

PRAJ INDUSTRIES

INR 177

Distilling froth

SELL



✦ Ethanol: A revitalized market

The key driver of rise in demand for ethanol has been recent surges in world oil prices, which has prompted many countries to consider bio fuels programs. Canada, Colombia, the European Union (EU), India, Thailand, and the US have adopted new targets, some mandatory, for increasing the contribution of bio fuels to their transport fuel supplies. Additionally, phase out of MBTE (methyl tertiary-butyl ether) in the US from May 2006 and the Energy Policy Act of 2005, has increased ethanol demand substantially in the US. In Brazil, after a period of decline in ethanol consumption, flex-fuel vehicles capable of running on varying percentages of ethanol are revitalizing the ethanol market.

✦ Strong visibility ensures growth -- though at premium valuations

We see strong growth going forward at a CAGR of ~57% over the next three years in the backdrop of an encouraging demand scenario. Profitability has been high and is increasing with capability scale up reflecting in overseas contracts as we see EBITDA margins continuing to maintain an improving trajectory in the medium term. Consequently, earnings are likely to grow at a faster pace of 73% CAGR over the next three years. Praj's stock is trading at a P/E of 33.0x and 18.3x FY07E and FY08E earnings respectively. On an EV/EBITDA basis, it trades at 22.4x and 13.2x FY07E and FY08E earnings, respectively. Despite the attractive earnings growth and return profile, we believe that all possible near-term positives have been factored in the valuation. We believe that sustaining such premium valuations will necessitate recurring actualization of the next technological marvel, faith in which is difficult to repose at such a nascent stage. We recommend a 'SELL' on the stock.

✦ The big break in the future

We believe that ramp-up in ethanol distillation capacity is a two-three years phenomenon and Praj is looking at the stage beyond where it extends its capability to cater to the 'cellulose-to-ethanol' market. In the long run, one of the greatest promises lies in commercially viable manufacture of ethanol from cellulose on account of their widespread availability and low feedstock cost. Praj is looking to establish its capability to provide engineering and fabrication solutions to this sunrise opportunity. If the proposed move takes off, we believe that the future growth curve is likely to explode, but we are guarded to assign probabilities to the success at such an initial stage of planning.

Financials

Year to March	FY05	FY06E	FY07E	FY08E
Revenue (INR mn)	2,421	2,744	4,544	7,248
Rev. growth (%)	111.0	13.0	66.0	60.0
EBITDA (INR mn)	263	320	609	1,035
Net profit (INR mn)	213	233	434	783
Shares outstanding (mn)	81	81	81	81
EPS (INR)	2.6	2.9	5.4	9.7
EPS growth (%)	180.0	9.0	87.0	80.0
P/E (x)	67.3	61.6	33.0	18.3
EV/ EBITDA (x)	53.3	42.6	22.4	13.2
ROAE (%)	58.5	48.5	59.0	68.2
ROACE (%)	62.7	60.8	74.6	82.9

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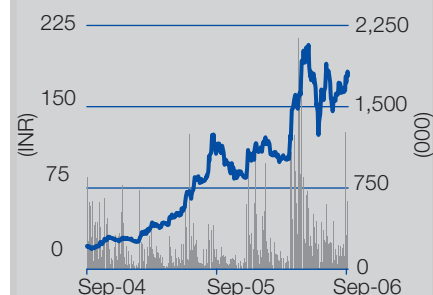
Reuters : PRAJ.BO
Bloomberg : PRJ IN

Market Data

52-week range (INR) : 212 / 80
Share in issue (mn) : 83.5
M cap (INR bn/USD mn) : 14.8 / 317.4
Avg. Daily Vol. BSE/NSE ('000) : 912.1

Share Holding Pattern (%)

Promoters : 31.2
MFs, Fls & Banks : 6.8
Fls : 10.1
Others : 51.8



Investment Rationale

✦ Ethanol: A revitalized market

With high oil prices, the focus has shifted to ethanol as a potential source of fuel. The key driver of rise in ethanol demand has been recent surges in world oil prices that have prompted many countries to consider bio fuels programs. Canada, Colombia, the European Union (EU), India, Thailand, and the US have adopted new targets, some mandatory, for increasing the contribution of bio fuels to their transport fuel supplies. Additionally, phase out of MBTE in the US from May 2006 and the Energy Policy Act of 2005, creating a national Renewable Fuels Standard in the US, has increased ethanol demand substantially in that country. In Brazil, after a period of decline in ethanol consumption, flex-fuel vehicles, capable of running on varying percentages of ethanol, are revitalizing the ethanol market.

Table 1: World Ethanol Production, (Mn litre)

Brazil	16,001	South Africa	390	Ukraine	246	Australia	125	Guatemala	64	Zimbabwe	19
U.S.	16,141	U.K.	348	Canada	231	Japan	114	Cuba	45	Kenya	15
China	3,801	Saudi Arabia	121	Poland	220	Pakistan	91	Ecuador	53	Swaziland	11
India	1,700	Spain	352	Indonesia	170	Sweden	110	Mexico	45	Others	2,688
France	908	Thailand	299	Argentina	167	Philippines	83	Nicaragua	26	Total	45,993
Russia	750	Germany	432	Italy	151	South Korea	64	Mauritius	11		

Source: FO Licht

Ethanol is commercially viable above USD 35 per barrel

- High oil prices:** Ethanol from sugarcane grown under conditions similar to those in the Center-South region of Brazil may be commercially viable without government support if oil prices are above USD 35 per barrel¹. During times of low oil prices, as in 1998-99, ethanol as an alternative energy source may not be commercially viable when looked at from a purely economic viewpoint. However, oil prices have risen steadily and surpassed USD 60 in 2005 and USD 70 in 2006. The prices have shot up due to fundamental factors like unexpectedly strong demand, a reduction in surplus oil production and refining capacity, fear of disruptions to supply in oil-producing countries due to political events, and depreciation of the US dollar. In such a scenario, if oil prices continue to remain high at 2005-06 levels, we believe that many countries could start a commercially viable bio fuel program. We believe if improvement in technology is commercially sustainable and does not require state support on a prolonged basis, the state machinery will move ahead and remove regulatory barriers to investments and give incentives to shift to such a technology.
- Energy diversification through ethanol:** In the current political and economic scenario, energy diversification has become an important objective for developed and developing countries. Energy diversification is one of the main justifications cited for expanding the use of ethanol in the US. Similarly, the mandate for replacement of gasoline and diesel with bio fuels in the European Union is driven, in part, by the desire to diversify energy sources. Use of bio fuels safeguards the economy against two key potential sources of disruption: (1) disruption to oil supply from political and other events; and (2) the damaging impact on the domestic economy of world oil price volatility (such as the oil price hikes of the 1970s and 1980s, and more recently in 2005-06). Diversifying supply of transportation fuels is possible with bio fuels. If costs compared to oil are low, as in Brazil, bio fuels could account for a sizable fraction of total transportation fuels.

