JPMorgan

Reliance Industries Ltd

Never too late

Initiation
Overweight

Rs2,617.35
10 October 2007
Price Target: Rs2,875.00

India
Integrated Oils

Pradeep Mirchandani, CFA[AC]
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Adarsh Parasrampuria
(91-22) 6639-3097
adarsh.x.parasrampuria@jpmorgan.com

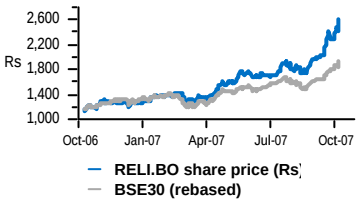
Brynjar Eirik Bustnes
(852) 2800-8578
brynjar.e.bustnes@jpmorgan.com

Samuel Lee, CFA
(852) 2800-8536
samuel.sw.lee@jpmorgan.com

- **We initiate on Reliance Industries (RIL) with OW, Mar-08 PT=Rs2,875:** We also initiate on Reliance Petroleum (RPL) with UW and Mar-08 PT=Rs156. We recommend that investors switch from RPET to RIL. We expect the RPL refinery to start in 2H08. In our view, the current valuations do not factor in project risks. Refining would form c40% of RIL's consolidated earnings in FY10/11E. While RIL is not a pure play, the current refining cash flows and downside protection weigh in its favor.
- **We prefer RIL because of its:** (1) continued strength in the refining and petrochemical cycles, (2) new earnings streams that will reduce cyclicality and bolster cash flows, (3) cashed up, underleveraged balance sheet paired with strong management track record of identifying growth opportunities and creating value, and (4) India growth factor.
- **Potential stock catalysts:** Visibility of revenues from new ventures (KG-D-6 gas from mid-08, RPL commissioning in 2H08, retail roll out) and evidence of E&P sustainability (new discoveries, quantification of finds) will be key drivers for the stock, in our view.
- **Price target, risks:** Our PT of Rs2,875 is based on the sum-of-the-parts estimate. Elongated cycles, backed by tightness across the chain, lead us to attribute 8x EV/EBITDA to refining, petrochemicals. Quantified gas discoveries are core to E&P value but are not a flash-in-the-pan. We value E&P as a sustainable business. Key downside risks to our PT are cyclical slowdown, rupee appreciation and project delays.

Reuters: RELI.BO, Bloomberg: RIL IN

Price Performance



	YTD	-1M	-3M	-12M
Absolute	104.7%	30.9%	52.0%	125.3%
Relative	60.2%	13.7%	31.1%	59.0%

Source: RIMES, Reuters.

RsMM; Y/E Mar	FY06A	FY07A	FY08E	FY09E	FY10E		
Net sales	812,113	1,116,927	1,063,836	1,106,500	1,101,423	52-week range (Rs)	2617-1138
EBITDA	144,050	202,641	219,488	281,419	291,268	Market cap (RsB)	3780139
Net profit	90,693	119,434	138,592	187,931	197,162	Market cap (US$B)	96113.0
EPS (Rs)	65.1	85.7	88.1	119.2	125.1	Shrs outsting (MM)	1454
DPS (Rs)	10.0	11.0	12.0	17.0	17.5	Price (Rs)	2617
Sales growth (%)	23.0%	37.5%	-4.8%	4.0%	-0.5%	Date of Price	10-Oct-07
Net profit growth (%)	19.8%	31.7%	16.0%	35.6%	4.9%	Free Float (%)	49%
ROE (%)	26.4%	32.6%	23.5%	22.6%	19.5%	3 mth trading value (RsMM)	7513
ROCE (%)	20.1%	25.1%	21.1%	22.6%	19.4%	3 mth trading value (US$MM)	183.0
P/E (x)	39.9	30.3	29.5	21.8	20.8	3 mth trading volume (MM)	3.8
P/BV (x)	12.7	8.1	5.6	4.4	3.7	BSE 30	18658
EV/EBITDA (%)	19.6	16.4	12.9	11.6	10.9	Exchange rate (Rs/US$)	39
Dividend yield (%)	0%	0%	0%	1%	1%	Fiscal year-end	Mar

Source: Company, JPMorgan estimates.

See page 82 for analyst certification and important disclosures, including investment banking relationships.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

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Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

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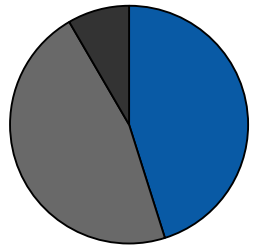
Investment summary

Company description

RIL is a conglomerate with interests in refining, petrochemicals and E&P. The company is now venturing into organized retailing and infrastructure development (SEZs). RIL is India's largest company by market cap, and is a dominant player in the domestic petrochemical market.

We initiate on Reliance Industries (RIL) with an Overweight rating and Mar-08 PT of Rs2,875. Our Overweight call on RIL is based on: (1) the company continuing to ride the upcycle in refining and petrochemicals; (2) earnings from new streams that will reduce cyclicality and bolster cash flows over FY09-10E; (3) large free cash flows, underleveraged balance sheet paired up with strong management track record of identifying and creating value; and (4) the India growth factor. Sustainable growth of E&P business and elongation of the commodity cycle drives our sum-of-the-parts value for RIL of Rs2,877. Downside risk to our rating and price target emanates from RIL's exposure to global industrial cycles in the refining and petrochemical business as well as rupee appreciation.

Figure 1: RIL—EBITDA mix



Source: Company

Positive drivers

Valuations still leave room for upside

Our sum-of-the-parts value for RIL is Rs2,877/share which provides a 10% upside potential from the current levels. We believe that sum-of-the-parts best captures the value that RIL is creating across business segments, which are diverse and at different stages of their project cycles and therefore need to be valued as separate business entities. For our sum-of-the-parts value, we decompose RIL's businesses into distinct entities and compare their value vis-à-vis regional and global peers using valuation parameters relevant to the respective industry groups.

	Rs m	US$ bn	Rs/share	Comments
EV of Refining business	777,585	19.0	494	At 8.0x EV/EBITDA
Reliance Petroleum	526,500	12.8	335	75% stake at our fair value of INR 156
Value of Refining businesses	**1,304,085**	**31.8**	**829**	
Value of Petrochem business	**896,437**	**21.9**	**570**	At 8.0x EV/EBITDA
Value of E&P assets	**1,482,688**	**36.2**	**942**	
Value of Investments and Net debt	**566,307**	**13.8**	**360**	
Value for Equity holders (Rs m)	**4,526,427**	**110.4**	**2,877**	
No. of shares (m.)	1,573			Factoring in IPCL and Warrants dilution

Source: JPMorgan estimates.

Extended refining and petrochemical upcycle

We expect the refining and petrochemical cycle to continue to do well over the next two years, but also build in a slowdown in earnings in our model from FY10E to factor in new capacity additions globally in refining and petrochemicals.

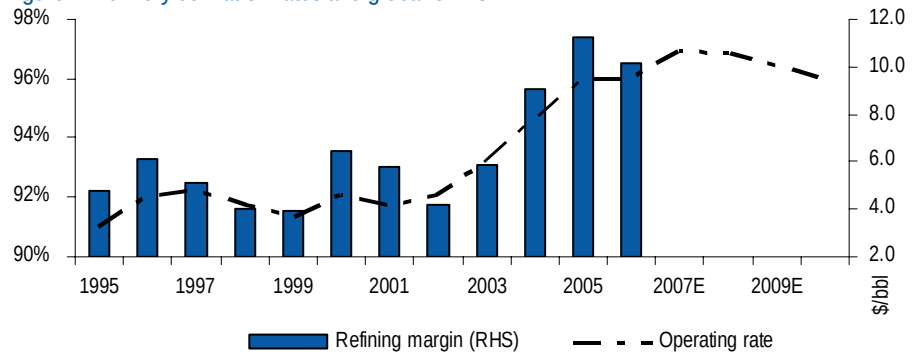
Core businesses are in an elongated cycle

Years of underinvestment in the refining industry globally has resulted in a: (1) strong upswing in margins; and (2) scramble for putting up new refinery capacities thus pushing up costs across the EPC chain, impacting project economics and schedules. The lower levels of secondary processing ability amongst older refineries have also led to widening differentials between light and heavy crude. In this scenario, refining assets with high degrees of complexity such as RIL's 660,000bpd Jamnagar refinery and RPL's 580,000bpd project (75% owned by RIL) will be winners, in our view. We expect refining margins to sustain at current levels based on the forecast operating rates globally and in the region. RIL's refineries'

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

margins will get an additional boost as they switch to cheaper gas for fueling refinery processes instead of liquid fuels (cUS$1.5-2.0/bbl upside).

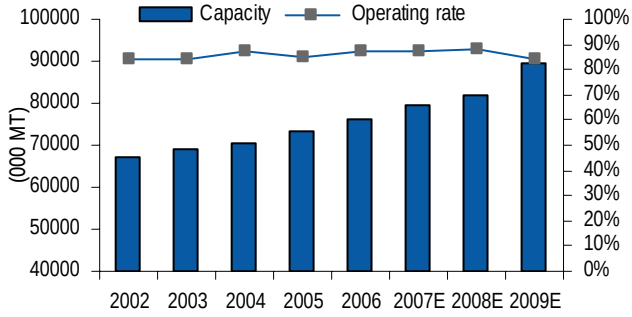
Figure 2: Refinery utilization rates and global GRMs



Source: Bloomberg, JPMorgan estimates.

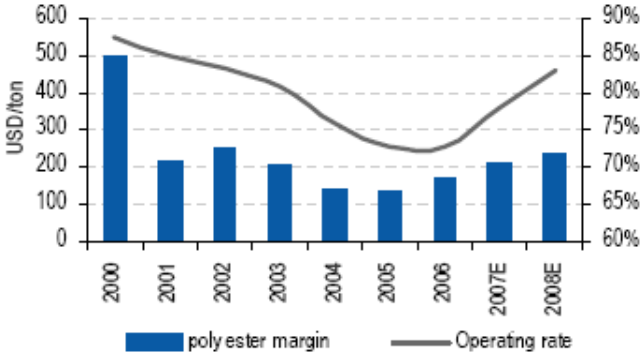
RIL benefits from its exposure across the polymer and polyester chains as well as its high degree of integration, which gives its petrochemical margins greater stability. In particular, we are positive on the polyester margins and factor in a recovery over the next three years.

Figure 3: Polymer capacity utilization to decline only in FY10



Source: CMAI, JPMorgan estimates.

Figure 4: Polyester operating rates and margins

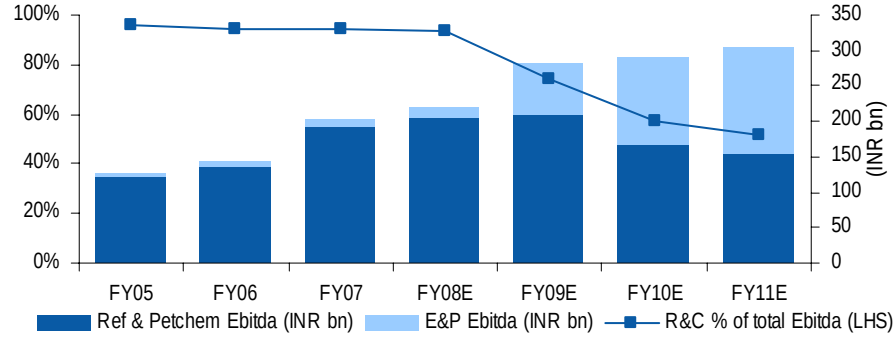


Source: CMAI, JPMorgan estimates.

Gas revenues from FY09-10E will reduce earnings cyclicality

>50% EBITDA to come from non-cyclical business by FY11E

Figure 5: RIL—Changing business mix



Source: Company, JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

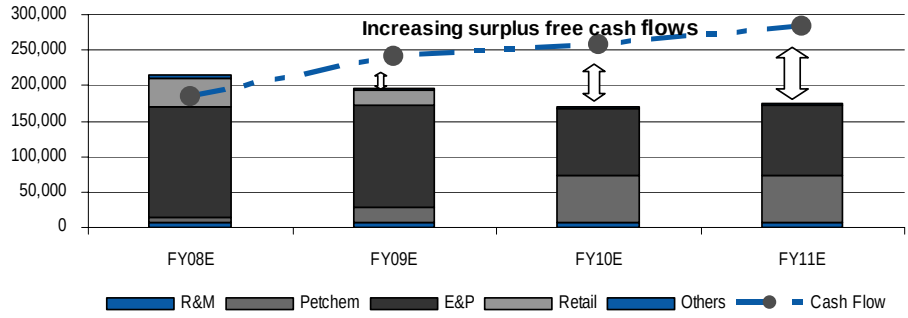
Revenues from KG D-6 gas find would start contributing meaningfully to earnings from FY09E. In addition to boosting earnings growth, this earnings stream will be stable and predictable as gas prices are fixed for a period of five years.

Underleveraged balance sheet, high cash levels

RIL's business will generate free cash of US$3.5B over FY08-11E…

RIL's core business is currently doing significantly well. With the refining and petrochemical cycles in an extended plateau phase, we estimate RIL would generate a cash flow of over ~US$16 billion from the refining and petrochemical businesses over the next four years. Also, the revenues from gas will likely kick in from FY09. Overall, we expect RIL to generate cash in excess of US$22.8 billion over FY08-11. We expect capex requirement in E&P, retail, SEZ, etc., to be US$19.4 billion over FY08-11E leaving US$3.5 billion of cash .

Figure 6: RIL—Cash flows and capex
Rs in millions



Source: Company, JPMorgan estimates.

Table 2: RIL—Capex and investment plans (FY08-FY11E)
Rs in million

	FY08E	FY09E	FY10E	FY11E	FY08-11	FY08-11 (US$ bn)
Refining & Marketing	8,000	8,000	8,000	8,000	32,000	0.8
Petrochemicals	6000	21000	66000	66000	159,000	3.9
Maintenance	6000	6000	6000	6000	24,000	0.6
2 mmt Petchem plant	0	15000	60000	60000	135,000	3.3
E&P	157000	144500	113000	118000	532,500	13.0
Exploration	40000	40000	40000	40000	160,000	3.9
D-6 Gas	82000	61500	60000	60000	263,500	6.4
D-6 Oil	30000	30000	0	0	60,000	1.5
Others	5000	13000	13000	18000	49,000	1.2
Other Capex	3000	3000	3000	3000	12,000	0.3
Strategic Investments	40000	20000	0	0	60,000	1.5
Reliance Retail	40000	20000	0	0	60,000	1.5
Total Capex and Invst.	214,000	196,500	190,000	195,000	795,500	19.4

Source: Company, JPMorgan estimates.

