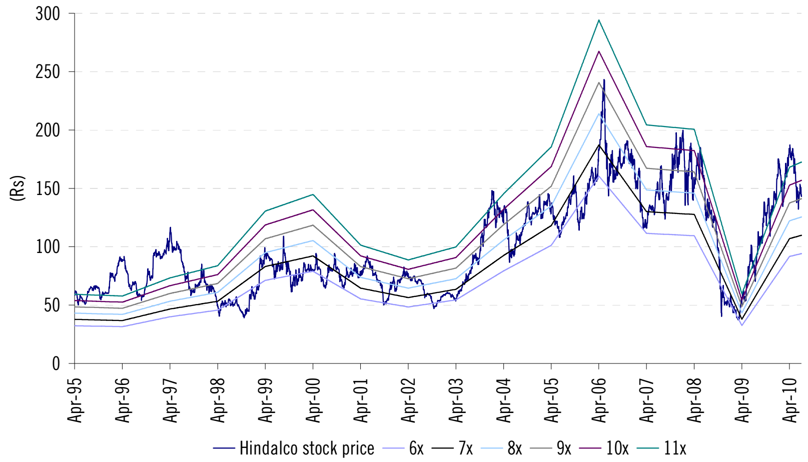
Figure 3. Hindalco – SOTP Valuation

Hindalco standalone	
EPS – Jun11 (Rs)	11.4
Target P/E multiple (x)	8.5
Derived share price (Rs) - A	**96.6**
EBITDA for other businesses (Rs m)	42,983
Target EV/EBITDA multiple (x)	7.5
Derived EV (Rs m)	322,372
Net debt for other businesses (Rs m)	171,700
Derived market value for other businesses (Rs m)	150,672
Number of shares (m)	1,914
Derived price for other businesses (Rs) - B	**78.7**
Target price for Hindalco (Rs) – A + B	**175**

Source: Citi Investment Research and Analysis

The stock price correction offers an opportunity to enter a stock with relatively stable earnings at a time of LME price uncertainty and volatility.

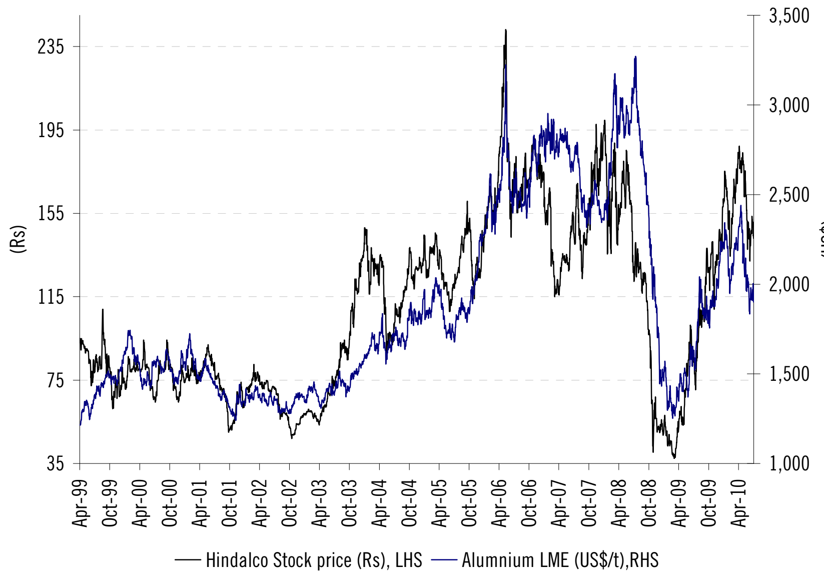
Figure 4. Hindalco Industries -- - Rolling P/E band chart (l-yr fwd)



Source: DataStream, Company Reports and Citi Investment Research and Analysis

Despite its diversification into copper, the profits and stock price performance are largely driven by trends in aluminium prices.