Energy diversification is an important objective for developing and developed countries

1. Berg, Chrostoph, 2004. "World Fuel Ethanol Analysis and Outlook"

Ethanol manufacture stimulates
rural demand

- **Controlling GHG emissions:** Concerns about growing greenhouse gas (GHG) emissions in the transport sector in absolute as well as relative terms has resulted in developed countries considering setting guideline targets for bio fuels. In quantitative terms, bio fuel production is likely to expand in the coming years given the number of programs that have been established or expanded, especially in industrial countries. The Brazilian market, after a period of decline in ethanol consumption, has witnessed a revival of ethanol as a fuel with the launch of flex-fuel vehicles capable of running on gasoline-ethanol blends or ethanol. These trends and similar considerations have prompted a number of developing countries to consider bio fuels.
- **Positive impact on the rural economy:** Agriculture plays a significant role in the economy of many developing countries. One argument for promoting ethanol manufacture is that it strengthens the agricultural sector by creating demand. Although declining over the years, agriculture in low income countries still provides almost 70% of total employment and produces close to 25% of the gross domestic product (GDP) on an average. In middle-income countries, agriculture accounts for one-quarter of employment, although its share of GDP is on average below 10%². If agriculture can be made more efficient and competitive, it could spur economic growth, providing much needed jobs and income in rural areas. Additionally, ethanol manufacture is closely linked to job creation. In Brazil, for example, Proálcool provided direct employment to about 40,000 permanent and 82,000 seasonal workers by 1980. During the first five years of Proálcool, about 376,000 hectares (or about 25% of the total sugarcane area) in the state of São Paulo was turned over to sugarcane, displacing crops (36%) and pastures (64%). As sugarcane is approximately seven times more labor-intensive than pastures, this resulted in a net gain of some 25,500 worker-years of employment consisting of a total of 40,500 worker-years generated minus 15,000 worker-years lost³.
- **Case study: Sugar in India:** The proportion of revenues from co products (particularly distillery and power) is likely to increase to at least 20% plus with integrated models coming into play. Given that sugar companies are in talks with oil companies to improve the pricing of ethanol from the current INR 18.75/litre, we believe this will further improve the margin of safety. Apart from providing a cushion against sugar cyclicality to the topline by integrated models, our positive view on diversifying the business mix is also because operating margins on co products are far higher than margins from the sugar segment, which are often influenced by the cyclicality of commodity prices. We believe that the operating margin mix is about to change, going forward, with more contribution expected from ethanol and cogeneration segments.

Our analysis shows that the incremental pay off (contribution) is far better by further processing molasses to ethanol rather than selling the molasses in the open market. Assuming the conversion cost of INR 5.5/litre, we believe that a sugar mill will be better off selling molasses only if molasses realizations are at least INR 5,000/MT and realizations from ethanol/alcohol are less than INR 23/litre.

2. World bank-2004. "Trade Progress Report: Focus on Agricultural Trade."

3. Bolling, Christine - 2001. "The Brazilian Sugar Industry: Recent Developments."

Table 2: Incremental realisation per tonne from ethanol production (INR)

Molasses realisations per tonne	Ethanol realisations per litre						
	INR	22	23	24	25	26	27
2,000	1,131	1,288	1,413	1,538	1,663	1,788	
2,500	906	1,063	1,188	1,313	1,438	1,563	
3,000	681	838	963	1,088	1,213	1,338	
3,500	456	613	738	863	988	1,113	
4,000	231	388	513	638	763	888	
5,000	(219)	(63)	63	188	313	438	

Source: Edelweiss research

Also, integrated models tend to provide a much better cushion to falling EBIDTA in case of an increasing cane price and flat realisation scenario. Cane price constitutes a major part of the overall operating expenditure for all sugar companies and hence, its sensitivity becomes an important factor. In case of a sensitivity analysis, increasing cane prices gradually by INR 100/tonne will erode the standalone EBIDTA margin at a much faster rate. Whereas in integrated sugar companies, the EBIDTA, although falling, is cushioned by better margin from distillery and cogen operations. Table 2 indicates the percentage cushion that integrated companies have vis-à-vis a standalone model.

✦ Praj uniquely positioned in the ethanol space

Praj specializes in setting up ethanol machinery and has executed projects across five continents and has more than 300 references. Over the years, Praj has emerged as a key enabler for economies across the world to shift to ethanol as an energy source. It is one of the few companies that have the ability to provide complete end-to-end solutions for setting up an ethanol distillery. Praj has about 75% market share in India and we reckon ~8% market share in selected market overseas. We expect ~4% market share in the larger overseas markets like the US and EU, which is likely to drive revenues by 57% CAGR over a three year period, going forward.

Praj has secured orders in the EU, US, Thailand, Australia, Africa, and Columbia. Repeat business forms about 30% of revenues, while first-time customers form the rest. Focused approach on the ethanol business and investments in research and development place Praj in a good position to address the worldwide ethanol market. In our opinion, Praj is likely to witness strong growth as ethanol is increasingly accepted and adapted as an energy source.

✦ Broad-based business model

Praj's business model delivers end-to-end solutions as well as caters to part solution requirements in the brewery-to-distillation chain through EPC and (engineering, procurement and construction) as well as equipment sales and/or design consultancy. Technology consulting and IT services contribute to the end-to-end linkage of the business, though they continue to constitute a minor portion of revenues (5%).

We believe, steady demand for brewery capacity ramp-up in India, though the scale is unlikely to be significant enough, will provide strong secular growth. Driven by the attractiveness of ethanol, we see ethanol distillation capacity ramp-up to display strong growth in the medium term. Interestingly for Praj, the domestic market has grown strongly in the past two-three years, driven by sugar producers' search for co products-led business model. The learning curve in the domestic market has yielded significant successes in international markets and we believe Praj will be an important player in large geographies like the US and Europe over the next two-three years. Bulk of the

Repeat business forms about 30% of revenues

capacity ramp-up in the US and Europe is likely to happen in the next two-three years, implying another two years of strong traction in order accretion and around three years of execution. We expect the super-normal growth curve to smoothen down in terms of capacity ramp-up post FY09 as a majority of the ethanol distillation plants get on ground.

Corresponding to emerging requirement, we see an uptick in order intake from Q4FY06, as interest in ethanol has revitalized. The bright spot is that most of the orders for Praj have been export orders, signifying that the company has been able to successfully compete against international players. Additionally, Praj is also getting orders which deal with only 'designing process and supply of technology'. While this part of the order book for Praj is smaller than the 'equipment supply and turnkey solutions' part, we believe this part is not easily replicable by competitors due to the company's deep and wide knowledge base.