... and balance sheet will give additional flexibility

RIL's balance sheet is currently underleveraged. With further equity infusion (promoter warrant conversion due by FY09), we estimate debt to equity to fall to 28% by FY09. The company's cash levels could be increase further if Chevron exercises its option to raise its stake in RPL by 24% by FY09. At the current share price levels that would imply a cash inflow of US$4.3 billion, in our view.

While RIL could opt to pay-out cash—we believe management would prefer to use the liquidity to invest in new ventures—which may not be such a bad move given management's past track.

Project implementation is core competence

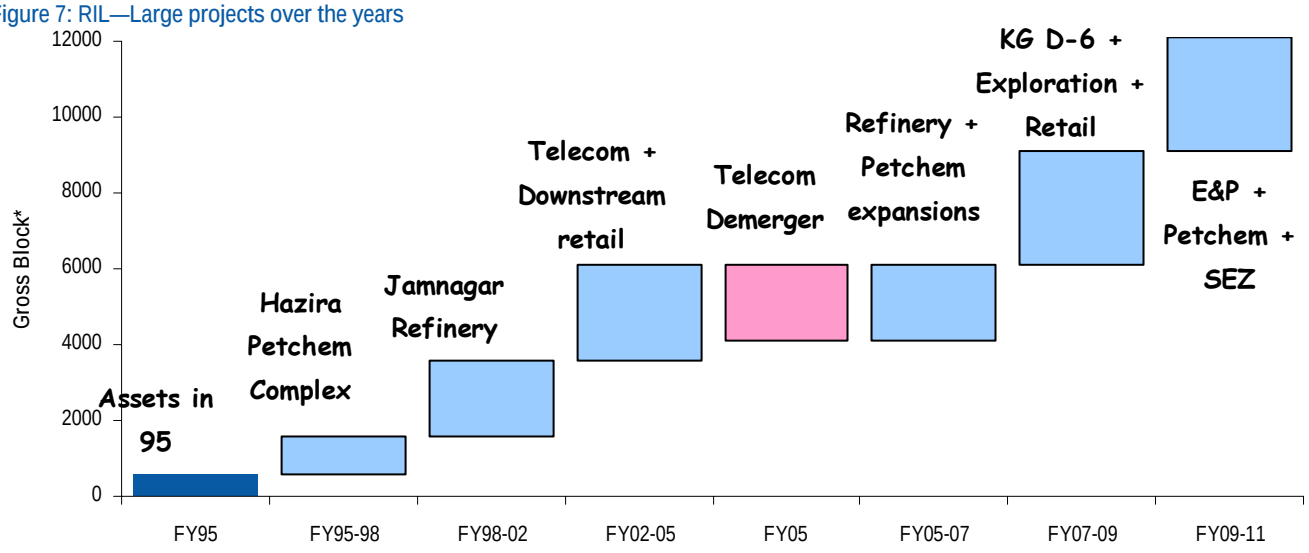
Management's core competence lies in the execution of mega-size projects. We look at 7 large projects executed by RIL over the last decade. Typically, they have generated superior returns and created value, with the exception of investments in the downstream retailing of oil. RIL has a successful track record in organic and inorganic projects (IPCL, polyester unit acquisitions in the mid-1990s).

Table 3: RIL—Return on investments

	Capital invested (CI) (RSMM)	EBIT (FY07) (RsMM)	EBIT/CI (%)	Comments
Petrochemicals	190,000	66,005	35%	Segment assets net of revaluation.
Jamnagar Refinery	253,150	77,230	31%	Initial investments + Upgradations.
Reliance Infocom#	291,500	32,600	23%*	Average gross investment (FY07). *Indicates ROE in FY11E post completion of investment phase.
RPL Refinery	270,000	76,000*	28%	Capex on new refinery. * EBIT of first full year of operations.
Downstream Oil Retail	NA**	NA	NA	Sub-optimal returns due to government policy on subsidizing auto fuels.
IPCL Acquisition	90,719	17,300	19%	CI = EV of IPCL acquisition in FY03.
KG D-6 Gas	45,51,000	134,590*	34%**	Total investment of US$11.1B in KG D-6. *Average EBITover FY11-FY15E **IRR of KG D-6 project

Source: JPMorgan estimates. **Exact value of downstream retail investments are difficult to estimate as there is a franchisee element. # managed by Anil Dhirubhai Ambani Group from 2005.

Figure 7: RIL—Large projects over the years



Source: JPMorgan estimates. *Gross block includes strategic investment and is indicative in nature, not reflective of exact investments.

They are project junkies! Dare we guess which the next big 'un is?
We project that RIL would have US$ 3.5 billion surplus cash over the next four years. Currently, the balance sheet D/E is low at 0.3x, and adding leverage to the balance sheet would yield additional cash. We think that this cash could be deployed for: (1) further investments in current businesses, (2) inorganic growth opportunities

that may open up, particularly, if there is a global economic slowdown, and/or (3) investment in new business opportunities within India.

RIL plans to invest over US$1 billion/year in exploration and US$3 billion+ for a petrochemical cracker expansion. It could opt to increase the quantum of investments in these sectors through further organic spending or acquisitions. The company has used slowdowns to acquire distressed assets (polyester units acquired during the mid-1990s). A global slowdown could create value buying opportunities for RIL, in our view.

A few common threads in RIL's projects are: (1) integration (either forward or backward) to capture value across the chain (e.g. petrochemical to refining to E&P); (2) entry into sectors that could benefit from the liberalization policies (e.g. refining, E&P, telecom, retail); and (3) domestic growth.

… RIL is a play on India growth

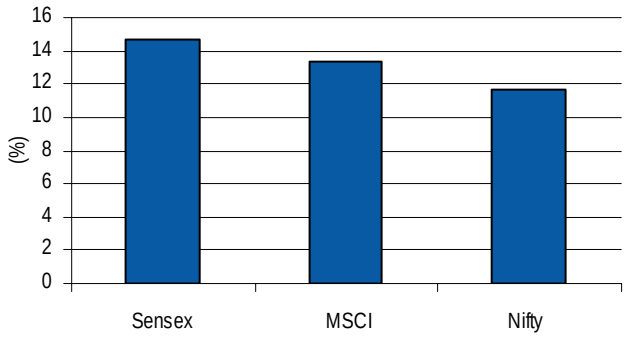
RIL has a dominant position in India's petrochemical and refining sector. By FY10, we estimate that it will produce half of India's gas. The aggressive roll out of retail stores will also give the company a bigger share of the India wallet. While we cannot predict about RIL's next project, we are reasonably certain it will be linked to a domestic opportunity. The fast pace of India's economic growth will provide opportunities for RIL to deploy cash in value creating projects.

Table 4: RIL—Projects it could get involved in

Industry	Comment
City Gas Distribution	Availability of own gas would tie in with RIL's integration theme. New regulator is in place and clarity on authorization of new network will be positive.
Fertilizers	Forward integration for using gas to manufacture urea. Heavily regulated industry currently dominated by government/co-operative sector much like how petrochemical, refining and telecom sectors were prior to RIL's entry.
Infrastructure	Experienced in setting up own jettys, townships. Can use expertise in other infrastructure creating activities.
Healthcare	Very few organized players in secondary and tertiary healthcare. Large opportunity given India's growing need for quality healthcare.
Offshore Services/Drilling	Internal requirement could be huge over the coming decade.
Logistics	Largely unorganized in the domestic context. Can tie in with supply chain needs of retail as well.

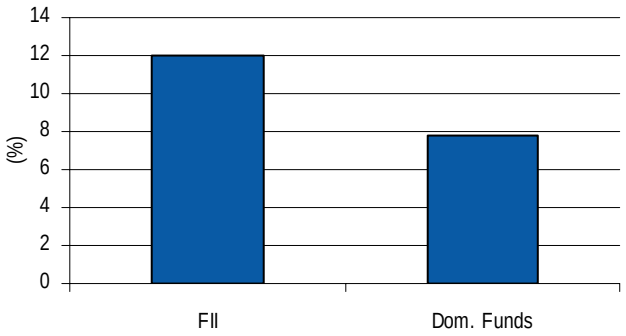
Source: JPMorgan.

Figure 8: RIL—Weightings in benchmark indices



Source: Bloomberg, MSCI

Figure 9: RIL—Ownership (as % of Nifty holdings on 30 June 2007)



Source: NSE India, Capitaline

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

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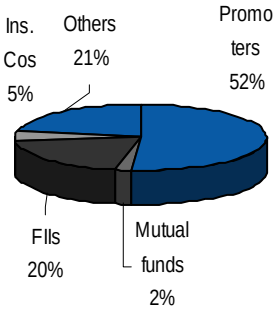
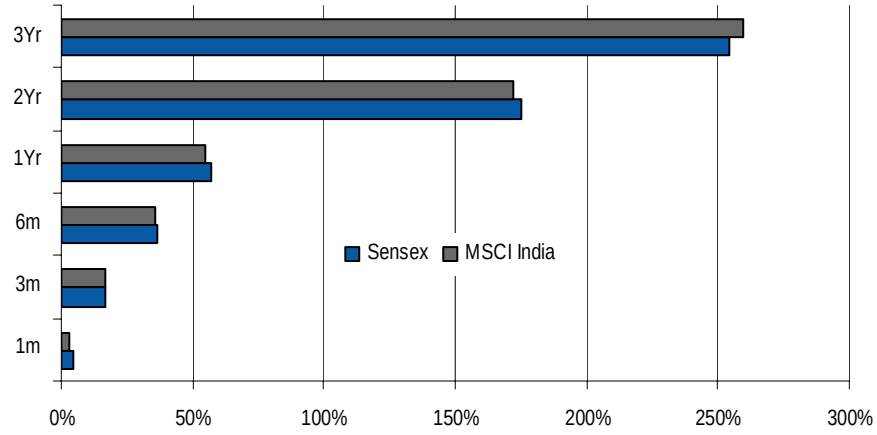
Figure 11: RIL—Shareholding pattern



Source:NSE

Figure 10: RIL—Outperformance vs. benchmark indices



Source: Bloomberg

Negative drivers and risks to our price target

Global cyclicality
RIL operates in two global cyclical industries (viz. refining and petrochemicals). While future earnings streams from gas and retail will progressively lower earnings risks, its current earnings are linked to global economic wellbeing. If global demand for refinery products is flat due to economic slowdown (we assume 1.8% demand growth in our base case), refinery operating rates would fall to 89% (from 96% in our base case), putting pressure on margins.

Forex risk
Though most of RIL's raw material and products are US dollar denominated, the reporting currency is the rupee. We think that the rupee strengthening against a global basket of currencies would be a greater cause of concern than a weakening dollar, as dollar weakness would likely be compensated by commodity price adjustments.

Project risks
RIL is in the midst of large projects in E&P, retail and refining, and we believe that delays and cost escalation could impact economics and value.

Regulatory risk
RIL's businesses operate in a fluid regulatory environment. Given the mounting oil under-recoveries, any adverse domestic policy decisions on oil refiners could have a negative impact. Alternately, the regulator could get the government to apply the subsidy sharing mechanism for private oil retailers as well (positive). Another key area of uncertainty is retailing, where political posturing could delay the roll out in some states.

Sensitivity analysis
We believe that our valuations for the E&P and retail businesses are relatively less susceptible to global factors. For the gas business, the bulk of the value is from the KG D-6 gas block. Gas prices have been fixed and there is low sensitivity of value to prices fixed for NTPC/RNRL as returns are based on investment multiples. We think that growth and visibility with the opening of new formats will protect the retail business' valuations.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

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RIL's diverse value drivers make it less sensitive to adversities in the single business segment

The table below outlines the key sensitivities for RIL and the possible gloom and doom scenarios for the entire business.

Table 5: RIL—Sensitivities on SOTP

Currency risk (INR/USD)	SOP Value	(% Change)
39.0	2748	-4.5%
40.0	2812	-2.2%
41.0 (Base Case)	2877	0.0%
42.0	2942	2.2%

Refining Margins	Refining value/share	% Change	SOP Value	(% Change)
+ US$ 2.0/bbl	990	19%	3038	5.6%
+ US$ 1.0/bbl	909	10%	2957	2.8%
Base Case	829	0%	2877	0.0%
- US$ 1.0/bbl	746	-10%	2794	-2.9%
- US$ 2.0/bbl	667	-20%	2715	-5.6%

Petrochemical Margins	Petchem value/share	% Change	SOP Value	(% Change)
+ 20% Petchem Ebitda	684	20%	2991	4.0%
+ 10% Petchem Ebitda	627	10%	2934	2.0%
- 10% Petchem Ebitda	513	-10%	2820	-2.0%
- 20% Petchem Ebitda	456	-20%	2763	-4.0%

Gas Price (KG D-6)	E&P/share	% Change	SOP Value	(% Change)
US$ 3.5/mmbtu	853	-9%	2788	-3.1%
US$ 3.75/mmbtu	841	-11%	2775	-3.5%
US$ 4.0/mmbtu	901	-4%	2836	-1.4%

Project Risks	Segment/share	% Change	SOP Value	(% Change)
6 mnts delay in RPL commisioning	812	-2%	2860	-0.6%
6 mnts delay in KG D-6 development	900	-5%	2834	-1.5%

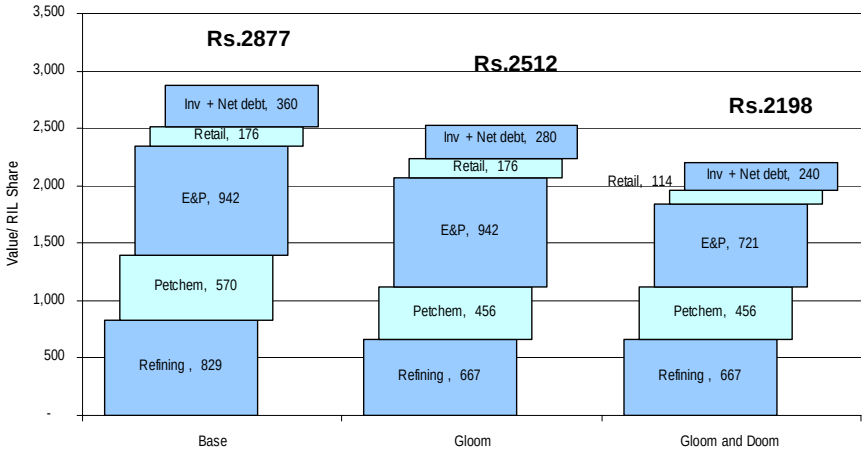
Source: JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

RIL's SOTP decreases by 12% if global slowdown impacts refining and petrochemical margins

Scenarios for RIL valuations

Figure 12: RIL—Valuation sensitivity to various scenarios



Source: JPMorgan estimates.

Gloom: Impact of global slowdown could take our SOTP to Rs2,512/share

- **Refining:** Gross refining margins reduce by US$2.0/bbl.
- **Petrochemicals:** Petrochemical EBITDA margins reduce by 20%.