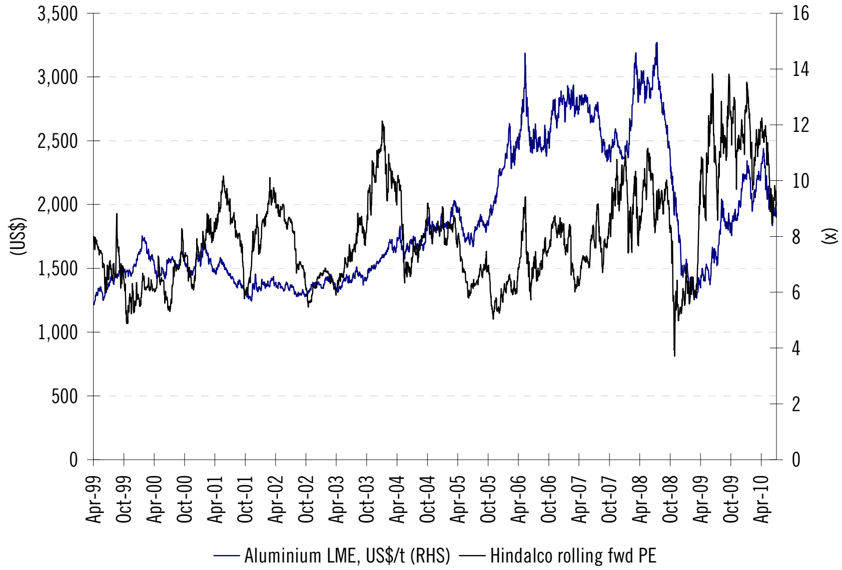
Figure 5. Hindalco stock price (Rs) vs. Aluminium LME (US$)



Source: Datastream

Figure 6 indicates that except for very brief periods, Hindalco's rolling forward P/E has moved up or down in line with trends in aluminium prices.

Figure 6. Aluminium LME (US$) vs. Hindalco's rolling fwd P/E



Source: Datastream, Company Reports, Citi Investment Research and Analysis

Takeaways from India Investor Conference in May 2010

- **Novelis: a stable business** — 3Q and 4Q FY10 EBITDA/t was ~$300 and management believes this is sustainable. 4Q was the first quarter since the downturn that shipments rose in every region on a yoy basis (18% overall to 716kt). 4Q EBITDA was $164m while adj. EBITDA was $231m. FY10 reported EBITDA $1.3bn, Adj EBITDA $754m. Novelis has been able to re-negotiate higher premiums for its products. Autos are its most lucrative sector, accounting for 15% of volumes. Can sheets account for ~50-55% of volumes de-risking the business to the extent that volumes may not be significantly hit in a downturn. Novelis has announced plans to invest ~$300m to expand its aluminium rolling operations in Brazil (by >50% to 600ktpa). This is in line with its strategy of growing in more profitable and faster-growing markets such as Asia and Latin America.

- **Cost-saving initiatives at Novelis** — Novelis has shifted focus from being volume driven to EBITDA driven. It has closed some facilities and cut 10% of its manpower over the last 15 months. Other initiatives: 1) centralized procurement; 2) risk management improvement; 3) better supply chain management (has helped reduce inventory levels by 100kt); 4) cutting consultancy costs; 5) transferring facilities from Rogerstone, UK to Hirakud, Orissa.

- **Standalone FY10 update** — FY10 profits impacted by Rs15.5bn vs FY09 - Rs7.5bn on account of lower LME prices/FX changes, Rs7bn on account of lower by-product realizations and the balance due to higher coal costs. The decline would have been higher but for 1) higher volumes (+6% for aluminium, +12% for copper); 2) higher proportion of value added sales – rolled products up 13%, extrusions 8%, wire rods 23%; 3) increased sales in domestic market from 68% to 82% (indicating rising Indian demand).

- **Copper update** — Cash cost of production fell by 39% in FY10. Cathode production rose 12% and rod production was up 7%. Hindalco expects copper EBITDA to remain in a range of Rs7-8bn per annum. Sulphuric acid prices are moving up slowly. Hindalco should gain from higher sulphuric acid prices and higher copper rod production. This will help compensate for lower DAP prices as it is now being sold on a nutrient based formula with price caps vs import parity pricing earlier.

- **Aluminium expansion plans** — The first phase of expansion includes 1) Utkal Alumina - 1.4mtpa, 2QFY12, Rs56bn capex; 2) Mahan Aluminium – 359ktpa, 2QFY12, Rs92bn; 3) Aditya Aluminium – 359ktpa, 4QFY12, Rs92bn; 4) Hirakud expansion from 155ktpa to 216ktpa by 2QFY12.