Table 3: Key marquee orders

Order details	Order Size	Country	Date
Ethanol distillery- Supply of technology and engineering	132.5litre – 3,785.5 litre (INR 165 mn)	Iowa, US	6-Aug
Ethanol distillery- Supply of technology and engineering	132.5litre – 3,785.5 litre (INR 165 mn)	Minnesota, US	6-Aug
Ethanol distillery- Supply of technology and engineering	132.5litre – 3,785.5 litre (INR 165 mn)	Missouri, US	6-Aug
Ethanol distillery- Technology and equipment for wheat / corn based plants	INR 110mn	Bulgaria	6-Aug
Ethanol distillery- Technology and equipment for wheat / corn based plants	INR 110mn	Romania	6-Aug
Ethanol distillery- Supply of technology and machinery	INR 900mn	California, US	6-Jun
4 ethanol plants- End to end solution	INR 750mn	UP/ Maharashtra	6-May

Source: Edelweiss research

We expect Praj's revenues from distillery-related orders to grow by 62% CAGR for the next three years driving up overall topline by a CAGR of 57% over the corresponding period on the back of large orders in the distillery market globally. Driven by an expanding global footprint, we expect about three-fourths of the revenues to come from exports over the next three years.

Table 4: Order book

(INR mn)

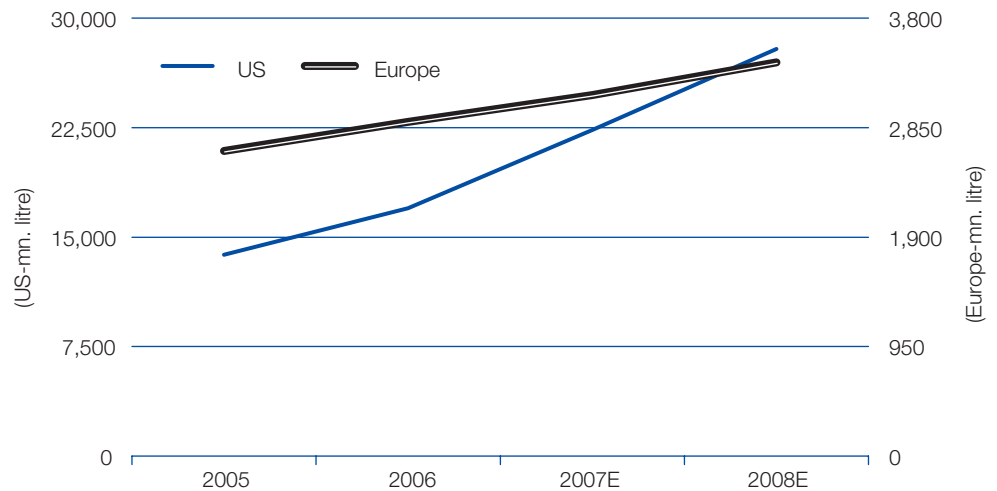
	2,005	2,006	2007E	2008E
Order book balance b/f	1,200	2,244	4,500	5,395
Order intake	1,023	4,000	5,774	6,668
Executed	2,421	2,744	4,120	6,707
Order backlog	2,244	4,500	5,395	7,980
Average Duration (years)	2	2	2	2

Source: Edelweiss research

We expect 5 bn liters ethanol capacity addition in the US market in FY07E and FY08E, respectively. Current ethanol production capacity in the US market is 16.9 bn liters and we anticipate it will increase by 31.6% and 24.8% to 22.3 bn liters and 27.8 bn liters in FY07E and FY08E, respectively. In Europe, we expect likely capacity addition of 3.1 bn liters and 3.4 bn liters in FY07E and FY08E, respectively, with average execution period of ~2-2.5 years. We expect Praj to have a market share of 3-4% in the US in FY07E and FY08E, respectively. In Europe, we estimate Praj's market share to be 2% and 4% in FY07E and FY08E, respectively.

Praj has entered these markets recently and initial signs of order wins are encouraging. Given that such addressable markets are essentially fragmented by nature, we believe that initial moves need not be necessarily extrapolated in terms of market share, going forward.

Chart 1: Ethanol production capacity (Mn litre)



Source: Edelweiss research

*** The big break in the future**

Ramp-up in ethanol distillation capacity is a two-three years process and Praj is looking at the stage beyond where it extends its capability to cater to the 'cellulose-to-ethanol' market.

In the long run, one of the greatest promises lies in commercially viable manufacture of ethanol from cellulose on account of their widespread availability, low feedstock cost, and significant lifecycle GHG emission reductions that can be attained. Examples of cellulosic feedstock include forest products, wood wastes, crop residues such as stalks, leaves, and husks left in the fields after harvesting maize, and energy crops such as switch grass. The most promising source lies in conversion of cellulosic feedstock to ethanol through enzymes. Praj is looking to establish its capability to provide engineering and fabrication solution to this sunrise opportunity. If the proposed move takes off, we believe, the company's future growth curve is likely to explode, but we are guarded to assign probabilities to the success at such an initial stage of planning.

Vinod Khosla⁴ and Japanese conglomerate Marubeni Corporation are investing INR 1.2 bn for a 10% stake in Praj. We believe around half of this amount will go towards R&D for this sunrise technology and the remaining towards an acquisition in the overseas geography to make stronger inroads into the US and European markets. The importance of this transaction emerges from the fact that Vinod Khosla has pursued innovative solutions that have led to technological improvements. He was one of the key enablers of internet protocol (IP) and web browser getting deployed, consequently the telecommunications industry moved from already established networks to internet protocol. Currently, he has invested in battery technologies, microfinance institutions, low-cost housing ventures, and energy solutions. Many of these projects are very high risk science projects, but if they succeed, they have the potential to initiate a revolution, similar to the IP and web browser technology. Also, Marubeni's association implies closer access to better technological capabilities. With the positives of a global entrepreneur and a large market waiting to be explored, we believe that opportunity scope is immense, but would be strained to believe that gains are likely to happen in the near-to-medium term.

4. Vinod Khosla is a venture capitalist. He has played an important roles in starting and developing companies that are involved in developing breakthrough technologies

✦ Strong visibility to ensure robust growth in the medium term

We estimate strong growth for Praj, going forward, of ~57% CAGR over the next three years in the backdrop of an encouraging demand scenario and emerging technological possibilities. The company has grown its revenue at a similar CAGR over the past three years. Profitability has been high and is increasing with capability scale up reflecting in overseas contracts and we expect EBITDA margins to continue to maintain an improving trajectory in the medium term. Consequently, earnings are likely to grow at a faster pace of 73% CAGR over the next three years.