Gloom and doom: If everything goes wrong, then our SOTP value decreases to Rs2,198/share

- **Refining:** Gross refining margins reduce by US$2.0/bbl.
- **Petrochemicals:** Petrochemical EBITDA margins reduce by 20%.
- **E&P:** (1) KG D-6 gas price of US$3.5/mmbtu (assuming gas price ruling in favor of NTPC and RNRL) and only 80mmscmd of production from KG D-6. (2) Attaching "0" value to all our unaccounted E&P prospects and valuing sustainability premium at book value of exploration expenses to be incurred.
- **Retail:** Net margins reduce by 100bp (from 4.5% to 3.5%) and assuming two-year delay in roll-out.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

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Valuation and share price analysis

Our sum-of-the-parts value for Reliance Industries (RIL) is Rs2,877/share which provides 10% upside potential from the current levels. We believe that sum-of-the-parts best captures the value that RIL is creating across various business segments, which are diverse and at different stages of their project cycles and therefore need to be valued as separate business entities. For our sum-of-the-parts value, we decompose the company's businesses into distinct entities and compare their values vis-à-vis regional and global peers using valuation parameters relevant to the respective industry groups.

Table 6: RIL—Sum-of-the-parts valuation

	Rs m	US$ bn	Rs/share	Comments
Refining Business				
Existing Refinery				
FY09E Refining EBITDA	97,198			
EV of Refining business	777,585	19.0	494	At 8.0x EV/EBITDA
Reliance Petroleum	526,500	12.8	335	75% stake at our fair value of INR 156
Value of Refining businesses	**1,304,085**	**31.8**	**829**	
Petrochemicals				
FY09E Petchem EBITDA	112,055			
Value of Petrochem business	**896,437**	**21.9**	**570**	At 8.0x EV/EBITDA
E&P Assets				
Producing assets				
FY09E Other EBITDA	14,353			
Other Businesses (largely E&P)	93,292	2.3	59	At 6.5x EV/EBITDA
E&P Assets	1,389,396	33.9	883	SOP of E&P assets with sustainability premium
Value of E&P assets	**1,482,688**	**36.2**	**942**	
Organised Retail	**276,910**	**6.8**	**176**	15.0x FY15 net profit (discounted)
Investments and Net debt				
Treasury stock	567,809	13.8	361	
Net Debt (FY08)	1,502	0.0	1	(Debt - Investments* -Cash) . *excluding BV of investment in RPL, Retail
Value of Investments and Net debt	**566,307**	**13.8**	**360**	
Value for Equity holders (Rs m)	**4,526,427**	**110.4**	**2,877**	
No. of shares (m.)	1,573			Factoring in IPCL and Warrants dilution
E&P Assets (SOP)	**Rs mn**	**US$ bn**	**Rs/Share**	
KG D-6 Gas	556639	13.6	354	DCF based on 120 mmscmd of peak production
KG D-6 Oil	96186	2.3	61	Valuation based on OGIP reserve of 398 mn bbls
Upsides from KG D-6 Gas	188411	4.6	120	30% recovery of undeveloped OGIP reserves at KG D-6 Valuation
NEC-25 + CBM	116968	2.9	74	NEC -25 50% recovery at US$ 4.3/boe and CBM at 50% recovery at US$ 3.5/boe
Sustainability premium	431192	10.5	274	45% premium to quantified discoveries
Total E&P Valuation	**1389396**	**33.9**	**883**	**c.7.5 x Average Annual E&P Cashflows FY11-15**

Source: JPMorgan estimates.

Refining business (including RPL) contributes 33% of our sum of parts

Refining

We ascribe an enterprise value of Rs777 billion (US$19.0 billion), and Rs494/share for RIL's own refining business. This is based on an EV/EBITDA multiple of 8.0x FY09E, marginally ahead of its regional peers. While refining margins are in an elongated cycle, the EBITDA multiple is justified with Asian and global operating rates continuing at 96-97% levels over FY07-FY11E. In our view, elongated cycles, backed by tightness across the value chain as witnessed in the refining and petrochemical segments will result in higher earnings multiples attributed to these traditional cyclical industries. For example, in the steel industry, the elongation of the cycle has resulted in a re-rating of Asian steel companies.

Our refining EBITDA is based on a margin assumption of US$12/bbl (US$6/bbl premium to our medium-term Singapore refining margin estimates of our Asian refining team) for RIL's refinery. Value ascribable to the refining business is sensitive to refining margin assumptions and a US$1/bbl higher GRM assumption will add Rs50/share to RIL's core valuation.

Table 7: Global refining companies' valuations

	P/E			EV/EBITDA		
	2006	2007E	2008E	2,006	2007E	2008E
Europe average	17.84	14.04	11.76	9.58	8.09	6.89
US average	10.56	8.51	12.96	7.15	5.51	7.59
Asian average	13.48	12.27	12.75	8.61	7.99	7.76
Global average	14.54	12.01	12.39	8.63	7.36	7.35

Source: JPMorgan estimates.

RPL contributes Rs335/share (13%) to RIL's SOTP

RIL also offers an additional play on the refining cycle through it holding in Reliance Petroleum Ltd (RPL). We ascribe a value of US$12.8 billion to RIL's 75% stake in RPL, based on 8.0x EV/EBITDA and NPV of tax benefits (Rs156/share).

RPL has been created as a sharper mirror image of the RIL refinery ('intelligent repeat', according to management). The advantage of greater complexity (ability to process heavier crude) and better product slate (high value clean fuels) will be to some extent offset by the smaller size of the refinery and higher operating costs (higher fuel and loss). We believe the RPL refinery's value should not be higher than the value attributed to RIL's own refinery as the higher cash flows and tax advantage (cUS$3.1 billion), which will accrue to the refinery, will be offset by ongoing cash flows till the start of the RPL project. Additionally, there is an element of project risk for the company, in our view.

Petrochemicals contribute 23% to our SOTP

Petrochemicals

We value RIL's petrochemicals business at US$21.9 billion (Rs570/RIL share) based on 8x EV/EBITDA. The Asian average multiple ex-Taiwan is 7.5x EV/EBITDA. RIL's petrochemical business deserves premium valuation, in our view, due to its high level of integration and exposure to both the polymer and polyester cycles. The high level of integration provides a natural hedge towards volatility for particular products. The polyester cycle is also likely to witness a cyclical recovery, even while the polymer chain may witness some pressure over FY08-10E.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Table 8: Global petrochemicals valuations

	P/E			EV/EBITDA		
	2006	2007E	2008E	2006	2007E	2008E
Asian average	16.22	12.33	11.64	15.49	11.28	10.14
Asia excl Taiwan	16.27	12.14	11.54	11.87	8.30	7.50
US Average	19.12	14.59	12.98	5.58	7.10	6.82
Global average (excl. Taiwan)	17.69	13.37	12.13	8.72	7.70	7.20

Source: JPMorgan estimates.

E&P contributes 37% to our SOTP (Rs856/share)

Exploration and production: An evolving, sustainable business model

We value RIL's E&P business at US$36.2 billion, including currently producing properties. We believe that gas discoveries, which form the core of the E&P valuations, are not a flash-in-the pan but part of an evolving and sustainable E&P business model.

Table 9: RIL—E&P valuation—Excluding currently producing properties

E&P Assets (SOP)	Rs mn	US$ bn	Rs/Share	
KG D-6 Gas	556639	13.6	354	DCF based on 120 mmscmd of peak production
KG D-6 Oil	96186	2.3	61	Valuation based on OGIP reserve of 398 mn bbls
Upsides from KG D-6 Gas	188411	4.6	120	30% recovery of undeveloped OGIP reserves at KG D-6 Valuation
NEC-25 + CBM	116968	2.9	74	NEC -25 50% recovery at US$ 4.3/boe and CBM at 50% recovery at US$ 3.5/boe
Sustainability premium	431192	10.5	274	45% premium to quantified discoveries
Total E&P Valuation	**1389396**	**33.9**	**883**	**c.7.5 x Average Annual E&P Cashflows FY11-15**

Source: JPMorgan estimates.

KG D-6 gas is at the core of our value for E&P

The DCF value of the KGD-6 block forms the core of the value we attribute to RIL's upstream E&P business. We value RIL's KG D-6 gas at US$13.6 billion, which translates into Rs354/share. In our valuation, we factor in capital expenditure of US$11.1 billion and peak production of 120mmscmd. We assume an aggressive ramp up in production from mid-2008. We also provide for upside from KG D-6 gas, valuing it at US$4.6 billion (Rs120/RIL share) based on KG D-6 valuations.

We attribute value to the quantified hydrocarbon discoveries made by RIL viz. NEC-25, MA1Oil and CBM blocks (US$5.2 billion, Rs135/share).

E&P business is sustainable and needs to be valued as such

Prima facie, our sustainability premium of 45% to the value of the quantified hydrocarbon discoveries factors in: (1) possible upside in production and recovery from the known/quantified discoveries; (2) potential upside from highly prospective blocks like KG D-9 and Mahanadi D4; and (3) RIL's track record on drill bit success and its large portfolio of unexplored blocks. On a cash flow basis, our value for RIL's E&P business works out to 7.5x average annual cash flows from quantified discoveries over FY11-FY15. RIL will use the full cost method for accounting for its E&P business, so the planned spend of US$1 billion/year will create substantial tax shields even if further E&P success proves elusive.

Table 10: RIL—Drill bit success

	Drilled	Success	Success ratio (%)
Deepwater	24	19	79%
Shallow Water	17	12	71%
Relinquished	9	0	0%
Total	50	31	62%

Source: Company, JPMorgan estimates.

Retail contributes 7% to our SOTP

Organized retail

We attribute a value of US$6.9 billion (Rs176/RIL share) to Reliance Retail based on 63% CAGR increase in sales over FY08-15E, a debt:equity ratio of 2:1, WACC of 10% and terminal net earnings multiple of 15x. The valuation implies EV/Sales of 1x. We think the above valuations are in line with global valuations and appropriately reflect long-term growth opportunities in India.

Table 11: Valuation framework for Reliance Retail

	Assumption	FY08E	FY12E	FY15E
Space (MM sq ft)	63% CAGR	3	40	100
Sales (US$B)	US$ 200 per feet	0.6	8	20
Net Margins	EBIDTA of 12%			4.5%
Investment (US$B)				
Stores	US$50/sq ft	0.2	2.0	5.0
Ownership	30% is owned	0.1	1.2	3.0
Supply Chain	10% of sales	0.1	0.8	2.0
Total		0.3	4.0	10.0
Value (US$B)		6.9	10.1	13.5

Source: JPMorgan estimates.

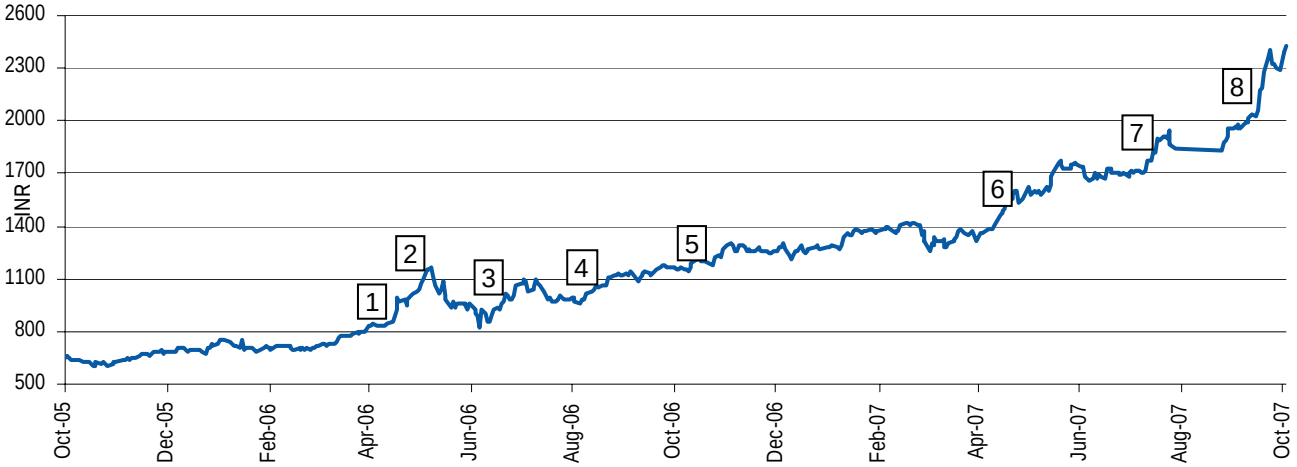
SEZ

We believe that it is too early to assign any incremental value for RIL's SEZ foray. We value the SEZ at a book value of RIL's investment in the SEZ business (Rs15 billion) and have included it in investments.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Figure 13: News flow has driven RIL's stock performance over the last 2 years



Source: Bloomberg, JPMorgan estimates.

Table 12: Significant events over the last 2 years

1	RPL IPO, Chevron buys a stake in RPL
2	RIL announces foray into infrastructure development with SEZ plans
3	NIKO release confirms higher reserves estimate for KG D-6 block to 35 TCF
4	News flow on progress on RPL project
5	News flow on Reliance Retail plans and announcement on doubling of production from KG D-6 block
6	RIL announces two further hydrocarbon discoveries (one in KG basin and other in Gujarat Saurashtra basin)
7	RIL announces its first hydrocarbon discovery in Cauvery basin
8	Gas price approved at US$4.2/mmbtu and announcement of another hydrocarbon discovery in KG D-4 block

Source: Bloomberg, JPMorgan.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Financial analysis

We expect RIL's earnings to grow at 18% CAGR over FY07-10E. Key assumptions in our forecasts are given in the table below:

Table 13: RIL—Key assumptions

Firm Wide Assumptions	FY08E	FY09E	FY10E	FY11E
Macro Assumptions				
WTI (US$/bbl)	62.6	60.0	58.8	55.0
INR/USD	41.0	41.0	40.0	40.0
Refining				
Crude throughput (mmt)	33.0	33.0	33.0	33.0
GRMs (US$/bbl)	12.0	12.5	12.0	12.0
Singapore GRMs	6.0	6.0	6.0	6.0
Petrochemicals				
Petchem Production				
Ethylene (mt)	1580000	1580000	1580000	1580000
PP (mt)	1735000	1735000	1735000	1735000
PE (mt)	1055000	1055000	1055000	1055000
PVC (mt)	593750	593750	593750	593750
PX (mt)	1805000	1900000	1900000	1900000
PTA & MEG (Mt)	2542900	2637000	2637000	2637000
PFY & PSF (mt)	1508600	1588000	1588000	1588000
Petchem Margins				
Ethylene - Naphtha	500	460	350	350
LDPE - Ethylene	180	190	130	130
HDPE - Ethylene	150	160	100	100
PVC Integrated	265	250	230	230
PX - Naphtha	500	530	500	500
PTA - PX	150	150	160	160
MEG - Ethylene	290	280	250	250
POY - (PTA + MEG)	230	240	260	260
Exploration and Production				
Existing Assets				
Oil Production (b/d)	17248	17248	17248	17248
Gas Production (mmscmd)	4.98	4.98	4.96	4.95
KG D-6				
Production (mmscmd)	0.0	33.3	65.0	80.0
Gas Price (US$/mmbtu)		4.20	4.20	4.20

Source: Company data, JPMorgan estimates.