Hindalco Industries

Company description

In India, Hindalco is a low-cost integrated aluminum producer (capacity ~500,000 tpa) with access to captive power and bauxite. It has a copper smelting capacity of 500,000 tpa and in aluminum has a strong domestic market share with a dominant 60%-65% share in sheet products. It plans to triple its alumina and aluminum capacity by FY14 in stages, with priority given to projects such as Utkal Alumina (Orissa), Aditya Aluminium (Orissa) and Mahan (Madhya Pradesh). Hindalco owns copper mines in Australia through its 51% subsidiary, Aditya Birla Minerals, which should meet ~10%-15% of its ore requirement. On 15 May 2007, it acquired Novelis, the world's leading aluminium rolled products producer (FY09 sales of 2.94m tonnes), and a leader in the can sheet market. Novelis' key markets are North America and Europe (~70% of FY10 shipments) with the rest sold in Asia and South America. Beverage and food cans are the biggest end-use market for Novelis, accounting for more than 50% of volumes.

Investment strategy

We rate Hindalco Buy/Medium Risk (1M). Our global aluminium price forecasts are US$2,090/t for FY11 and US$2,273/t for FY12. Aluminium is one of our preferred metals with limited downside price risk as it already seems to be discounting a significant economic slowdown. Key factors in its favour: 1) we expect a modest deficit in 2011 and 2012; 2) at current prices about 30% of aluminium production is sub-economic; 3) we expect production cuts in China (high end of cost curve) due to falling prices and government measures (capacity closures and higher power tariffs); 4) Inventory levels are high but there is good potential for physically backed aluminium ETF. In copper, we expect TC/RC margins to remain sluggish at US$13.8c/lb in FY11, but improve to US20.6c/lb in FY12. Novelis performed well in 3Q and 4Q FY10 with EBITDA/t at ~US$300. The coming quarters should be better. Management expects to see strong demand in Asia/South America (~30% of volumes) and moderate growth in North America/Europe. Novelis has shifted focus from being volume driven to being EBITDA-driven and the coming quarters should be better with higher margins. Can sheets (more than 50% of volumes) continue to be a very strong sector. Management is hopeful of adj. EBITDA exceeding $1bn and is spending $300m to expand in fast-growing markets in South America. Hindalco's net debt to equity is expected to remain around 1.2x in FY10-11 but is likely to rise further based on plans to triple India-based capacity.

Valuation

Our target price of Rs175 is based on SOTP. To value Hindalco standalone we use a P/E of 8.5x on Jun-11 earnings, at the higher end of its trading range (6x to 10x) over the past five years. We use P/E because stocks such as Hindalco are largely driven by commodity price trends, which translate into earnings momentum. The multiple appears justified given our outlook of improving aluminium prices and its position as a low-cost domestic producer. We value Novelis and Hindalco's other businesses at 7.5x EV/EBITDA and we estimate EBITDA/tonne of US$285 in FY11 and US$300 in FY12. The valuation is at a small premium to average global multiples, which range from 6x to 9x. We use EV/EBITDA (rather than P/E) because Novelis has a high level of debt. At our target price, Hindalco would trade at a consolidated EV/EBITDA of 7.4x and P/E of 11.2x.

Risks

Our quantitative risk-rating system, which tracks 260-day historical share price volatility, suggests a High Risk rating for Hindalco shares. However, based on its low cost of production for aluminium, its strong presence in the domestic market and its restructured debt-equity, we feel a rating of Medium Risk is more appropriate. Possible upside risks to our target price include: 1) commodity prices (aluminum and alumina) surpassing our forecasts; 2) copper TC/RC margins exceeding our forecasts; 3) depreciation of the rupee; 4) Novelis' operational performance surpassing forecasts; and 5) Increase in aluminium import duty. Downside risks include: 1) commodity prices (aluminum and alumina) coming in below our forecasts; 2) lower EBITDA/t and lower volumes (for Novelis); 3) appreciation of the rupee; 4) lowering of import duties.

Appendix A-1

Analyst Certification

The research analyst(s) primarily responsible for the preparation and content of all or any identified portion of this research report hereby certifies that, with respect to each issuer or security or any identified portion of the report with respect to an issuer or security that the research analyst covers in this research report, all of the views expressed in this research report accurately reflect their personal views about those issuer(s) or securities. The research analyst(s) also certify that no part of their compensation was, is, or will be, directly or indirectly, related to the specific recommendation(s) or view(s) expressed by that research analyst in this research report.