Table 5: Growth metrics (%)

Year to March	FY05	FY06	FY07E	FY08E
Revenues	110.8	13.4	65.6	59.5
EBITDA	152.1	21.9	90.1	69.9
Net profit	180.0	9.2	86.6	80.4

Source: Edelweiss research

Our faith in Praj's growth story is reinforced by the company's focus on the far larger overseas distillery segment, which contributes 4/5th of revenues. We expect increase in the share of the distillation business on back of higher-than-anticipated growth in the ethanol machinery space and expect the distillation business segment to contribute 83% of business in FY07E and 86% in FY08E. We expect a strong growth of 73% and 65% in the distillation business in FY07E and FY08E, respectively. However, in the medium term, we do not attach any significant benefit of growth accruing due to conversion of cellulosic feedstock to ethanol through enzymes. We believe that such a development is too premature and in an extremely nascent stage to get any value assigned to at this point of time.

We expect Praj's return ratios to improve significantly on the back of a strong demand market and the company's potential scalability with respect to the global market. Despite entry into new geographies, we anticipate accelerated cash flow in the future. Primary reason that could be attributed to such a bright future could be:

An acquisition-led strategy to strengthen presence in the US and Europe, leading to easier and faster access to opportunities.

Focused scope of work playing in to the core competencies of Praj. We believe that future growth is likely to come from pure solutions-led projects rather than EPC projects, that have dominated the company's business profile (primarily due to India-centric presence).

Table 6: Return ratios

Year to March	FY04	FY05	FY06	FY07E	FY08E
Less: Capex	19	63	91	750	74
Free cash flow	(100)	(86)	399	(54)	811
ROAE (%)	49.6	58.5	48.5	59.0	68.2
ROACE (%)	49.8	62.7	60.8	74.6	82.9

Source: Edelweiss research

Finally, with a stronger flow of investment into its business, we expect Praj to be FCF positive almost simultaneously. Governed by a high component of engineering and fabrication in the anticipated business profile and the resultant growth, we believe that upsides could exist in terms of better cash generation ability as well as far more improved return ratios.

Risks and Concerns

* **Agricultural trade liberalization for sugar**

Praj's growth hinges on the evolution of the worldwide ethanol industry. Commercial viability of ethanol could be significantly reduced by liberalization of world sugar trade. World sugar trade is highly protected in most of the countries expect in Brazil, Cuba, and Australia. Liberalization of world sugar trade is likely to raise ethanol prices significantly, thus making it commercially unviable. If the world's sugar market is completely liberalized, sugar prices will likely rise by about 30–40% in the short run, and cane prices will rise parallely.⁵ Price hikes will be induced by both an increase in demand in markets where sugar prices are currently kept artificially high by protectionist measures, and a fall in supply as a result of high-cost producers exiting the industry. While supply from low-cost producers will be expanded, most notably in Brazil, in the short term, supply of ethanol is likely to fall as mills/distilleries produce the higher-priced product.

* **Fluctuation in oil and feedstock prices**

Oil and feedstock prices fluctuate widely. In such a scenario, serious thought should be given to the structure of the emerging ethanol industry. Even where bio fuels are economic under long-run average prices for oil and feed stocks, there will inevitably be periods when, in the absence of subsidies, invested capacity will be seriously underutilized due to fluctuations in relative prices. For example, the oil industry enjoyed a decade of very high prices beginning in 1973, only to be followed by two decades of relatively low prices, undermining even the ethanol industry in Brazil.

* **Low entry barriers**

Broadly, Praj is in the business of manufacturing basic distillation and brewery machinery. Most of the higher-end components in the distillery are outsourced from equipment manufacturers like Alfa Laval. Hence, this results in a business model which is closer to the EPC format, where execution skills are the key differentiator. We believe, in the current business model the entry barriers are low and the model can be easily replicated and bettered by equipment manufacturers who also provide end-to-end solutions for ethanol distilleries. Alfa Laval India is one company that can use its accumulated process knowledge and go ahead and provide similar end-to-end services as Praj.

* **Upside risks**

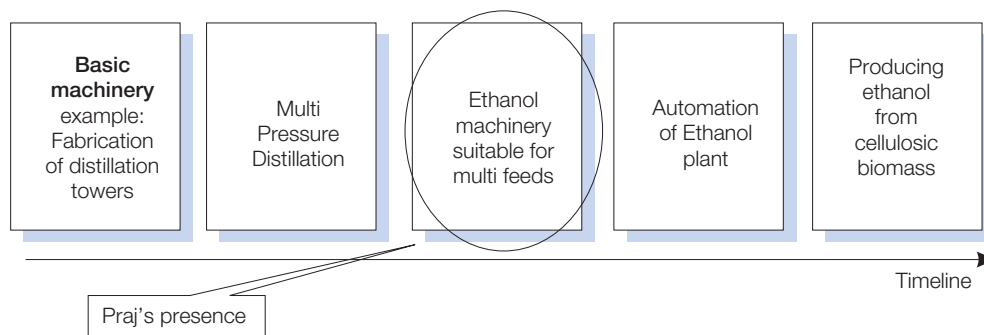
Praj is related to a space that addresses the energy concerns of the world. Technological experiments that can be scaled up and address the key concerns of the world create immense wealth for innovators. If Praj is successful in developing effective entry barriers through technological innovation like conversion of cellulosic feedstock to ethanol using catalyst enzymes, the future growth trajectory of the company will be very strong and has the potential to change the face of energy market.

5. Mitchell, Donald O, 2005a. "Sugar Policies: An Opportunity for Change."

Company Background and Business Analysis

Praj Industries was established in 1984 and became a public limited company in 1993. The company is promoted by Pramod Chaudhari and Shashank Inamdar. It is a technology and solution provider for ethanol, brewery and related bio-cycle solutions. The company is in the business of design, manufacture, supply and commissioning of fermentation and distillation equipment for manufacture of alcohol. Praj has a manufacturing facility with floor area of 40,000 square feet near Pune. Also, there is a manufacturing facility spread over 18,300 square feet focusing exclusively on exports. It manufactures ethanol plants for different types of feed stocks. Further, the company has secured orders from different parts of the world and has executed ~50 orders.