We assume flat regional GRMs in FY09E and FY10E; for RIL, a fall in GRM differentials over Singapore margins would be partly compensated by savings in fuel expenses (KG D-6 gas)

We expect petrochemical margins to moderate by FY10

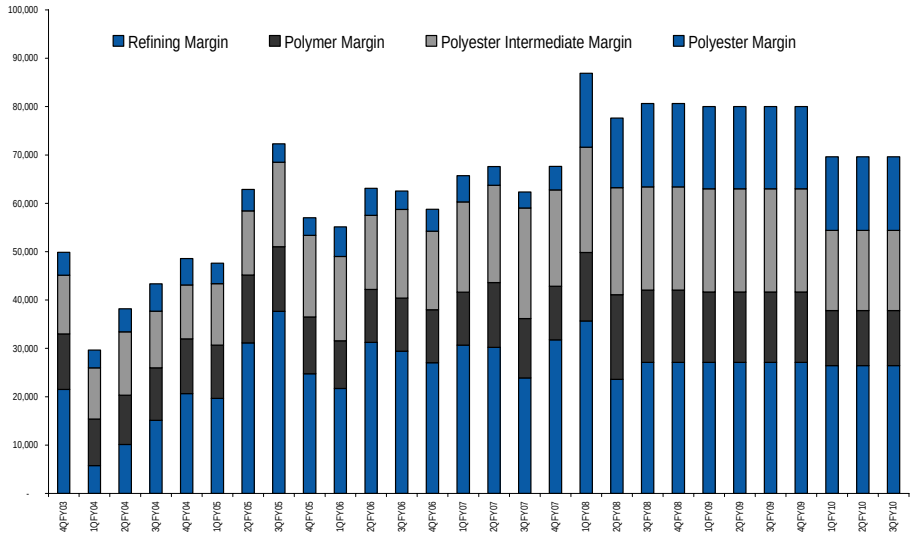
We build in a fast ramp-up in KG D-6 production from mid-2008

Introducing ReliTracker

ReliTracker is a tool we have developed to track the impact of changing products and raw material prices on RIL's refining and petrochemicals business. The ReliTracker calculates the composite margin for RIL based on its capacities and the spread between products and raw materials across its various business segments. The tool uses international prices, adjusted for Indian tariffs to arrive at the net contribution from various businesses to RIL. The chart below illustrates the impact of our assumptions on RIL's earnings from the refining and petrochemicals businesses and our estimates on segment contributions over FY04 to FY10E

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

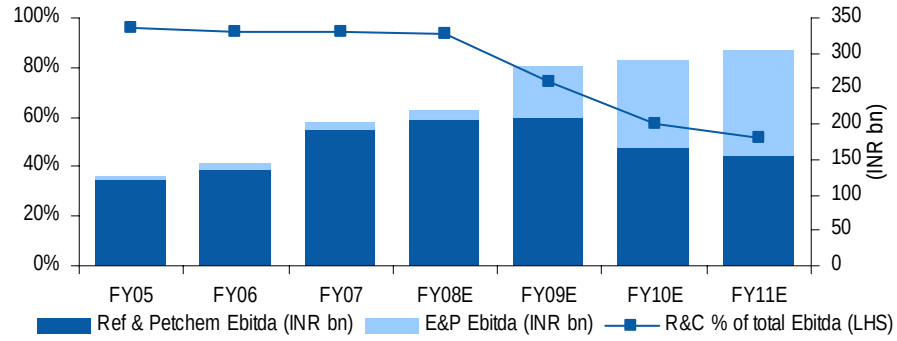
Figure 14: ReliTracker (Index)



Source: JPMorgan estimates.

Gas revenues will help offset declining petrochemical margins in FY10

Figure 15: RIL—Changing EBITDA mix



Source: JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Financial model

We estimate RIL's EBITDA to increase by 13% CAGR between FY07 and FY10 and net profits to increase by 18% CAGR during the same period as moderation in refining and petrochemical margins would be compensated by increasing gas revenues. Based on the expected gas revenues in FY11E, we expect tax rates to decline to 13% (due to a 7-year tax holiday on E&P profit).

Earnings from gas stream will drive an EPS CAGR of 14% over FY07-10E

Table 14: RIL—Profit and loss statement
Rs in millions, year-end March

	2006	2007	2008E	2009E	2010E	2011E
Net external sales	812,113	1,116,927	1,063,836	1,106,500	1,101,423	1,091,129
Growth	23%	38%	-5%	4%	0%	-1%
EBIDTA	144,050	202,641	219,488	281,419	291,268	303,889
Depreciation	(34,009)	(48,152)	(44,121)	(50,000)	(58,741)	(62,905)
EBIT	110,041	154,489	175,368	231,418	232,527	240,985
Financial expenses	(8,770)	(11,889)	(11,334)	(9,867)	(9,622)	(9,377)
Other income	5,770	2,604	9,207	11,683	14,713	17,827
Profit before tax	107,041	145,205	173,240	233,235	237,619	249,435
Current tax	(9,307)	(16,574)	(17,324)	(21,573)	(19,265)	(14,974)
Deferred tax	(7,040)	(9,196)	(17,324)	(23,730)	(21,191)	(16,471)
Reported net profit	90,693	119,434	138,592	187,931	197,162	217,990
Number of shares (MM)	1393.2	1393.2	1573.4	1576.2	1576.2	1576.2
EPS (Rs)	65.1	85.7	88.1	119.2	125.1.	138.3

Source: JPMorgan estimates.

RIL's balance sheet will get an equity infusion from the warrant conversion and ESOPs.

High cash generation would lead to an increasingly under-leveraged balance sheet

Table 15: RIL—Balance sheet
Rs in millions, year-end March

	FY05	FY06	FY07	FY08E	FY09E	FY10E	FY11E
Net fixed assets	349,582	441,935	532,517	659,922	783,538	892,488	1,003,054
Investments	247,128	76,309	211,366	379,961	468,824	537,023	619,437
Cash	36,088	21,462	18,354	10,000	10,000	10,000	10,000
Total cur. assets	207,488	200,645	237,319	241,101	240,691	238,562	234,903
Total cur. liabilities	213,983	214,253	255,604	290,350	318,685	337,489	353,587
Net current assets	(6,496)	(13,608)	(18,285)	(49,248)	(77,994)	(98,927)	(118,684)
Total assets	590,215	504,636	725,598	990,634	1,174,367	1,330,584	1,503,807
Total debt	187,846	218,656	278,007	263,066	258,990	254,152	250,078
Shareholders' funds	402,369	285,980	447,590	727,568	915,378	1,076,432	1,253,729
Total liabilities	590,215	504,636	725,598	990,634	1,174,367	1,330,584	1,503,807

Source: JPMorgan estimates.

Gas revenues will boost operating cash flow from FY09E.

Operating cash flows of US$26.0 bn over FY07-FY11 v/s capex requirement of US$ 19.4 bn

Table 16: RIL—Cash flows
Rs in millions, year-end March

	2006	2007	2008E	2009E	2010E	2011E
Net profit	90,693	119,434	138,592	187,931	197,162	217,990
Depreciation etc	34,009	48,152	44,121	50,000	58,741	62,905
Gross cash flow	124,703	167,586	182,713	237,932	255,903	280,895
Working capital	(7,514)	1,569	22,983	29,618	21,690	20,427
Operating cash flow	117,189	169,155	205,696	267,549	277,593	301,322
Capex	(126,365)	(82,380)	(179,610)	(173,500)	(187,000)	(192,000)
Dividends & div tax	(15,886)	(16,425)	(21,240)	(30,145)	(31,032)	(35,465)
Net change in investments	128,876	(52,182)	(40,000)	(20,000)	0	0
Free cash flow	103,814	18,167	(35,154)	43,904	59,562	73,857
Equity issues	(191,193)	2,248	169,440	36,618	0	0
Net (debt)/cash change	(87,379)	20,416	134,286	80,522	59,562	73,857

Source: JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

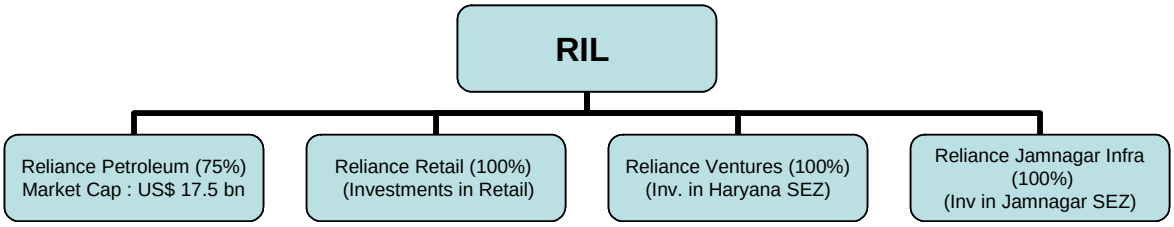
JPMorgan

Company and industry analysis

Reliance Industries (RIL), founded by Dhirubhai H. Ambani, is India's largest conglomerate with businesses in the energy and materials value chain. Starting with textiles in the 1970s, RIL ventured into polyester, fiber intermediates, plastics, petrochemicals, petroleum refining and oil and gas exploration and production, and today is a fully integrated player in materials and the energy value chain. The company is now venturing into organized retail and infrastructure development (SEZs).

In 2005, as part of the family settlement, RIL underwent substantial restructuring. Dhirubhai Ambani's elder son, Mukesh Ambani, retained control of RIL with the core petrochemical, refining and E&P businesses. The younger son, Anil Ambani, got control of the telecom, power utility and financial services businesses.

Figure 16: RIL—Subsidiary holding



Source: Company

RIL's merger of Reliance Petroleum (an earlier refining subsidiary) and IPCL has created treasury stock within the company, which might be used to raise resources or fund acquisitions.

Table 17: RIL—Milestones

Year	Milestone
1977	RIL went public with IPO.
1982-88	RIL starts and expands its PFY, PSF, PX plant in Patalganga.
1991-92	Commissioned Hazira Petrochemical Complex.
1993	Reliance Petroleum IPO : India's largest equity issue at that time
1998	Completes phase-II expansion of Hazira Petrochemicals Complex including world's largest multi-feed cracker, PET plant.
1999-2000	Jamnagar Petrochemicals Complex and bulk of integrated refinery complex commissioned.
2002	(1) Reliance Infocomm launches services. (2) India's biggest gas discovery in nearly three decades and one of the largest discoveries in the world during 2002. (3) RIL-RPL merger announced. (4) RIL acquires control of IPCL.
2003	(1) Reliance Infocomm acquires FLAG Telecom. (2) RIL acquires stake in BSES (electric utility company).
2004	(1) Announces discovery in Orissa coast. (2) First private sector Indian company to record US$1.0B in net profit.
2005	Demerger following a settlement between Dhirubhai Ambani's two sons (Reliance Infocomm, financial services business and utilities business were demerged). Mukesh Ambani retains core refining, petrochemicals and E&P businesses.
2006	RIL commences work on 29mmt refinery in Jamnagar (RPL).

Source: Company, JPMorgan

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

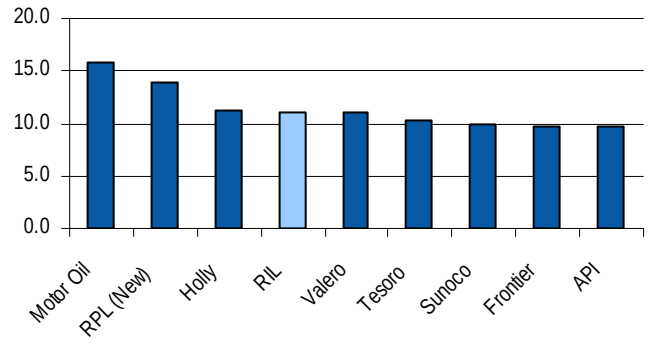
Refining: Extended cyclical strength

Note: For a more detailed discussion on our global refining view please refer to our section on Global Refining Outlook

Refining division: 42% of FY08E EBTIDA, Rs494/RIL share

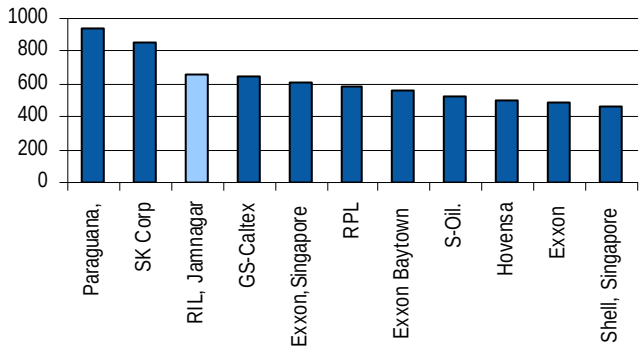
We expect refining margins to moderate from the current levels (1HFY08) but overall project a strong medium-term outlook. The outlook is favorable for complex refiners like RIL given the widening light-heavy crude differential and significantly higher demand for light products.

Figure 17: Jamnagar refinery has high complexity...



Source: Company, JPMorgan estimates)

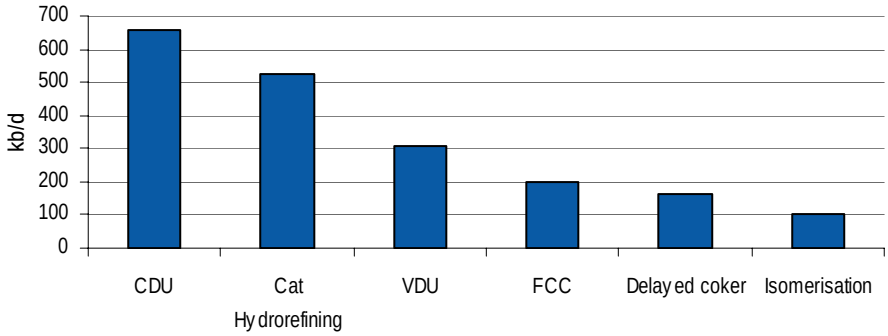
Figure 18: ... and is the 3rd largest refinery in the world



Source: Company, JPMorgan estimates)

RIL's high secondary processing capacity helps process heavier crude to lighter products

Figure 19: RIL—Secondary processing capacities



Source: Company, JPMorgan estimates.

RIL's margins have been consistently higher than the regional benchmark Singapore GRMs and with widening spreads between heavy and light crudes, the differentials have widened.