IMPORTANT DISCLOSURES

Hindalco Industries (HALC.BO)

Ratings and Target Price History
Fundamental Research
Analyst: Pradeep Mahtani

	Date	Rating	Target Price	Closing Price
1	2-Nov-07	3M	*132.56	170.24
2	12-May-08	*1M	*217.91	158.89
3	24-Jun-08	1M	*170.69	131.42
4	10-Nov-08	*3H	*51.00	66.80
5	2-Feb-09	3H	*34.00	46.10
6	11-Jun-09	*1M	*125.00	101.50
7	9-Oct-09	1M	*154.00	128.20
8	24-Feb-10	1M	*187.00	155.00
9	11-Apr-10	1M	*217.00	178.85

* Indicates change

Rating/target price changes above reflect Eastern Standard Time

Within the past 12 months, Citigroup Global Markets Inc. or its affiliates has acted as manager or co-manager of an offering of securities of Hindalco Industries.

Citigroup Global Markets Inc. or its affiliates has received compensation for investment banking services provided within the past 12 months from Hindalco Industries.

Citigroup Global Markets Inc. or an affiliate received compensation for products and services other than investment banking services from Hindalco Industries in the past 12 months.

Citigroup Global Markets Inc. currently has, or had within the past 12 months, the following as investment banking client(s): Hindalco Industries.

Citigroup Global Markets Inc. currently has, or had within the past 12 months, the following as clients, and the services provided were non-investment-banking, securities-related: Hindalco Industries.

Citigroup Global Markets Inc. currently has, or had within the past 12 months, the following as clients, and the services provided were non-investment-banking, non-securities-related: Hindalco Industries.

Rohini Malkani has in the past worked with the India government or its divisions in her personal capacity.

Analysts' compensation is determined based upon activities and services intended to benefit the investor clients of Citigroup Global Markets Inc. and its affiliates ("the Firm"). Like all Firm employees, analysts receive compensation that is impacted by overall firm profitability which includes investment banking revenues.

For important disclosures (including copies of historical disclosures) regarding the companies that are the subject of this Citi Investment Research & Analysis product ("the Product"), please contact Citi Investment Research & Analysis, 388 Greenwich Street, 28th Floor, New York, NY, 10013, Attention: Legal/Compliance. In addition, the same important disclosures, with the exception of the Valuation and Risk assessments and historical disclosures, are contained on the Firm's disclosure website at www.citigroupgeo.com. Valuation and Risk assessments can be found in the text of the most recent research note/report regarding the subject company. Historical disclosures (for up to the past three years) will be provided upon request.

Citi Investment Research & Analysis Ratings Distribution

Data current as of 30 Jun 2010	**Buy**	**Hold**	**Sell**
Citi Investment Research & Analysis Global Fundamental Coverage	54%	35%	12%
% of companies in each rating category that are investment banking clients	47%	45%	40%

Guide to Citi Investment Research & Analysis (CIRA) Fundamental Research Investment Ratings:
CIRA's stock recommendations include a risk rating and an investment rating.
Risk ratings, which take into account both price volatility and fundamental criteria, are: Low (L), Medium (M), High (H), and Speculative (S).
Investment ratings are a function of CIRA's expectation of total return (forecast price appreciation and dividend yield within the next 12 months) and risk rating.

For securities in emerging markets (Asia Pacific, Emerging Europe/Middle East/Africa, and Latin America), investment ratings are:Buy (1) (expected total return of 15% or more for Low-Risk stocks, 20% or more for Medium-Risk stocks, 30% or more for High-Risk stocks, and 40% or more for Speculative stocks); Hold (2) (5%-15% for Low-Risk stocks, 10%-20% for Medium-Risk stocks, 15%-30% for High-Risk stocks, and 20%-40% for Speculative stocks); and Sell (3) (5% or less for Low-Risk stocks, 10% or less for Medium-Risk stocks, 15% or less for High-Risk stocks, and 20% or less for Speculative stocks).