Fig. 1: Value addition



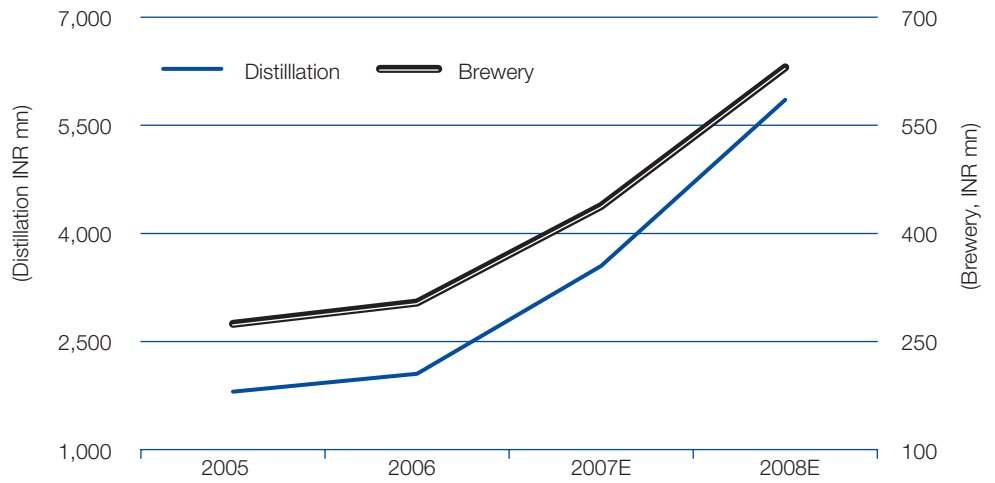
Source: Company, Edelweiss research

We believe companies can operate in five spaces across the ethanol machinery value chain. Being in the business for the past 15 years, Praj has evolved from a company that provided basic ethanol machinery to an end-to-end solutions provider for an ethanol distillery set up. As companies move up the value chain margins increase, entry barriers develop, and competition decreases. Praj is still at a stage where competition exists and suitable entry barriers have not been developed. The company is in a space where the rewards for technological advances are potentially very large. Progression to the next stage will require greater emphasis on research and development. Presently, R&D expenses form 1% of total revenues. This is low, even when compared to pharmaceutical companies which have an average R&D spend of ~4-5% in India.

Praj's revenue model is based on four business segments: distillation, brewery, technology consulting, and IT services. Technology consulting and IT services contribute hardly about 5% of business.

The distillation segment contributed about 80% of the total revenues in FY06. We estimate the revenue contribution from this segment to increase to ~83% and ~86% in FY07E and FY08E, respectively. Export orders contributed about 70% of revenues in FY06.

Chart 2: Revenue from distillery and brewery



Source: Company, Edelweiss research

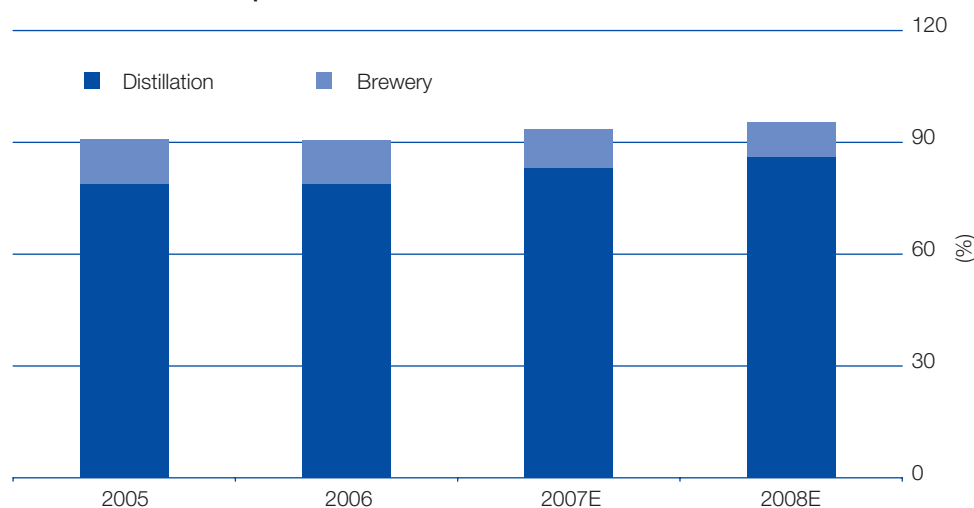
There has been an increase in Praj’s order intake from Q4FY06, as interest in ethanol has revitalized. The bright spot is that most of the orders have been export orders, signifying that Praj has been able to successfully compete against international ethanol machinery suppliers. Additionally, Praj’s order accretion also consists of scope in the form of ‘designing process and supply of technology’. While this part of the order book may be smaller than the ‘equipment supply and turnkey solutions’ part, we believe this part is not easily replicable by competitors and also has higher margins.

Financials

Praj posted revenues of INR 2.7 bn in FY06, a growth of 13.4% on a Y-o-Y basis. The revenue CAGR for FY04-06 was ~55%. Margins at the EBITDA level have been increasing due to fall in interest costs and lower raw material costs as a percentage of sales. EBITDA margins were 11.7% for FY06, up about 80bps Y-o-Y. The distillery segment made up 79% of total revenues, while the brewery business made 12%. Results for Q1FY07 were encouraging. Revenue grew by 32% Y-o-Y to INR 804.7 mn. EBITDA margin for Q1FY07 expanded to 13.8%, up almost 200bps, on lower raw material costs as a percentage of sales.

We expect increase in the share of the distillation business on back of higher anticipated growth in the ethanol machinery space. We have assumed distillation contributing 83% of the business in FY07 and 86% in FY08. We expect a strong growth of 79% and 65% in the distillation business in FY07E and FY08E, respectively.

Chart 3: Business break-up



Source: Edelweiss research

We anticipate a 44% increase in the order intake for FY07E to INR 5.7 bn. We have considered the US and European markets for future exports. We have not included exports from other developing countries due to paucity of data. This results in a potential upside to our estimates in case Praj bags export orders from other developing countries.

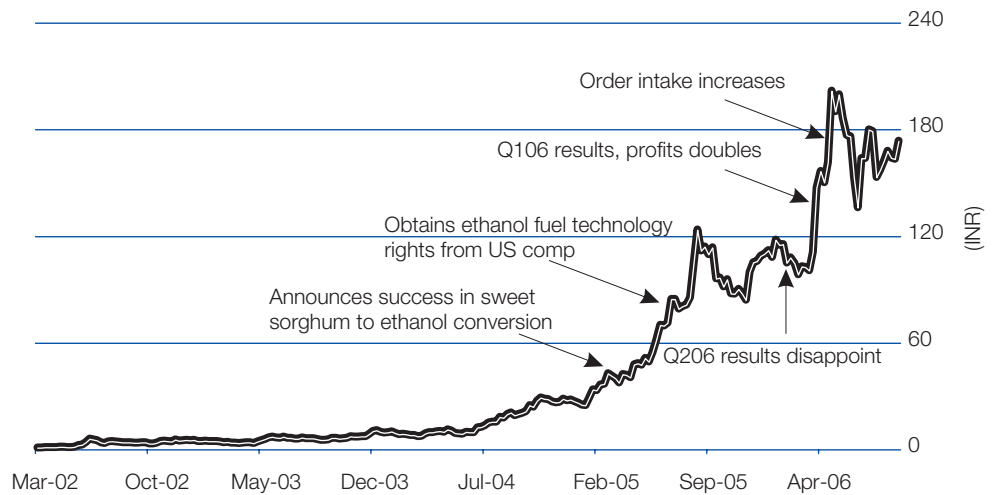
We expect raw materials as a percentage of sales to remain in the range of ~75-76% for FY07E and FY08E (FY06:75%). We expect improvement on the margins front as Praj starts executing larger orders. We forecast EBITDA margins of 13.4% and 14.3% for FY07 and FY08, respectively, compared to 11.7% for FY06, mainly on lower operating expenses as a percent of sales.