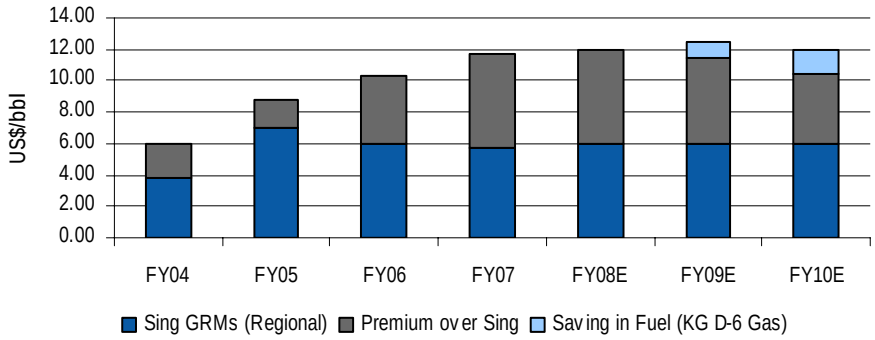
Use of KG D-6 gas instead of internal fuel would add ~US$1.5/bbl to RIL's GRMs

We expect RIL's margin differentials to widen over Singapore GRMs from 2QFY08 when lean gas from the KG D-6 field will be used to replace liquid fuels in the refinery process. We estimate around 7mmscmd of gas will be required by the Jamnagar refinery and the cost savings will work out to US$1.5-2/bbl.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Figure 20: RIL—GRMs would be supported by savings on fuel

US$/bbl



Source: JPMorgan estimates.

Historically, RIL's GRMs have traded at a premium over our Singapore GRMs. The premium over FY04-07 has been US$3.6/bbl and US$ 5.1/bbl over FY06-07. We expect RIL to continue to have US$4.5-5.0/bbl premium over Singapore GRMs and savings from fuel to contribute an additional US$1.5/bbl to GRMs from 3QFY09.

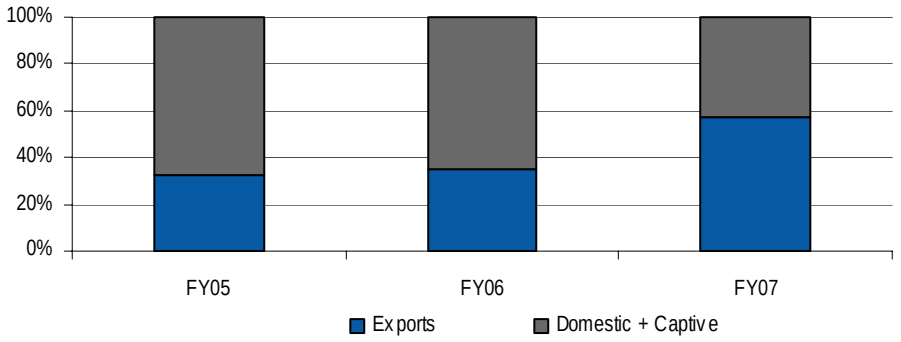
EOU status will prolong tax breaks

RIL's Jamnagar refinery was granted EOU (export oriented unit) status from April 2007. The EOU status would entitle potential import duty and income tax benefits. Given the current export levels of over 60%, incremental benefits on import duties could be minimal. However, the EOU tag will extend the tax holiday for the Jamnagar refinery till FY09.

EOU status would extend tax benefits for refinery till FY09

The EOU status would also act as a shield for the business against any adverse domestic policy decisions on oil refiners. A potential upside for RIL could be its re-entry into the domestic auto market if the newly set up petroleum regulator favors an even-playing-field scenario and asks the government to provide support to private players in auto fuel retailing.

Figure 21: Increasing exports from Jamnagar refinery



Source: Company, JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Why is RIL investing in a new refinery (RPL)?

(1) The world has underinvested in refining

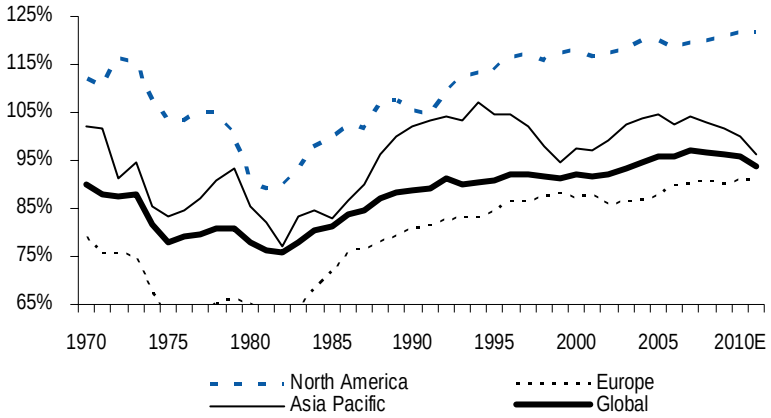
Years of underinvestment in the refining industry globally has resulted in a: (1) strong upswing in margins with higher capacity utilization; and (2) scramble for putting up new refinery capacities thus pushing up costs across the EPC chain, impacting project economics and schedules. The lower levels of secondary processing ability amongst older refineries have also led to widening differentials between light and heavy crude.

Table 18: Two decades of refining under-investment...

	CAGR refining capacity		CAGR global oil demand	
	20-yr	10-yr	20-yr	10-yr
USA	0.5%	1.1%	1.5%	1.6%
Europe	(0.2%)	0.3%	0.8%	0.7%
Asia Pacific	3.0%	2.9%	4.2%	2.9%
Global	0.8%	1.2%	1.7%	1.7%
Global ex-FSU			2.2%	1.9%

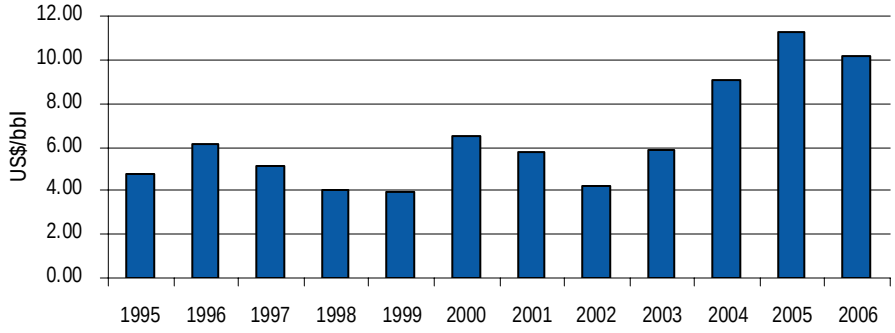
Source: IEA, JPMorgan estimates.

Table 19 ... and has led to rising utilization levels...



Source BP Statistical Review, JPMorgan Estimates

Figure 22: ... and higher gross refining margins



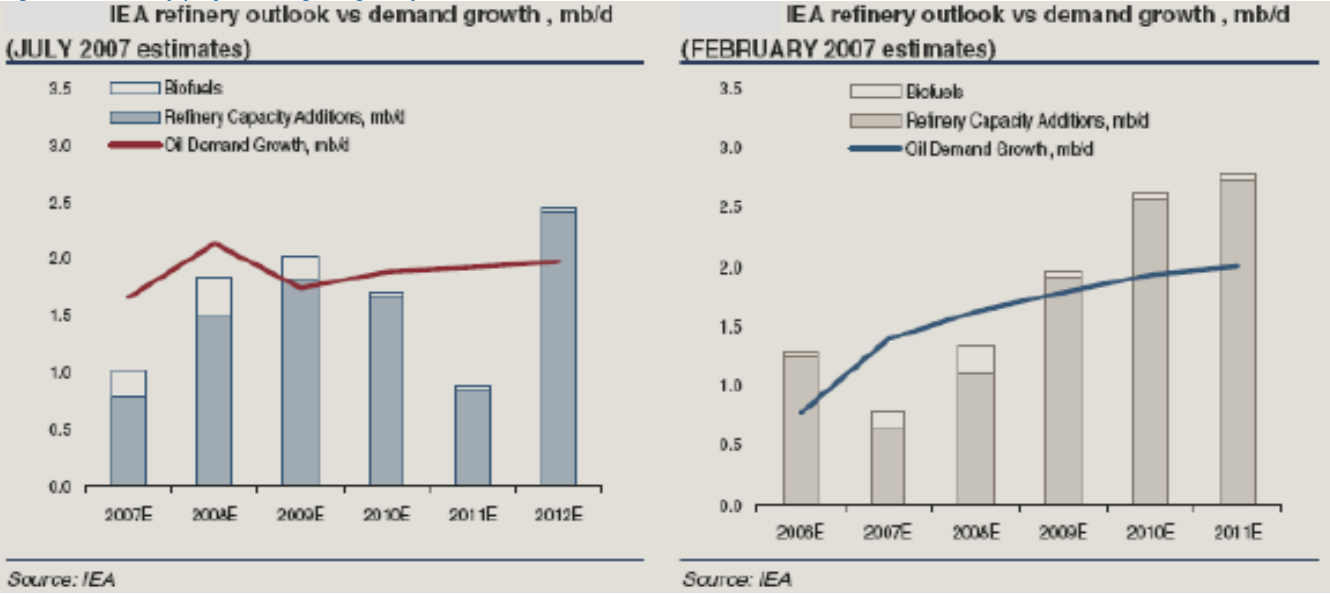
Source: Bloomberg, JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

(2) Projects are getting delayed, refining tightness is likely to extend
Extract from our JPMorgan Midstream Oil teams report (‘*Global refining outlook’*, 17 May 2007, Gordon Gray)

Anecdotal evidence continues to highlight the tightness of the construction industry conditions and delays to a number of projects. The most notable example of this is the Al-Zour refinery in Kuwait, which has been delayed until at least 2011 as initial cost estimates of over US$15 billion were tendered, compared with an initial budget of US$6 billion (recently revised to US$12 billion). This gives an implied per barrel cost of well over US$20,000/bbl. At this level it is unlikely that many worldwide projects would be financially viable and we would expect further evidence of slippage to emerge in the near future.

Figure 23: Refinery projects are getting delayed



Source: IEA

(3) Product specification changes and crude quality; complex refineries to benefit
The ability of the world’s refining capacity to manufacture sufficient lighter-end products to meet the demand for low sulphur light-end products has resulted in a surge in demand for higher quality, sweeter crude barrels, significantly bidding-up the price of benchmark crudes such as WTI, Brent and Nigerian Bonny Light. This leads to two key issues that we believe have had and will continue to have a material impact on refining margins:

1. **Product quality:** A continued global drive towards cleaner fuels is leading to progressive desulphurization of crude products, which requires either higher quality input barrels or more complex refining capacity, or both.

2. **Crude quality:** Assuming no major pull-back in global demand and until such time as sufficient depth has been added to global refining capacity, the demand for higher quality crudes should persist as should the relevant light-heavy and sweet-sour differentials. Thus, the composition of future crude supply should have a material impact on forecasting crack spreads (product price less crude prices).

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Seizing a window of opportunity

The Reliance (RPL) advantage

RPL has been created as a sharper mirror image of the RIL refinery ('intelligent repeat' according to management). RIL has used its formidable project management skills and experience in setting up and running a complex refinery to seize this 'window of opportunity' in global refining.

Project funding has been tied up

Table 20: RPL—funding requirements

Rs in millions

Total capex requirements		Funding	
Land, utilities	5,990	Total Equity	135,000
Equipment/construction costs	163,840	RIL Initial equity (60%)	27000
Technical fees	39,918	RIL IPO Subscription (15%)	40500
IDC, pre-operating cost	31,216	Chevron Stake (5%)*	13500
Contingency	19,496	IPO (Retail + Institution) (20%)	54000
Margin money for working capital	9,540	Debt	135,000
Total	270,000	Total	270,000

Source: Company, Chevron has the option to increase its stake to 29%

'Intelligent repeat' of the RIL refinery design has cut down project implementation timelines and costs; the project is well on schedule…

Table 21: On schedule with likelihood of early commissioning

Schedule to be completed	Expected completion date	Months from zero date	Current status
Start of Project	Dec-05		
Technology Selection/ Project scope	Jan-06	1	Completed
Completion of Basic engineering	May-06	6	Completed
Order placement for critical equipment	May-06	6	Completed
Completion of Detailed engineering	Sep-07	22	Ongoing
Completion of Civil work	Nov-07	24	Progressing
Completion of Equipment erection	Jan-08	26	Progressing
Mechanical completion	Aug-08	33	
Ready for Start up	Sep-08	34	
Commencement of operations	Dec-08	36	

Source: Company

Reliance has re-used the basic engineering designs of its existing refinery and supplemented Bechtel's design team with engineers from its own workforce.

… and has significantly lower capital costs than other Indian refining projects

Table 22: Capital costs of Indian refining projects (under planning/construction)

Refinery	Capacity (kbl/d)	Capex (US$MM)	US$ per bbl
RPL, Jamnagar	580	6,000	10,345
HPCL,Vizag	135	3,049	22,584
HPCL ,Bhatinda	180	4,073	22,629
BPCL,Bina	120	2,439	20,325
IOC ,Paradip	300	3,659	12,195

Source: JPMorgan estimates.

High capital costs and environmental factors are impacting investment in new facilities in developed markets. Simultaneously, product specifications are tightening. This would lead to a large demand for high spec gasoline in the US and high spec diesel in Europe.

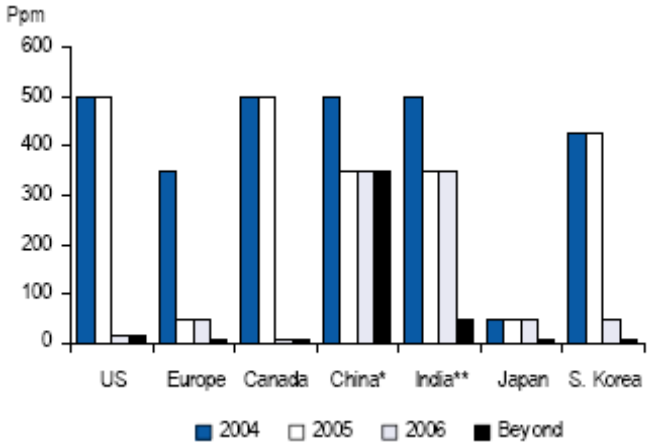
RPL will cater to high quality (low sulphur) product demand in Europe and America

Table 23: Product slate skewed towards US and European markets

Products	Capacity (mtpa)	Proportion	Target Market
Diesel	12.0-13.0	43%	Asia/Europe/America
Gasoline	8.0-10.0	31%	USA/Asia
Jet / Kerosene	1.0-2.0	5%	Europe
Petcoke	2.0-3.0	9%	Domestic
Alkylates	2.0-3.0	9%	USA
Polypropylene	0.85-0.9	3%	Asia
Sulphur	0.45-0.6	2%	Domestic
Light + Middle distillates (%)		90%	

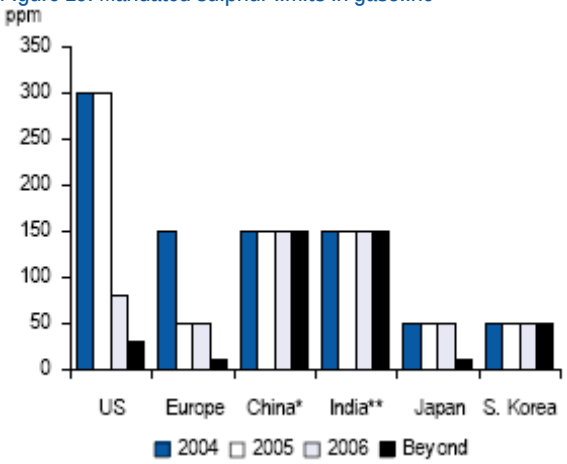
Source: Company

Figure 24: Mandated sulphur limits in diesel



Source: Government reports, Company data and JPMorgan. *Implemented in Beijing July 2008 ahead of Olympics, to be enforced nationwide 2010. ** Implemented in major cities in 2005, to be enforced nationwide 2010.