Investment ratings are determined by the ranges described above at the time of initiation of coverage, a change in investment and/or risk rating, or a change in target price (subject to limited management discretion). At other times, the expected total returns may fall outside of these ranges because of market price movements and/or other short-term volatility or trading patterns. Such interim deviations from specified ranges will be permitted but will become subject to review by Research Management. Your decision to buy or sell a security should be based upon your personal investment objectives and should be made only after evaluating the stock's expected performance and risk.
Guide to Citi Investment Research & Analysis (CIRA) Corporate Bond Research Credit Opinions and Investment Ratings: CIRA's corporate bond research issuer publications include a fundamental credit opinion of Improving, Stable or Deteriorating and a complementary risk rating of Low (L), Medium (M), High (H) or Speculative (S) regarding the credit risk of the company featured in the report. The fundamental credit opinion reflects the CIRA analyst's opinion of the direction of credit fundamentals of the issuer without respect to securities market vagaries. The fundamental credit opinion is not geared to, but should be viewed in the context of debt ratings issued by major public debt ratings companies such as Moody's Investors Service, Standard and Poor's, and Fitch Ratings. CBR risk ratings are approximately equivalent to the following matrix: Low Risk Triple A to Low Double A; Low to Medium Risk High Single A through High Triple B; Medium to High Risk Mid Triple B through High Double B; High to Speculative Risk Mid Double B and Below. The risk rating element illustrates the analyst's opinion of the relative likelihood of loss of principal when a fixed income security issued by a company is held to maturity, based upon both fundamental and market risk factors. Certain reports published by CIRA will also include investment ratings on specific issues of companies under coverage which have been assigned fundamental credit opinions and risk ratings. Investment ratings are a function of CIRA's expectations for total return, relative return (to publicly available Citigroup bond indices performance), and risk rating. These investment ratings are: Buy/Overweight the bond is expected to outperform the relevant Citigroup bond market sector index (Broad Investment Grade, High Yield Market or Emerging Market), performances of which are updated monthly and can be viewed at https://fidirect.citigroup.com/ using the "Indexes" tab; Hold/Neutral Weight the bond is expected to perform in line with the relevant Citigroup bond market sector index; or Sell/Underweight the bond is expected to underperform the relevant sector of the Citigroup indexes.

NON-US RESEARCH ANALYST DISCLOSURES

Non-US research analysts who have prepared this report (i.e., all research analysts listed below other than those identified as employed by Citigroup Global Markets Inc.) are not registered/qualified as research analysts with FINRA. Such research analysts may not be associated persons of the member organization and therefore may not be subject to the NYSE Rule 472 and NASD Rule 2711 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account. The legal entities employing the authors of this report are listed below:

Citigroup Global Markets India Private Limited	Pradeep Mahtani,Raashi Chopra, CFA

OTHER DISCLOSURES

The subject company's share price set out on the front page of this Product is quoted as at 02 July 2010 04:00 PM on the issuer's primary market.

For securities recommended in the Product in which the Firm is not a market maker, the Firm is a liquidity provider in the issuers' financial instruments and may act as principal in connection with such transactions. The Firm is a regular issuer of traded financial instruments linked to securities that may have been recommended in the Product. The Firm regularly trades in the securities of the issuer(s) discussed in the Product. The Firm may engage in securities transactions in a manner inconsistent with the Product and, with respect to securities covered by the Product, will buy or sell from customers on a principal basis.

Securities recommended, offered, or sold by the Firm: (i) are not insured by the Federal Deposit Insurance Corporation; (ii) are not deposits or other obligations of any insured depository institution (including Citibank); and (iii) are subject to investment risks, including the possible loss of the principal amount invested. Although information has been obtained from and is based upon sources that the Firm believes to be reliable, we do not guarantee its accuracy and it may be incomplete and condensed. Note, however, that the Firm has taken all reasonable steps to determine the accuracy and completeness of the disclosures made in the Important Disclosures section of the Product. The Firm's research department has received assistance from the subject company(ies) referred to in this Product including, but not limited to, discussions with management of the subject company(ies). Firm policy prohibits research analysts from sending draft research to subject companies. However, it should be presumed that the author of the Product has had discussions with the subject company to ensure factual accuracy prior to publication. All opinions, projections and estimates constitute the judgment of the author as of the date of the Product and these, plus any other information contained in the Product, are subject to change without notice. Prices and availability of financial instruments also are subject to change without notice. Notwithstanding other departments within the Firm advising the companies discussed in this Product, information obtained in such role is not used in the preparation of the Product. Although Citi Investment Research & Analysis (CIRA) does not set a predetermined frequency for publication, if the Product is a fundamental research report, it is the intention of CIRA to provide research coverage of the/those issuer(s) mentioned therein, including in response to news affecting this issuer, subject to applicable quiet periods and capacity constraints. The Product is for informational purposes only and is not intended as an offer or solicitation for the purchase or sale of a security. Any decision to purchase securities mentioned in the Product must take into account existing public information on such security or any registered prospectus.