On consolidated topline revenue of INR 4.5 bn and INR 7.2 bn for FY07E and FY08E, respectively, we expect EBITDA of INR 609 mn and INR 1,035 mn for FY07E and FY08E, respectively. At a net profit margin of 9.6% and 10.8% for FY07E and FY08E, respectively, we expect net profits of INR 434 mn and INR 783 mn for FY07E and FY08E, respectively.

Valuations

On the back of 57% growth in revenues and 73% in earnings over the next three years, Praj's stock is trading at a P/E of 33.0x and 18.3x FY07E and FY08E earnings, respectively. On an EV/EBIDTA basis, it trades at 22.4x and 13.2x FY07E and FY08E earnings, respectively. Despite the attractive earnings growth and return profile, we believe that all possible near-term positives have been factored in the valuation. We believe that sustaining such premium valuations will necessitate recurring actualization of the next technological marvel, faith in which is difficult to repose at such a nascent stage. We recommend a 'Sell' on the stock.

Chart 4: Stock price triggers



Source: Edelweiss research

* DCF valuation

We have calculated Praj's value using the DCF methodology. We have worked on three scenarios as detailed below:

Scenario 1: Assuming there is no change in the business model, we assume a terminal growth rate of 0% post FY09. As the business model currently stands, we see no major entry barriers in the industry. If there is no technological breakthrough in the near future, we see competition increasing in the industry, resulting in lower growth rates and fall in margins. Based on the above assumption we get a fair value of INR 90.1 per share, which is about 96.2% lower than the current share price.

Table 7: Scenario 1- DCF calculations

NPV of cash flows	1,663
Terminal growth (%)	0.0
Implied exit FCF multiple (x)	6.5
PV of terminal value	5,402
Enterprise value	7,064
Terminal value as % of EV	76.0
Net debt	241
Equity value	7,306
Number of shares	81
Equity value/Shares (INR)	90.1

Source: Edelweiss research

Scenario 2: Current share price assumes 8.1% as terminal growth post FY09. Given Praj's current business model, we believe, the implied terminal growth rate in this scenario is on a higher level. Accordingly, given the current visibility levels, the stock is overvalued, in our opinion.

Table 8: Scenario 2- DCF calculations

NPV of cash flows	1,663
Terminal growth (%)	8.1
Implied exit FCF multiple (x)	13.9
PV of terminal value	12,426
Enterprise value	14,089
Terminal value as % of EV	88
Net debt	241
Equity value	14,330
Number of shares	81
Equity value/Shares (INR)	176.7

Current share price assumes a terminal growth rate of 8.1%

Source: Edelweiss research

Scenario 3: In case Praj is able to achieve a major technological breakthrough like economical manufacture of ethanol from cellulosic materials, we believe a terminal growth rate 1.5x the terminal growth assumed in Scenario 2 is justifiable. In this case we assume a terminal growth rate of ~12.2% post FY09. Having a technological barrier against competitors in a key industry dealing with energy requirements of the world will, in fact, result in higher growth levels. Based on the above assumptions we get a fair value of INR 388, which is about 119.5% above the current share price.

Table 9: Scenario 3- DCF calculations

NPV of cash flows	1,663
Terminal growth (%)	12.2
Implied exit FCF multiple (x)	31.9
PV of terminal value	29,570
Enterprise value	31,233
Terminal value as % of EV	95
Net debt	241
Equity value	31,474
Number of shares	81
Equity value/Shares (INR)	388.0

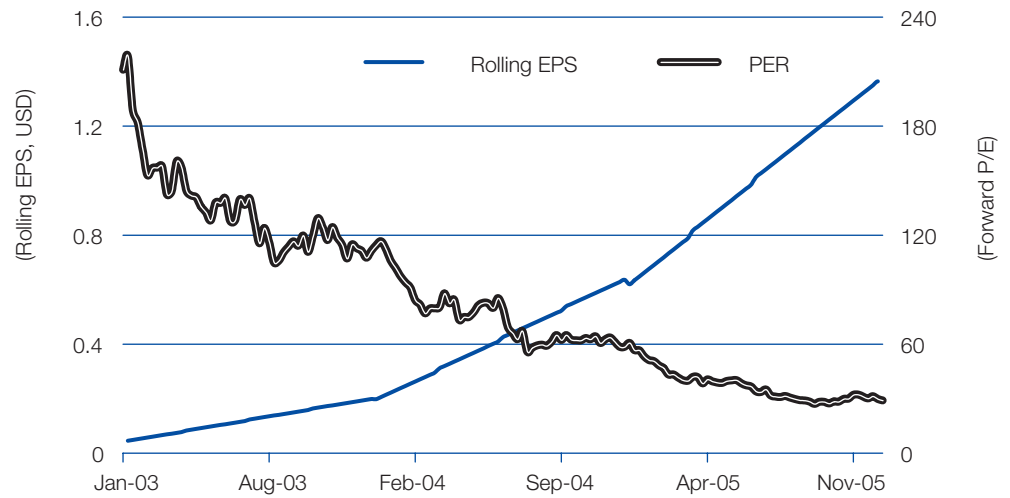
Source: Edelweiss research

✦ Relative valuations: Valuing the concept

Praj trades at a P/E of 33.0x and 18.3x FY07E and FY08E earnings, respectively. This looks expensive compared to the broader index, which has historically traded at ~14x. We believe it will be apt to compare Praj with stocks like Google and Yahoo that were selling a concept which could potentially change the existing landscape in their field of business. Companies that are in the space of innovative technology can potentially gain a windfall if their experiment succeeds. Hence, they usually trade at a premium to the broader index.

Yahoo: For the period January 2003 to December 2005, Yahoo traded at an average forward P/E of 82x. In the same period share price increased by 332.9%.