Figure 25: Mandated sulphur limits in gasoline



Source: Government reports, Company data and JPMorgan. Canadian limits for gasoline are given by proportion of total weight: 2004 @ 0.03% and 0.008% by 2005. *Implemented in Beijing July 2008 ahead of Olympics, to be enforced nationwide 2010. ** Implemented in major cities in 2005, to be enforced nationwide 2010.

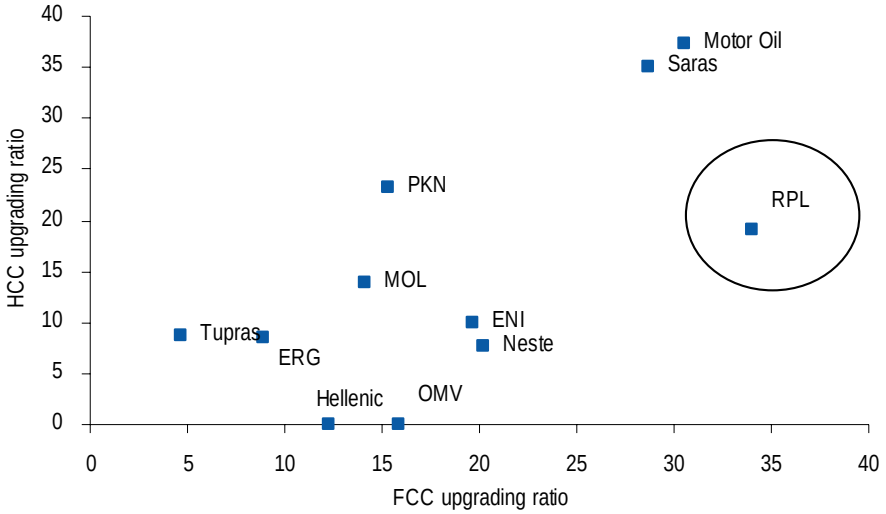
Table 24: RPL—Secondary processing capacities

Units	Capacity (bbl/day)
Crude distillation units	580000
Vacuum distillation units	305000
Catalytic feed hydrotreaters	220000
Fluidised catalytic cracker	200000
Delayed coker	160000
Hydro-cracker	110000
CCR platformer	85000
Alkylation	85000
Catalytic product hydrotreaters	360000
FCC upgrading ratio	34%
HCC Upgrading ratio	19%

SourceCompany, JPMorgan

RPL has significant secondary processing capacity, making it amongst the most complex refineries in the world

Figure 26: Global upgrading ratio comparisons

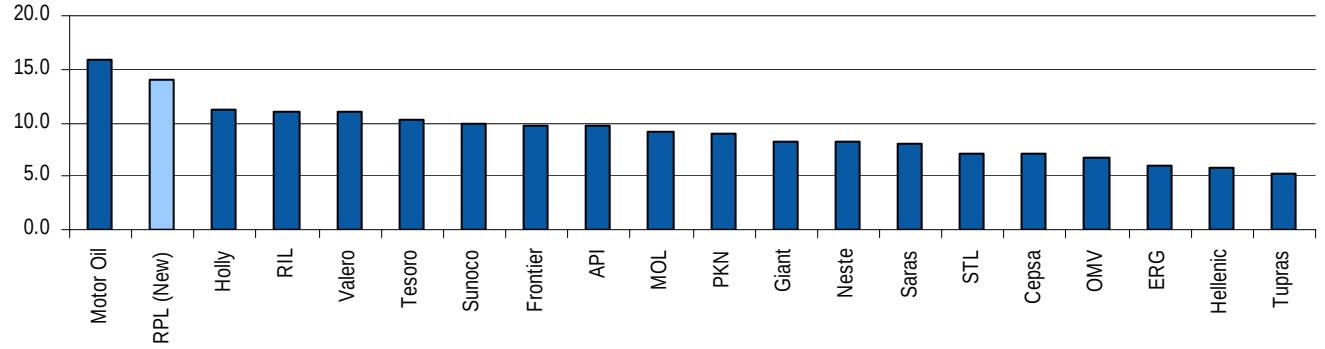


Source: Company, JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

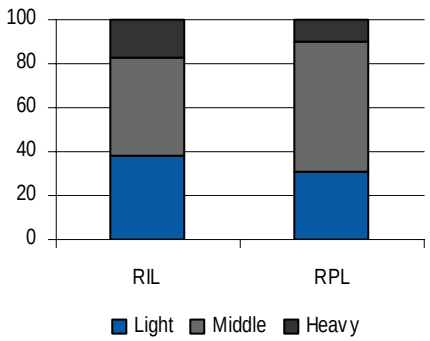
Figure 27: Global refinery complexity



Source: Company data, JPMorgan estimates.

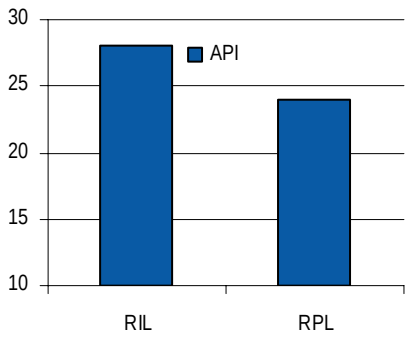
This will enable it to produce higher quality products with a cheaper heavier crude diet…

Figure 28: Higher light + middle distillates



Source: JPMorgan estimates.

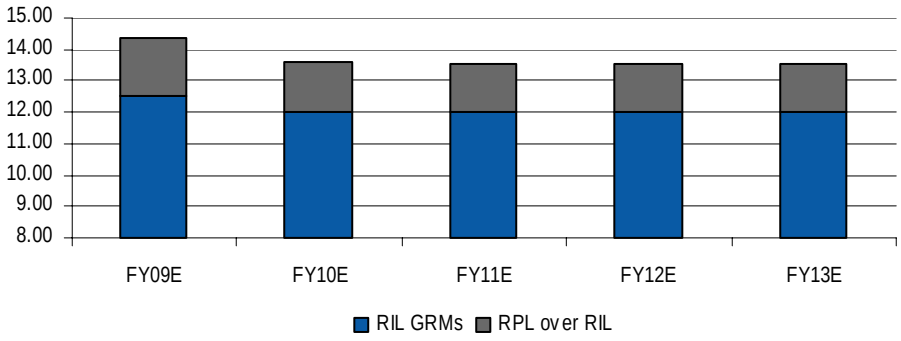
Figure 29: Crude diet



Source: JPMorgan estimates.

… Ensuring that RPL's GRMs will be higher than RIL's own refinery…

Figure 30: GRMs at premium over RIL



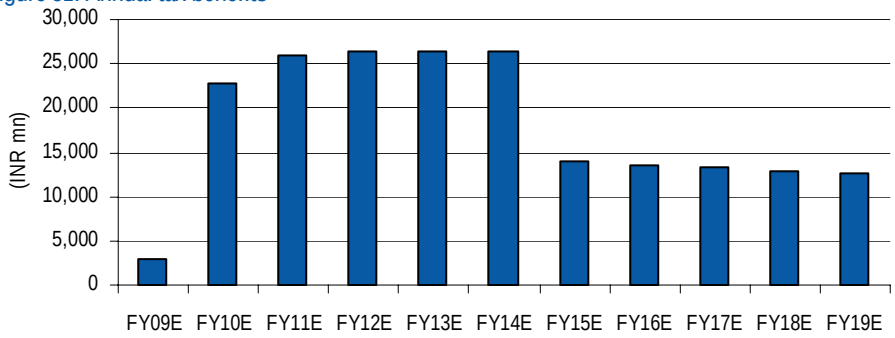
Source: JP Morgan estimates

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

RPL also benefits from tax incentives on account of its SEZ status

NPV of tax benefits is US$3.1B

Figure 31: Annual tax benefits



Source: JPMorgan estimates.

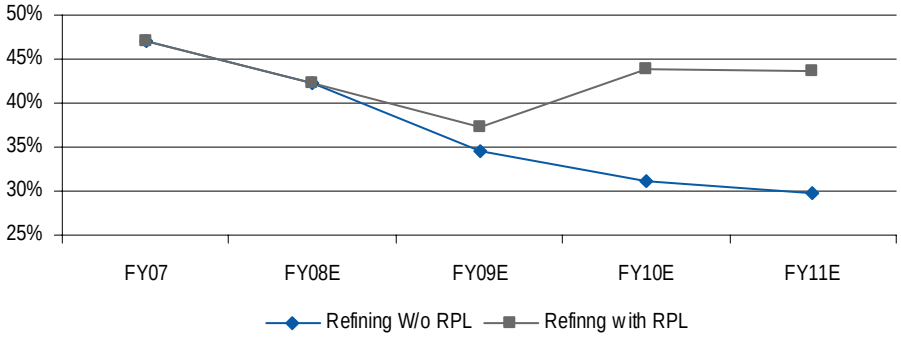
RPL: Increasing RIL's exposure to refining

We initiate on Reliance Petroleum (RPL) with an Underweight rating with a price target of Rs156/share. Though we are positive on the outlook for the refining business and the profitability of RPL, we believe that the recent run-up in prices adequately factors in the possible upside from an elongated refining cycle and does not factor possible project execution risks.

From RIL's perspective, RPL offers further leverage to the refining cycle. Refining EBITDA contribution (FY10E) increases to 44% (from 31% standalone) with RPL consolidation.

RPL increases RIL's exposure to refining EBITDA

Figure 32: Refining EBITDA as % of consolidated EBITDA



Source: JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Petrochemicals cycle gets a fresh lease

We are positive on the cycle over the next 12-18 months

51% of FY08E EBITDA and Rs567/RIL share

For a detailed discussion please refer to our global petrochemical outlook.

We are positive on the petrochemical cycle over the next 12-18 months. We expect the ethylene cycle to mature, but have a positive view on the polyester, PX margins.

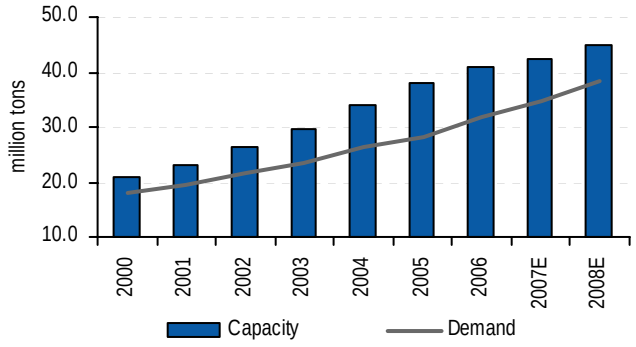
Ethylene chain will witness pressure from CY09 but polyester will continue to be strong

Table 25: World ethylene supply/demand forecast 2002-10E

Year	Capacity Change (%)	Demand Growth (%)	Utilization Rate (%) Asia	Global
2002	5.2%	3.7%	97%	86%
2003	1.3%	2.1%	98%	87%
2004	0.6%	6.0%	100%	92%
2005	4.0%	4.0%	100%	92%
2006E	3.8%	3.0%	98%	91%
2007E	4.4%	4.0%	97%	90%
2008E	4.6%	4.0%	97%	90%
2009E	7.5%	4.0%	92%	86%
2010E	6.9%	4.0%	88%	83%

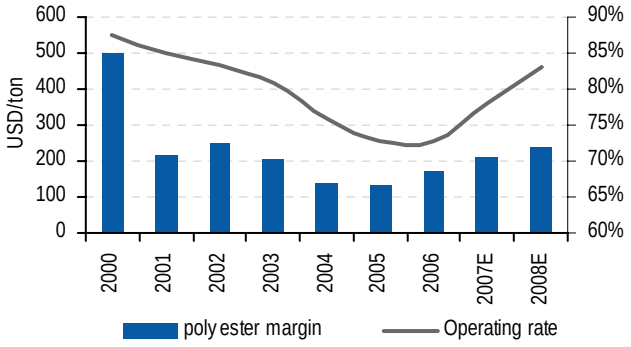
Source: CMAI Global, JPMorgan estimates. Note: Global ethylene capacity at year-end 2005 is approximately 116 million tons.

Figure 33: Asian polyester expansion is expected to slow down



Source: PCI, JPMorgan estimates.

Figure 34: Asian polyester margin is expected to grow with utilization



Source: CMAI Global, PCI, JPMorgan estimates.

Our regional petrochemical analyst, Samuel Lee, is positive on: (1) polyester and feedstock (PX & MEG) exposure, (2) integration, and (3) capacity expansion. RIL has all three.

For RIL, the key petrochemical products are polypropylene (capacity 1.7 mmt), paraxylene (capacity 1.9 mmt) and polyester (capacity 2.5 mmt). Over the next two years, we forecast a positive trend in these products. Moreover, the high level of integration for RIL provides a natural hedge towards volatility in particular products

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Global petrochemicals outlook

Table 26: Summarized petrochemical outlook

	Total prod. (mmt)	RIL's exposure (% of total production)	JPMorgan outlook
Cracker Products	1972000	18%	Only gradual moderation expected in ethylene margins till mid-FY09 as most capacities in the Middle East to come by end-2008 and end-2009 and could face further delays.
Polymers	3235000	30%	Demand growth to outpace capacity expansion for PE and hence expect margins to be firm. Integrated PVC margins to remain under pressure due to capacity additions in China.
Aromatics	1779000	16%	We expect PX margins to firm up as operating rate exceeds 85% in FY08 and FY09 and benzene margins to moderate only in FY09.
Polyester	1381000	13%	We expect polyester margins to firm up in FY08 and FY09 due to robust demand, slow capacity addition in china, capacity rationalization in Korea and Taiwan and lower feedstock prices.
Polyester Intermediaries	2558000	23%	Capacity expansions to bring down operating rates for PTA and MEG. PTA margins to be under pressure due to expected firmness in PX margins. But MEG margins to remain robust due to gradual moderation expected in ethylene margins.