Investing in non-U.S. securities, including ADRs, may entail certain risks. The securities of non-U.S. issuers may not be registered with, nor be subject to the reporting requirements of the U.S. Securities and Exchange Commission. There may be limited information available on foreign securities. Foreign companies are generally not subject to uniform audit and reporting standards, practices and requirements comparable to those in the U.S. Securities of some foreign companies may be less liquid and their prices more volatile than securities of comparable U.S. companies. In addition, exchange rate movements may have an adverse effect on the value of an investment in a foreign stock and its corresponding dividend payment for U.S. investors. Net dividends to ADR investors are estimated, using withholding tax rates conventions, deemed accurate, but investors are urged to consult their tax advisor for exact dividend computations. Investors who have received the Product from the Firm may be prohibited in certain states or other jurisdictions from purchasing securities mentioned in the Product from the Firm. Please ask your Financial Consultant for additional details. Citigroup Global Markets Inc. takes responsibility for the Product in the United States. Any orders by US investors resulting from the information contained in the Product may be placed only through Citigroup Global Markets Inc.

Important Disclosures for Morgan Stanley Smith Barney LLC Customers: Morgan Stanley & Co. Incorporated (Morgan Stanley) research reports may be available about the companies that are the subject of this Citi Investment Research & Analysis (CIRA) research report. Ask your Financial Advisor or use smithbarney.com to view any available Morgan Stanley research reports in addition to CIRA research reports.
Important disclosure regarding the relationship between the companies that are the subject of this CIRA research report and Morgan Stanley Smith Barney LLC and its affiliates are available at the Morgan Stanley Smith Barney disclosure website at www.morganstanleysmithbarney.com/researchdisclosures.
The required disclosures provided by Morgan Stanley and Citigroup Global Markets, Inc. on Morgan Stanley and CIRA research relate in part to the separate businesses of Citigroup Global Markets, Inc. and Morgan Stanley that now form Morgan Stanley Smith Barney LLC, rather than to Morgan Stanley Smith Barney LLC in its entirety. For Morgan Stanley and Citigroup Global Markets, Inc. specific disclosures, you may refer to www.morganstanley.com/researchdisclosures and https://www.citigroupgeo.com/geopublic/Disclosures/index_a.html.

This CIRA research report has been reviewed and approved on behalf of Morgan Stanley Smith Barney LLC. This review and approval was conducted by the same person who reviewed this research report on behalf of CIRA. This could create a conflict of interest.