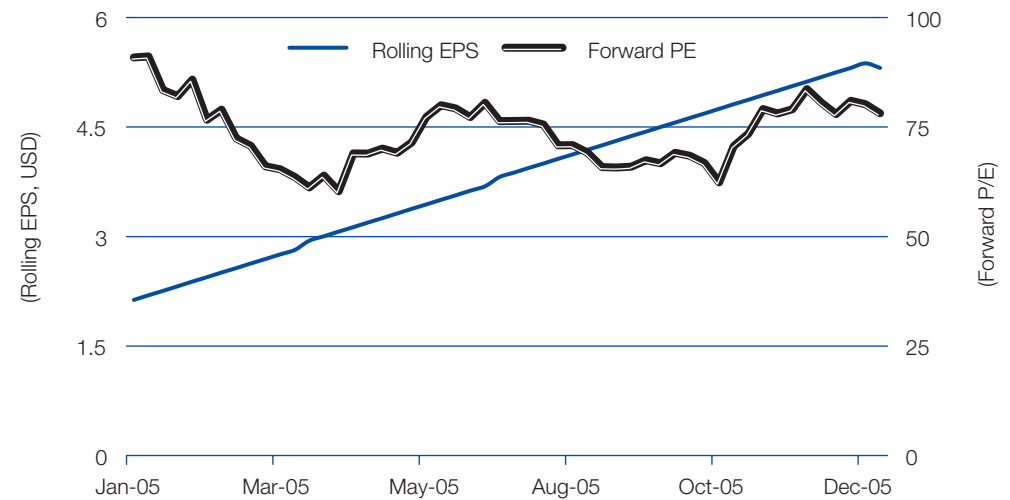
Chart 5: Yahoo forward PE



Source: Edelweiss research

Google: For January 2005 to December 2005, Google traded at an average forward P/E of 74x. In the same period, share price increased by 114%.

Chart 6: Google forward P/E



Source: Edelweiss research

PEG ratio of Praj are at levels of Google in 2005 and Yahoo from 2003 - 2005

Table 10: PEG ratios

PEG ratios	2003	2004	2005
Google	-	-	0.5
Yahoo	0.4	0.3	0.3

Source: Edelweiss research

Praj trades at a PEG ratio of 0.4 at current prices for FY07E. We believe this is on the higher side as Google and Yahoo had much bigger scale and the internet platform had greater scope of application compared to the ethanol market. Praj's current valuations price in all the positives at the current levels with no major risk of failure in emerging technological forays. As indicated by our DCF calculation, we are hesitant to assign bulk of implied stock valuation for such a distant possibility, at this point of time.

Appendix

✦ Description of world ethanol market

The world's largest ethanol market is Brazil, where ethanol is made from sugarcane. Between 1975 and 2004, the ethanol program in Brazil displaced about 230 bn liters of gasoline. The US is the second-largest market for ethanol, where most ethanol is produced from maize. Brazil and the US account for 80% of world's ethanol demand. The sizes of the Brazilian and US fuel ethanol markets today are nearly comparable, but ethanol constitutes only about 3% of the gasoline-ethanol market in the US, compared to more than 40% in Brazil.

US ethanol consumption rose from 660 mn liters in 1980 to 2.9 bn liters in 1990 and to 5.6 bn liters in 2000. In 2004, the US ethanol industry set an annual production record of 12.9 bn liters, more than double that produced in 2000. About 11% of US' maize production and more than 11% of grain sorghum production was processed into ethanol in 2004.

The European Union (EU) is pursuing large-scale expansion of bio fuel use in the transport sector. This policy will also affect the EU accession countries. Australia, China, Colombia, India, and Thailand are embarking on national bio fuel programs to varying degrees.

The European Union is the world leader in the production and consumption of bio diesel. A total of about 2.2 bn liters of bio diesel was produced in the European Union in 2004. The top three producers were Germany (1.04 mn tonnes), France (0.35 mn tonnes), and Italy (0.32 mn tonnes), accounting for 88% of the total production. In contrast, there has been little fuel ethanol production in the European Union. Ethanol in Europe is produced from sugar beets and wheat, both of which are much more expensive than sugarcane-derived ethanol. In 2003, ethanol production reached 370 mn liters. The corresponding figure in EU-25 in 2003 was 570 mn liters. Both France and Spain have established fuel ethanol industries where ethanol is not used directly, but is transformed into ETBE. In 2003, the largest consumers were Spain at 200 mn liters, Sweden at 180 mn, and France at 100 mn. Poland was close behind, producing and consuming 80 mn liters of ethanol.

✦ Colombia

In September 2001, the government approved a law requiring cities in Colombia with populations exceeding 500,000 to add 10% ethanol to gasoline beginning in 2006. Accordingly, it was estimated that meeting domestic demand in 2006 would require construction of nine new ethanol plants. Construction of the country's first ethanol plant began in December 2004. In the same month, the Congress approved a bill that permitted blending 10% ethanol in gasoline, starting in September 2005 and another that promoted the production, consumption, and commercialization of bio fuels. These measures are intended to address the concerns raised by the forecast that Colombia's self-sufficiency in hydrocarbons will cease in 2009. The bio fuel bill provides for a 10-year grace period from paying income taxes on crops and a tax exemption on bio diesel. Start-up of ethanol plants appears to be on schedule. The first ethanol plants will be run by the companies Incauca (USD 18 mn for daily capacity of 300,000 liters) and Providencia (USD 13 mn for daily capacity of 250,000 liters) in September, followed by sugarcane mills Mayaguez (USD 18 mn for daily capacity of 150,000 liters), Manuelita (USD 14 mn), and Risaralda (USD 13 mn for daily capacity of 75,000 liters) in December. The total investment by the mills in ethanol production amounts to USD 75 mn⁶.

6. Source: RFA 2005, Business News America 2004, Portfolio 2005

Financial Statements

Income statement					(INR mn)
Year to March	FY04	FY05	FY06	FY07E	FY08E
Income from operations	1,148	2,421	2,744	4,544	7,248
Direct costs	869	1,874	2,059	3,434	5,478
Employee costs	79	129	181	195	250
Other expenses	96	155	184	306	486
Total operating expenses	1,044	2,158	2,424	3,935	6,213
EBITDA	104	263	320	609	1,035
Depreciation and amortisation	16	20	27	58	83
EBIT	88	243	294	551	952
Interest expenses	8	2	5	9	14
Other income	22	33	25	25	84
Profit before tax	102	275	313	567	1,022
Provision for tax	26	62	80	133	239
Reported profit	76	213	233	434	783
Adjusted net profit	76	213	233	434	783
Shares outstanding	81	81	81	81	81
Dividend per share	0.5	1.1	1.3	0.5	3.9
Dividend payout (%)	48.0	41.1	43.9	10.3	40.8