Source: CMAI, JP Morgan estimates.

Table 27: Petrochemicals margins forecast

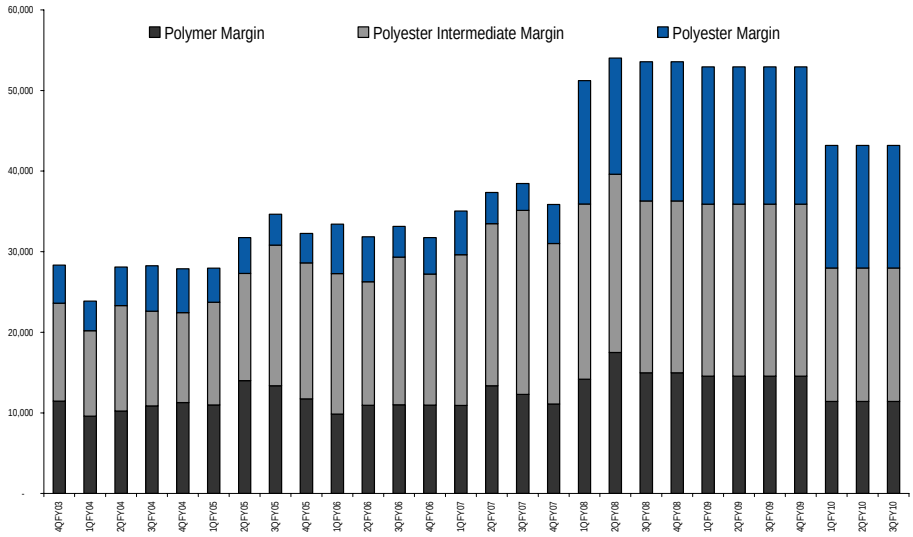
US$/ton	2000	2001	2002	2003	2004	2005	2006	2007E	2008E	2009E	2007 Aug YTD	2000-06 Average
Naptha Cracker Margins												
Ethylene - Naphtha	321	202	182	196	529	413	565	500	460	350	592	344
Propylene - Naphtha	175	135	216	268	450	481	529	493	480	400	400	322
Butadiene - Naphtha	223	193	242	358	357	522	551	500	500	500	222	350
Polymer Margins												
LDPE - Ethylene	141	171	159	192	139	208	53	180	190	130	192	152
HDPE - Ethylene	69	126	115	137	-18	99	38	150	160	100	36	81
PVC Integrated	247	184	156	248	338	346	231	265	250	230	336	250
PVC - VCM	81	106	94	96	127	169	190	170	170	430	186	123
Aromatics Margins												
PX - Naphtha	182	180	183	285	382	402	495	500	530	500	382	301
Benzene - Naphtha	114	42	98	165	458	369	291	320	350	350	312	219
Polyester and Polyester Intermediaries												
PTA - PX	193	183	197	191	233	212	171	150	150	160	166	197
MEG - Ethylene	212	221	205	382	368	400	219	290	250	200	460	287
POY - (PTA + MEG)	498	216	252	208	139	131	173	230	240	260	220	231
Others												
SM - (Benzene + Ethylene)	284	140	222	199	141	127	159	150	135	135	215	182
PS - SM	111	104	80	106	96	104	74	80	85	85	133	96
ABS	322	286	223	209	229	239	230	120	130	130	508	248
PP - Propylene	156	154	121	142	89	85	96	130	160	130	263	120

Source: CMAI, JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Figure 35: ReliTracker (including IPCL and Hualon from FY08)



Source: JPMorgan estimates.

We have factored in a slowdown in petrochemical margins in FY10

RIL will continue to invest in Petrochemicals

Table 28: Increase in RIL capacity post IPCL merger

	RIL	IPCL	Increase in RIL capacity	RIL+ IPCL (% of India Capacity)
Ethylene	750000	830000	111%	62%
Propylene	365000	235000	64%	71%
PVC	325000	300000	92%	57%
PE	450000	600000	133%	49%
PP	1430000	270000	19%	84%
MEG	475000	260000	55%	91%
PFY	525000	275000	52%	58%
PSF	550000	215000	39%	59%

Source: Company, JPMorgan estimates.

RIL dominates the domestic market…

Table 29: RIL—Organic petrochemical capacity expansion

	Capacity in FY01 (mmt)	Capacity in FY07 excluding IPCL (mmt)	Capacity added (%)
Ethylene + Propylene	11,15,000	11,15,000	0%
Polymers	590,000	7,75,000	31%
PX + BTX (Aromatics)	2,299,000	2,887,000	26%
Polyester	387,300	10,75,000	178%
Polyester Intermediaries	1,27,5000	2,525,000	98%

Source: Company, JPMorgan estimates.

… and has been growing capacities organically

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

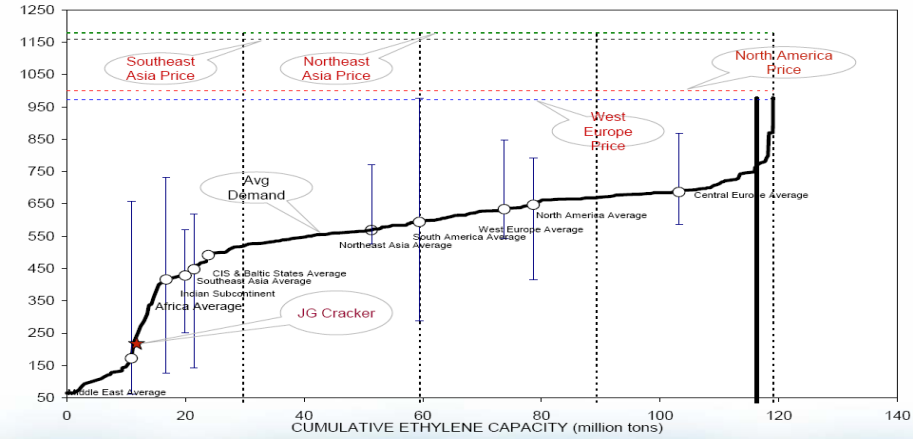
Cost competitiveness is a key factor of RIL's capacities

New cracker to be based on off-gases refinery

RIL has announced its plan to set up a US$3.0 billion, 2.0mmt integrated petrochemical complex in the Jamnagar SEZ targeted for production by FY11 for the completion of the petrochemical facility which would increase RIL's petrochemical capacity by 18%.

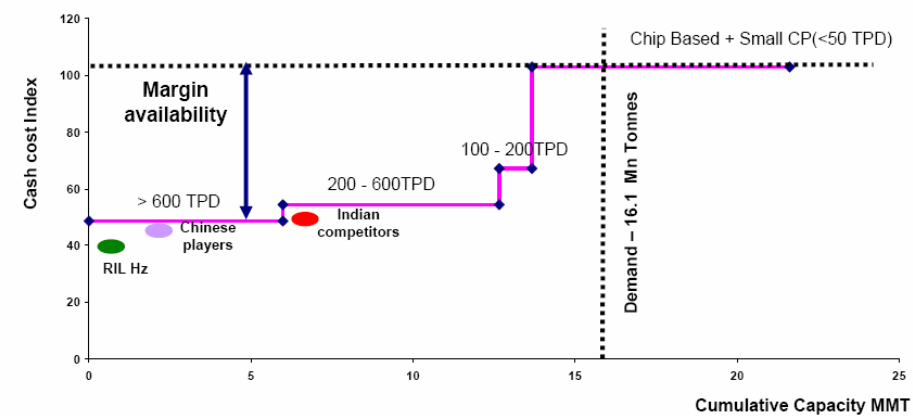
The key feature of the proposed cracker is that it would use off-gases from RIL's refineries as feedstock replacing expensive Naphtha, and thus making this integrated cracker as cost competitive as the new upcoming crackers in the Middle East, which have access to cheap gas feedstock.

Figure 36: New cracker will have amongst the lowest ethylene cash costs



Source: RIL 2007 presentation.

Figure 37: RIL among the most cost-competitive polyester producers



Source: RIL 2007 presentation.

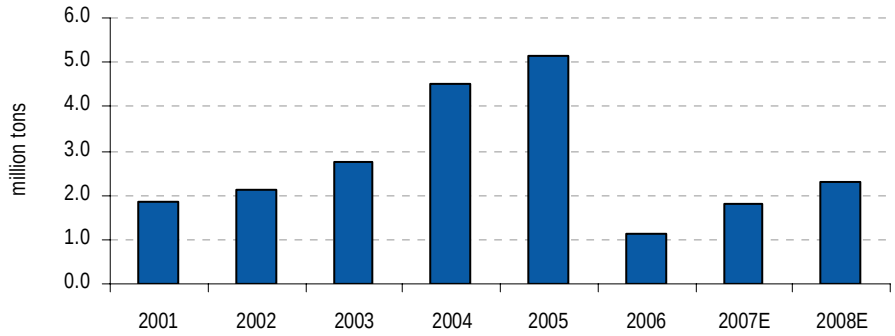
Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Polyester could be the next leg up for RIL's petrochemical earnings

Aside from the very robust growth of polyester demand worldwide, we believe there are three main factors for polyester margins continuing to recover in 2007-08.

(1) Slowdown in capacity additions, especially in China.

Figure 38: China—Incremental polyester capacity is slowing down



Source: PCI, JPMorgan estimates.

(2) Rationalization of capacities in Korea and Taiwan.

Table 30: Industry consolidation in Asia ex-China

Korea			Taiwan		
Company	Capacity ('000 tons)	Shutdown	Company	Capacity ('000 tons)	Shutdown
Kumkang	100	2003	Hualon	468	2005
Tongkook	180	2004	Tuntex	410	2006
Daehan	100	2004	Chia Hsin	118	2007
Hankook	300	2006	Chung Shing Textiles	234	2007
% of peak capacity	17.6%		% of peak capacity	28.4%	

Source: CMAI Global, PCI, Industry contacts, JPMorgan estimates.

(3) Bargaining power on PTA feedstock: Asia will see around 11.7m tons new PTA capacity during 2006-08, with the majority based in China. Asia PTA demand is only expected to grow by 7.0m tons (part of the 8% growth in global polyester demand) during the same period, so there will be significant capacity overhang. As PTA accounts for about 72% of raw material costs, any savings achieved here will flow directly to the bottom line.

RIL has invested further in polyester – Hualon and possibly a Thai acquisition

(4) Adding on polyester capacity: RIL recently acquired assets of Hualon, a leading polyester producer in Malaysia, at a reported cost of cUS$250 million. Hualon is the largest textile manufacturer and one of the largest exporters in Malaysia with 0.5mmtpa of polyester capacity. This will help RIL consolidate its position further as the world's largest polyester manufacturer with 2.5 million tonnes capacity, a 25% increase from the current capacity, and increase its global market share in polyester fibre and yarn to 7%. More than adding to RIL's bottom line, this signals RIL's confidence in the upswing in polyester margins and its willingness to invest in petrochemical opportunities. RIL has also submitted a bid for Tuntex Thailand, an integrated producer of polyester (with PTA production) in Thailand. Its polyester capacity is 250,000 tons/year and PTA capacity is 500,000 tons/year. Tuntex Thailand is an affiliate of the Tuntex group in Taiwan, which also has PTA and polyester asset in Taiwan.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

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E&P: A sustainable business

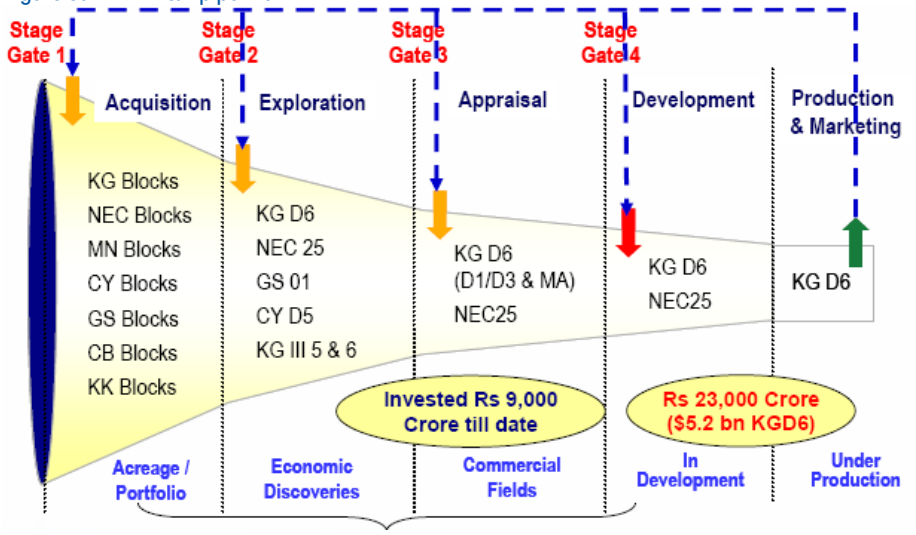
We value RIL's E&P portfolio (excluding producing properties) at US$33.9 billion (i.e Rs883/RIL share), which forms 37% of our sum-of-the parts-based fair value for RIL of Rs2,877. The table below shows our valuation for RIL's E&P assets. We have factored in KG D-6 Gas, KG D-6 Oil, NEC-25 and CBM and used a 45% sustainability premium (US$ 10.5 billion, Rs274/share). We believe our sustainability premium is justified given: (1) the unquantified discoveries like GS-01 and Cauvery, (2) high prospectivity of D-9, D-4 and D-3 blocks, and (3) portfolio of deep-water blocks coupled with RIL's track record on drill bit success.

Table 31: We value RIL's E&P at US$33.9 (excluding producing properties)

E&P Assets (SOP)	Rs mn	US$ bn	Rs/Share	
KG D-6 Gas	556639	13.6	354	DCF based on 120 mmscmd of peak production
KG D-6 Oil	96186	2.3	61	Valuation based on OGIP reserve of 398 mn bbls
Upsides from KG D-6 Gas	188411	4.6	120	30% recovery of undeveloped OGIP reserves at KG D-6 Valuation
NEC-25 + CBM	116968	2.9	74	NEC -25 50% recovery at US$ 4.3/boe and CBM at 50% recovery at US$ 3.5/boe
Sustainability premium	431192	10.5	274	45% premium to quantified discoveries
Total E&P Valuation	**1389396**	**33.9**	**883**	**c.7.5 x Average Annual E&P Cashflows FY11-15**

Source: JPMorgan estimates.

Figure 39: RIL—E&P pipeline



Source: Company.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

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The KG D-6 gas development and issues

Our KG D-6 gas value is US$ 13.6 billion

We value RIL's KG D-6 gas at US$13.6 billion. In our valuation, we factor in capital expenditure of US$11.1 billion (US$ 5.2 billion till 80mmscmd and other capex for ramping up production to 120mmscmd and maintenance capex thereafter). The table on the next page shows our assumptions and DCF valuation for KG D-6 Gas, which translates into Rs354/RIL share.