The Citigroup legal entity that takes responsibility for the production of the Product is the legal entity which the first named author is employed by. The Product is made available in Australia through Citigroup Global Markets Australia Pty Ltd. (ABN 64 003 114 832 and AFSL No. 240992), participant of the ASX Group and regulated by the Australian Securities & Investments Commission. Citigroup Centre, 2 Park Street, Sydney, NSW 2000. The Product is made available in Australia to Private Banking wholesale clients through Citigroup Pty Limited (ABN 88 004 325 080 and AFSL 238098). Citigroup Pty Limited provides all financial product advice to Australian Private Banking wholesale clients through bankers and relationship managers. If there is any doubt about the suitability of investments held in Citigroup Private Bank accounts, investors should contact the Citigroup Private Bank in Australia. Citigroup companies may compensate affiliates and their representatives for providing products and services to clients. The Product is made available in Brazil by Citigroup Global Markets Brasil - CCTVM SA, which is regulated by CVM - Comissão de Valores Mobiliários, BACEN - Brazilian Central Bank, APIMEC - Associação dos Analistas e Profissionais de Investimento do Mercado de Capitais and ANBID - Associação Nacional dos Bancos de Investimento. Av. Paulista, 1111 - 11º andar - CEP. 01311920 - São Paulo - SP. If the Product is being made available in certain provinces of Canada by Citigroup Global Markets (Canada) Inc. ("CGM Canada"), CGM Canada has approved the Product. Citigroup Place, 123 Front Street West, Suite 1100, Toronto, Ontario M5J 2M3. The Product is made available in France by Citigroup Global Markets Limited, which is authorised and regulated by Financial Services Authority. 1-5 Rue Paul Cézanne, 8ème, Paris, France. The Product may not be distributed to private clients in Germany. The Product is distributed in Germany by Citigroup Global Markets Deutschland AG & Co. KGaA, which is regulated by Bundesanstalt fuer Finanzdienstleistungsaufsicht (BaFin). Frankfurt am Main, Reuterweg 16, 60323 Frankfurt am Main. If the Product is made available in Hong Kong by, or on behalf of, Citigroup Global Markets Asia Ltd., it is attributable to Citigroup Global Markets Asia Ltd., Citibank Tower, Citibank Plaza, 3 Garden Road, Hong Kong. Citigroup Global Markets Asia Ltd. is regulated by Hong Kong Securities and Futures Commission. If the Product is made available in Hong Kong by The Citigroup Private Bank to its clients, it is attributable to Citibank N.A., Citibank Tower, Citibank Plaza, 3 Garden Road, Hong Kong. The Citigroup Private Bank and Citibank N.A. is regulated by the Hong Kong Monetary Authority. The Product is made available in India by Citigroup Global Markets India Private Limited, which is regulated by Securities and Exchange Board of India. Bakhtawar, Nariman Point, Mumbai 400-021. The Product is made available in Indonesia through PT Citigroup Securities Indonesia. 5/F, Citibank Tower, Bapindo Plaza, Jl. Jend. Sudirman Kav. 54-55, Jakarta 12190. Neither this Product nor any copy hereof may be distributed in Indonesia or to any Indonesian citizens wherever they are domiciled or to Indonesian residents except in compliance with applicable capital market laws and regulations. This Product is not an offer of securities in Indonesia. The securities referred to in this Product have not been registered with the Capital Market and Financial Institutions Supervisory Agency (BAPEPAM-LK) pursuant to relevant capital market laws and regulations, and may not be offered or sold within the territory of the Republic of Indonesia or to Indonesian citizens through a public offering or in circumstances which constitute an offer within the meaning of the Indonesian capital market laws and regulations. The Product is made available in Israel through Citibank NA, regulated by the Bank of Israel and the Israeli Securities Authority. Citibank, N.A, Platinum Building, 21 Ha'arba'ah St, Tel Aviv, Israel. The Product is made available in Italy by Citigroup Global Markets Limited, which is authorised and regulated by Financial Services Authority. Foro Buonaparte 16, Milan, 20121, Italy. The Product is made available in Japan by Citigroup Global Markets Japan Inc. ("CGMJ"), which is regulated by Financial Services Agency, Securities and Exchange Surveillance Commission, Japan Securities Dealers Association, Tokyo Stock Exchange and Osaka Securities Exchange. Shin-Marunouchi Building, 1-5-1 Marunouchi, Chiyoda-ku, Tokyo 100-6520 Japan. If the Product was distributed by Nikko Cordial Securities Inc. it is being so distributed under license. In the event that an error is found in an CGMJ research report, a revised version will be posted on the Firm's Global Equities Online (GEO) website. If you have questions regarding GEO, please call (81 3) 6270-3019 for help. The Product is made available in Korea by Citigroup Global Markets Korea Securities Ltd., which is regulated by Financial Services Commission and the Financial Supervisory Service. Hungkuk Life Insurance Building, 226 Shinmunno 1-GA, Jongno-Gu, Seoul, 110-061. The Product is made available in Malaysia by Citigroup Global Markets Malaysia Sdn Bhd, which is regulated by Malaysia Securities Commission. Menara Citibank, 165 Jalan Ampang, Kuala Lumpur, 50450. The Product is made available in Mexico by Acciones y Valores Banamex, S.A. De C. V., Casa de Bolsa, Integrante del Grupo Financiero Banamex ("Accival") which is a wholly owned subsidiary of Citigroup Inc. and is regulated by Comision Nacional Bancaria y de Valores. Reforma 398, Col. Juarez, 06600 Mexico, D.F. In New Zealand the Product is made available through Citigroup Global Markets New Zealand Ltd. (Company Number 604457), a Participant of the New Zealand Exchange Limited and regulated by the New Zealand Securities Commission. Level 19, Mobile on the Park, 157 Lambton Quay, Wellington. The Product is made available in Pakistan by Citibank N.A. Pakistan branch, which is regulated by the State Bank of Pakistan and Securities Exchange Commission, Pakistan. AWT Plaza, 1.1. Chundrigar Road, P.O. Box 4889, Karachi-74200. The Product is made available in Poland by Dom Maklerski Banku Handlowego SA an indirect subsidiary of Citigroup Inc., which is regulated by Komisja Nadzoru Finansowego. Dom Maklerski Banku Handlowego S.A. ul. Chalubinskiego 8, 00-630 Warszawa. The Product is made available in the Russian Federation through ZAO Citibank, which is licensed to carry out banking activities in the Russian Federation in accordance with the general banking license issued by the Central Bank of the Russian Federation and brokerage activities in accordance with the license issued by the Federal Service for Financial Markets. Neither the Product nor any information contained in the Product shall be considered as advertising the securities mentioned in this report within the territory of the Russian Federation or outside the Russian Federation. The Product does not constitute an appraisal within the meaning of the Federal Law of the Russian Federation of 29 July 1998 No. 135-FZ (as amended) On Appraisal Activities in the Russian Federation. 