Common size metrics as % of net revenues

Year to March	FY04	FY05	FY06	FY07E	FY08E
Operating expenses	90.9	89.1	88.3	86.6	85.7
Depreciation	1.4	0.8	1.0	1.3	1.1
Interest expenditure	0.7	0.1	0.2	0.2	0.2
EBITDA margins	9.1	10.9	11.7	13.4	14.3
Net profit margins (adjusted)	6.6	8.8	8.5	9.6	10.8

Growth metrics (%)

Year to March	FY04	FY05	FY06	FY07E	FY08E
Revenues	23.3	110.8	13.4	65.6	59.5
EBITDA	142.5	152.1	21.9	90.1	69.9
PBT	99.1	168.3	14.0	81.2	80.1
Net profit	48.0	180.0	9.2	86.6	80.4
EPS	48.0	180.0	9.2	86.6	80.4

Balance sheet

(INR mn)

As on 31st March	FY04	FY05	FY06	FY07E	FY08E
Reserves & surplus	226	340	376	771	1,202
Shareholders funds	307	421	538	933	1,364
Unsecured loans	48	0	5	0	0
Borrowings	48	0	5	0	0
Sources of funds	355	421	544	933	1,364
Gross block	256	303	403	1,153	1,227
Accumulated depreciation	88	94	121	179	262
Net block	168	208	283	974	965
Capital work in progress	11	4	20	20	20
Total fixed assets	179	212	303	995	985
Investments	0.1	103.4	371.2	371.2	371.2
Inventories	74	300	204	343	551
Sundry debtors	253	246	418	674	1,081
Cash and equivalents	167	209	321	241	1,089
Loans and advances	158	114	136	306	492
Other current assets	7	59	109	184	295
Total current assets	657	928	1,188	1,749	3,508
Sundry creditors and others	436	729	1,161	1,937	3,106
Provisions	22	69	124	245	393
Total CL & provisions	458	798	1,286	2,182	3,500
Net current assets	199	130	(98)	(433)	8
Add / (Less) : Deferred tax asset/ liability	(23)	(24)	(30)	0	0
Others	(0)	0	(2)	0	0
Uses of funds	355	421	544	933	1,364
Book value per share (BV)	4	5	7	12	17

Cash flow statement

(INR mn)

Year to March	FY04	FY05	FY06	FY07E	FY08E
Net profit	66	139	488	928	1,738
Net profit	76	213	233	434	783
Add: Depreciation	16	20	27	58	83
Add: Deferred tax	4	1	6	-	-
Gross cash flow	96	234	265	492	866
Less: Dividends	41	100	117	51	367
Less: Changes in W. C.	32	(111)	(341)	(255)	(407)
Operating cash flow	23	245	490	696	906
Less: Change in investments	103	268	-	-	-
Less: Capex	19	63	91	750	74
Free cash flow	(100)	(86)	399	(54)	832

Ratios

Year to March	FY04	FY05	FY06	FY07E	FY08E
ROAE (%)	49.6	58.5	48.5	59.0	68.2
ROACE (%)	49.8	62.7	60.8	74.6	82.9
Current ratio	1.4	1.2	0.9	0.8	1.0
Debtors (days)	80	37	56	54	54
Fixed assets t/o (x)	5.8	10.2	8.0	4.0	6.3
Average working capital t/o (x)	11.5	14.7	170.9	(17.1)	(34.1)
Gross debt/equity	0.2	0.0	0.0	0.0	0.0

Valuation parameters

Year to March	FY04	FY05	FY06	FY07E	FY08E
EPS (INR)	0.9	2.6	2.9	5.4	9.7
Y-o-Y growth (%)	48.0	180.0	9.2	86.6	80.4
CEPS (INR)	11.3	28.7	16.0	30.4	53.4
PE (x)	188.5	67.3	61.6	33.0	18.3
Price/BV(x)	46.7	34.0	26.6	15.4	10.5
EV/Sales (x)	12.4	5.8	5.0	3.0	1.9
EV/EBITDA (x)	136.4	53.3	42.6	22.4	13.2

NOTES

Naresh Kothari - 22864246

Head, Institutional Equities

Vikas Khemani - 22864206

Co-Head, Institutional Equities

INDIA RESEARCH		SECTOR	INSTITUTIONAL SALES	
Shriram Iyer	- 2286 4256	Head – Research	Nischal Maheshwari	- 2286 4205
Gautam Roy	- 2286 4305	Airlines, Textile	Rajesh Makharia	- 2286 4202
Ashutosh Goel	- 2286 4287	Automobiles, Auto Components	Shabnam Kapur	- 2286 4394
KN Srinivasan	- 4019 4946	Automobiles	Ashish Maheshwari	- 2286 4418
Vishal Goyal	- 2286 4370	Banking & Finance	Amish Choksi	- 2286 4201
Revathi Myneni	- 2286 4413	Cement	Deepak Rao	- 2286 4204
Sumeet Budhraja	- 2286 4430	FMCG, Power	Balakumar V	- (044) 4263 8283
Harish Sharma	- 2286 4307	Infrastructure, Auto Components, Mid Caps	Monil Bhala	- 2286 4363
Priyanko Panja	- 2286 4300	Infrastructure, Engineering, Telecom	Ashish Agrawal	- 2286 4301
Hitesh Zaveri	- 2286 4424	Information Technology	Nikhil Garg	- 2286 4282
Pritesh Vinay	- 2286 4429	Metals, Mining	Neha Shahra	- 2286 4276
Priyank Singhal	- 2286 4302	Media, Retail	Priya Ramchandran	- 2286 4389
Prakash Kapadia	- 2286 4432	Mid Caps	Anubhav Kanodia	- 2286 4361
Niraj Mansingka	- 2286 4304	Oil & Gas, Petrochemicals	Tushar Mahajan	- 2286 4439
Nimish Mehta	- 2286 4295	Pharmaceuticals	Harsh Biyani	- 2286 4419
Pakhi Jain	- 2286 4427	Pharmaceuticals, Agrochemicals	Nirmal Ajmera	- 2286 4258
Swati Khemani	- 2286 4266	Textile	Ankit Doshi	- 2286 4671
Manika Preamsingh	- 4019 4847	Economist	Ravi Pilani	- 4009 4533
Sachin Arora	- 2286 4512	Alternative & Quantitative	Dipesh Shah	- 2286 4434
Sunil Jain	- 2286 4308	Alternative & Quantitative		
Yogesh Radke	- 2286 4328	Alternative & Quantitative		

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unless otherwise specified

RATING INTERPRETATION

Buy	Expected to appreciate more than 20% over a 12-month period	Reduce	Expected to depreciate up to 10% over a 12-month period
Accumulate	Expected to appreciate up to 20% over a 12-month period	Sell	Expected to depreciate more than 10% over a 12-month period
Trading Buy	Expected to appreciate more than 10% over a 45-day period	Trading Sell	Expected to depreciate more than 10% over a 45-day period

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