8-10 Gasheka Street, 125047 Moscow. The Product is made available in Singapore through Citigroup Global Markets Singapore Pte. Ltd., a Capital Markets Services Licence holder, and regulated by Monetary Authority of Singapore. 1 Temasek Avenue, #39-02 Millenia Tower, Singapore 039192. The Product is made available by The Citigroup Private Bank in Singapore through Citibank, N.A., Singapore branch, a licensed bank in Singapore that is regulated by Monetary Authority of Singapore. Citigroup Global Markets (Pty) Ltd. is incorporated in the Republic of South Africa (company registration number 2000/025866/07) and its registered office is at 145 West Street, Sandton, 2196, Saxonwold. Citigroup Global Markets (Pty) Ltd. is regulated by JSE Securities Exchange South Africa, South African Reserve Bank and the Financial Services Board. The investments and services contained herein are not available to private customers in South Africa. The Product is made available in Spain by Citigroup Global Markets Limited, which is authorised and regulated by Financial Services Authority. 29 Jose Ortega Y Gassef, 4th Floor, Madrid, 28006, Spain. The Product is made available in Taiwan through Citigroup Global Markets Taiwan Securities Company Ltd., which is regulated by Securities & Futures Bureau. No portion of the report may be reproduced or quoted in Taiwan by the press or any other person. No. 1, Songzhi Road, Taipei 110, Taiwan. The Product is made available in Thailand through Citicorp Securities (Thailand) Ltd., which is regulated by the Securities and Exchange Commission of Thailand. 18/F, 22/F and 29/F, 82 North Sathorn Road, Silom, Bangrak, Bangkok 10500, Thailand. The Product is made available in Turkey through Citibank AS which is regulated by Capital Markets Board. Tekfen Tower, Eski Buyukdere Caddesi # 209 Kat 2B, 23294 Levent, Istanbul, Turkey. In the U.A.E, these materials (the "Materials") are communicated by Citigroup Global Markets Limited, DIFC branch ("CGML"), an entity registered in the Dubai International Financial Center ("DIFC") and licensed and regulated by the Dubai Financial Services Authority ("DFSA" to Professional Clients and Market Counterparties only and should not be relied upon or distributed to Retail Clients. A distribution of the different CIRA ratings distribution, in percentage terms for Investments in each sector covered is made available on request. Financial products and/or services to which the Materials relate will only be made available to Professional Clients and Market Counterparties. The Product is made available in United Kingdom by Citigroup Global Markets Limited, which is authorised and regulated by Financial Services Authority. This material may relate to investments or services of a person outside of the UK or to other matters which are not regulated by the FSA and further details as to where this may be the case are available upon request in respect of this material. Citigroup Centre, Canada Square, Canary Wharf, London, E14 5LB. The Product is made available in United States by Citigroup Global Markets Inc, which is regulated by FINRA and the US Securities and Exchange Commission. 388 Greenwich Street, New York, NY 10013. Unless specified to the contrary, within EU Member States, the Product is made available by Citigroup Global Markets Limited, which is regulated by Financial Services Authority. Many European regulators require that a firm must establish, implement and make available a policy for managing conflicts of interest arising as a result of publication or distribution of investment research. The policy applicable to CIRA's Products can be found at www.citigroupgeo.com. Compensation of equity research analysts is determined by equity research management and Citigroup's senior management and is not linked to specific transactions or recommendations. The Product may have been distributed simultaneously, in multiple formats, to the Firm's worldwide institutional and retail customers. The Product is not to be construed as providing investment services in any jurisdiction where the provision of such services would not be permitted. Subject to the nature and contents of the Product, the investments described therein are subject to fluctuations in price and/or value and investors may get back less than originally invested. Certain high-volatility investments can be subject to sudden and large falls in value that could equal or exceed the amount invested. Certain investments contained in the Product may have tax implications for private customers whereby levels and basis of taxation may be subject to change. If in doubt, investors should seek advice from a tax adviser. The Product does not purport to identify the nature of the specific market or other risks associated with a particular transaction. Advice in the Product is general and should not be construed as personal advice given it has been prepared without taking account of the objectives, financial situation or needs of any particular investor. Accordingly, investors should, before acting on the advice, consider the appropriateness of the advice, having regard to their objectives, financial situation and needs. Prior to acquiring any financial product, it is the client's responsibility to obtain the relevant offer document for the product and consider it before making a decision as to whether to purchase the product.

ADDITIONAL INFORMATION IS AVAILABLE UPON REQUEST