We have built in peak production of 120mmscmd against the current FDP peak production of 80mmscmd. We believe that this is achievable given the processing capacity of offshore facilities (120mmscmd) and 2P reserves of 18.8TCF. Using our peak production, we arrive at a recovery of 18.8 TCF-2P reserves (GCA 2007 estimates).

We have assumed a faster development and ramp up in KG D-6. We expect production to begin from mid-2008 which would ramp up to 60mmscmd by 4QFY09.

Project execution skill s at work again

RIL will take just 6 years for production from KG Basin from the time of discovery compared to an average of 9 years taken for any similar mega size deepwater development across the globe.

Table 32: KG D-6—Fastest deepwater development ever

Field Name Key Data	Bonga	Agbami	Atlantis	Dalia	Ormen Lange	KG D6 (Dhirubhai-1&3)
Location	Gulf of Mexico	Offshore Nigeria	Gulf of Mexico	Offshore Angola	Norwegian Sea	KG Basin, Bay of Bengal
Reserves	**750**	**800 mn boe**	**600**	**1500**	**2600**	**2034**
Water Depth (mts)	**1616**	**850**	**355**	**1300**	**850-1100**	**600-1200**
Year of Discovery	1996	1998	1998	1997	1997	2002
Year of Production	2005	2008	2007	2006	2007 (Likely)	2008
Time from Discovery to Production	**9**	**10**	**9**	**9**	**10**	<6
Production Rate (000 boepd)	**240**	**250**	**180**	**225**	**350**	**450**

Source: Company

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Table 33: KG D-6—Model and DCF

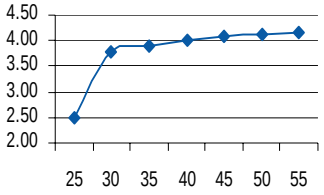
KG D-6 Gas																				
Cash Flow Model	**FY09**	**FY10**	**FY11**	**FY12**	**FY13**	**FY14**	**FY15**	**FY16**	**FY17**	**FY18**	**FY19**	**FY20**	**FY21**	**FY22**	**FY23**	**FY24**	**FY25**	**FY26**	**FY27**	**FY28**
Gross Revenue	1,803.8	3,517.5	4,329.2	4,329.2	6,493.8	7,885.3	7,885.3	7,885.3	7,885.3	7,885.3	5,256.9	5,256.9	5,256.9	3,942.7	3,942.7	2,628.4	2,628.4	1,314.2	657.1	657.1
Royalty	(90.2)	(175.9)	(216.5)	(216.5)	(324.7)	(394.3)	(394.3)	(394.3)	(394.3)	(394.3)	(262.8)	(262.8)	(262.8)	(197.1)	(197.1)	(131.4)	(131.4)	(65.7)	(32.9)	(32.9)
Capex	(1,500)	(1,500)	(1,500)	(1,000)	(1,000.0)	(1,000.0)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Opex	(128.8)	(251.2)	(309.2)	(309.2)	(463.8)	(463.8)	(463.8)	(463.8)	(463.8)	(463.8)	(309.2)	(309.2)	(309.2)	(231.9)	(231.9)	(154.6)	(154.6)	(77.3)	(38.7)	(38.7)
Govt share of Profit Petroleum	(18.0)	(35.2)	(134.7)	(299.5)	(752.8)	(1,326.0)	(3,405.4)	(5,973.1)	(5,973.1)	(5,973.1)	(3,982.1)	(3,982.1)	(3,982.1)	(2,986.6)	(2,986.6)	(1,991.0)	(1,991.0)	(995.5)	(497.8)	(497.8)
Taxation	-	-	-	-	-	-	-	(354.8)	(354.8)	(354.8)	(236.5)	(236.5)	(236.5)	(177.4)	(177.4)	(118.3)	(118.3)	(59.1)	(29.6)	(29.6)
Gross Cashflow (IUS$ m)	66.8	1,555.2	2,168.9	2,504.0	3,952.4	4,701.2	3,621.8	699.3	699.3	699.3	466.2	466.2	466.2	349.6	349.6	233.1	233.1	116.5	58.3	58.3
Net Cashflow (US$ m)	60.1	1,399.7	1,952.0	2,253.6	3,557.2	4,231.1	3,259.7	629.3	629.3	629.3	419.6	419.6	419.6	314.7	314.7	209.8	209.8	104.9	52.4	52.4
Discounted cash flow (US$ mn)	60.1	1,284.1	1,642.9	1,740.2	2,520.0	2,749.9	1,943.6	344.3	315.8	289.8	177.2	162.6	149.2	102.6	94.2	57.6	52.8	24.2	11.1	10.2
NPV (US$ mn)	13,577																			
NPV / RIL Share	**354**																			
NPV/boe (US$)	**4.3**																			
Operating Numbers:																				
Gross Gas Production (mmscmd)	33.3	65.0	80.0	80.0	120.0	120.0	120.0	120.0	120.0	120.0	80.0	80.0	80.0	60.0	60.0	40.0	40.0	20.0	10.0	10.0
Cum. Production (TCF)	0.4	1.3	2.3	3.3	4.9	6.4	8.0	9.5	11.1	12.6	13.6	14.7	15.7	16.5	17.2	17.8	18.3	18.5	18.7	18.8
Investment Multiple (x)	0.44	0.92	1.28	1.52	1.98	2.48	2.89	3.52	4.15	4.79	5.21	5.63	6.05	6.37	6.69	6.90	7.11	7.21	7.27	7.32
Govt. Share of Profit Petroleum (%)	10%	10%	10%	13%	16%	22%	57%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%
Main assumptions																				
Total Capex over Project Life (US$ bn)	**11.1**																			
Peak Production (mmscmd)	**120**																			
Total Recovery (TCF)	**18.8**																			
Gas Price (US$/mmbtu)	**4.20**																			

Source: Company, JPMorgan estimates.

Gas pricing does not impact valuations much

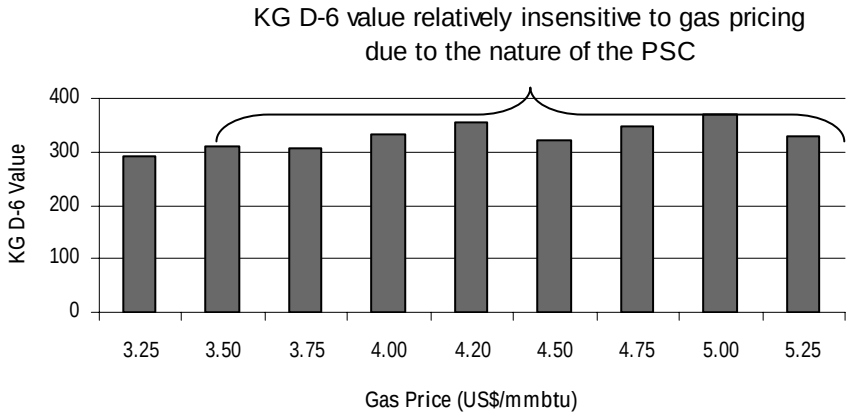
We believe that the recent gas pricing issue has been overplayed in the context of its importance for RIL KG D-6 valuation. In the figure below, we present a sensitivity of RIL's KG D-6 valuation to gas prices. We have assumed a price of US$4.2/mmbtu in our valuation, same as the price approved by the EGoM (empowered group of ministers) for the 40mmscmd of gas RIL would be free to sell to parties other than NTPC and RNRL. Though we believe that the dispute with RNRL and NTPC would be a long drawn process and RIL could get higher-than-disputed price (US$2.53/mmbtu), we expect limited impact on KG D-6 valuation given the nature of the PSC. In the scenario that RIL would have to offer RNRL and NTPC 40mmscmd of gas at US$2.53/mmbtu and market the other 40-80mmscmd at US$4.2/mmbtu, our valuation for KG D-6 would fall by 12%.

Figure 40: RIL—New gas pricing—Sensitivity to crude



Source: JPMorgan estimates

Figure 41: Low sensitivity to gas pricing till US$ 3.5/mmbtu



Source: JPMorgan estimates

Table 34: RIL's dispute on gas volumes and pricing

Total Peak Production – current FDP	80mmscmd	RIL would to able to sell 40mmscmd of gas at recently EGoM approved prices of US$4.2/mmbtu and dispute is on with RNRL and NTPC for the remaining 40mmscmd.
Dispute with RNRL	28mmscmd	Dispute is a result of the scheme of demerger of RIL in 2005. RIL and RNRL entered into a GSPA (gas supply and purchase agreement) in January 2006 that RNRL is contesting on grounds that RNRL in January 2006 was still under control of RIL. A single judge of Bombay High Court has upheld RNRL's petition and ruled RIL should not to create third party interest for gas to be supplied to RNRL and NTPC. RIL has appealed against this judgment.
Dispute with NTPC	12mmscmd	RIL had bagged a deal to supply 12mmscmd of gas to NTPC at US$2.34/mmbtu in a competitive bidding process in 2004. The ongoing dispute between RIL and NTPC is because the current contract provides for unlimited liability for not buying and not making gas available for sale. The RIL-NTPC issue is currently before the Bombay High Court as RIL and NTPC were unable to convert the bid into a gas contract.
Gas available for sale	40mmscmd	Price of US$4.2/mmbtu has been recently approved by the EGoM. The approved price was, SP= Rs102.5/mmbtu + exch. rate x (crude price - 25) ^ 0.15 where the crude price has been capped at US$60/bbl (vs. US$65/bbl as per RIL's original formula) and base price has been reduced to 102.5/mmbtu (vs. 112.5/mmbtu as RIL's formula).

Source: JPMorgan, Media reports (Economic Times, Business Standard, Business Line)

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

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KG D-6 Gas: Potential for upside

KG D-6 holds further significant exploration and development potential other than the 120mmscmd of gas production and 50 Kb/d of oil production. We have valued the undeveloped reserves of RIL in KG D-6 gas at Rs120/share assuming 30% recovery from undeveloped gas reserves (Table 35) at US$4.3/boe (KG D-6 valuation). We believe that the upside could be significantly higher considering:

Upside potential in KG D-6 from

(1) Production from non-AB fields

(1) Non-AB fields potential: Recently, the GCA revised up 3P reserves for non-AB fields by 55% to 12.8 TCF. We have assumed a recovery rate of 30% from undeveloped reserves in KG D-6 compared to ~60% recovery for AB fields.

Table 35: GCA KG D-6 reserve estimates

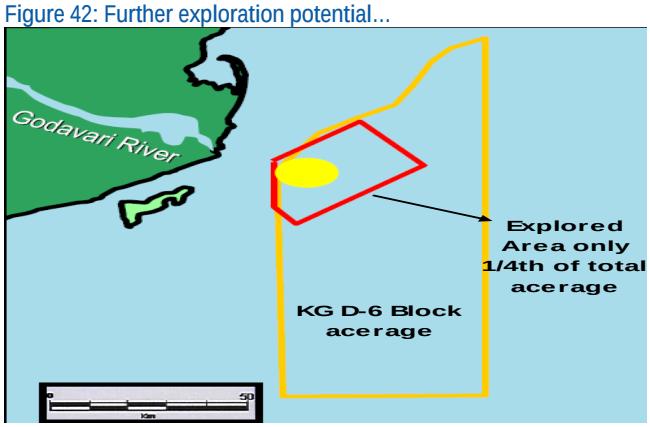
	1P	2P	3P	
AB Fields				
OGIP	5.72	18.80	27.20	We have built in recoverable reserves of 18.8TCF in our KG D-6 valuation
Recoverable	4.42	11.32	21.10	
Other fields				
OGIP	3.76	7.88	12.76	GCA restated 3P reserves in other fields (other than AB fields) by more than 55% compared to 2006 assessment
Contingent	2.68	5.59	9.16	
TOTAL				
OGIP + Resources	9.48	26.68	39.96	Total 3P OGIP reserves restated by 11% (vs. GCA 2006 estimates

Source: Niko, JPMorgan estimates.

(2) Further exploration potential

(2) Exploration potential: RIL's drilling program is continuing in KG D-6. It recently discovered hydrocarbons in well R-1, which is the deepest well drilled (depth of 4,860 meters) and signifies the ultra deep-water potential of the basin. RIL is yet to drill in a substantial part of the KG D-6 acreage.

Figure 42: Further exploration potential...



Source: Niko 2007,

Table 36: RIL—KG D-6 gas upside

GCA OGIP estimates (TCF)	40.0
Recoverable Reserves (TCF)	18.8
AB Fields 2P reserves (TCF)	18.8
Upsides from undeveloped resources (TCF)	21.2
Recovery from rundeveloped resources (%)	30%
Undeveloped resources (TCF)	6.36
Undeveloped resources (bn boe)	1.06
EV/Boe	4.34
Total Value (US$ mn)	4,595
Value/ RIL share	**120**

Source: JPMorgan estimates.

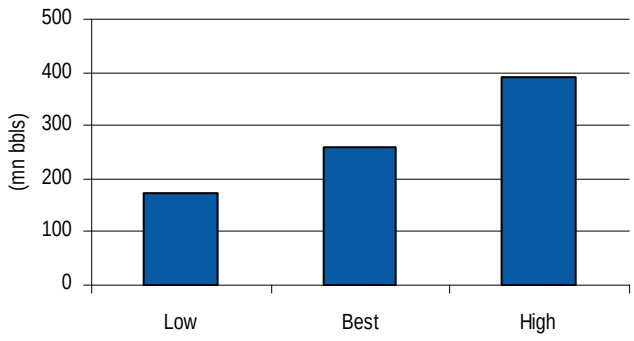
KG D-6 Oil from 1HFY08

Higher reserve recovery and further reserve accretion possible

We value KG D-6 oil at Rs61/share based on 2P reserves. According to GCA estimates, the MA fields holds 251MM bbls of reserve (best estimate) to 391MM bbls of reserves (high estimate). Given the nature of the field, the recovery rate is expected to be very high (>90%), according to Niko Resources (10% partner in KG D-6), which has cited examples of similar oil fields in Canada, where recoveries are in excess of 90%. There could be upsides to reserve accretion due to the high prospects of the cretaceous sequence in KG D-6.

Development plan on schedule, to begin production by 1H2008: Commerciality of the KG D-6 MA field was approved in February 2007, and RIL plans to begin production by 1HFY08. Though RIL expects initial production of 30-35 K b/d from the MA 1& 2 fields, peak production could be higher than 50K b/d given the reserve size and processing capacity of the FPSO contracted by RIL from Aker (60K b/d).

Figure 43: RIL—KG D-6 oil reserves (GCA estimates)



Source:Niko, JPMorgan estimates.

Table 37: RIL KG D-6 oil valuation

High OGIP (mn bbls)	391
2P reserves (mn bbls)	251
Recoverable reserves	235
EV/ Boe Valuation (US$/bbl)	10.00
Total Valuation (US$ mn)	2346
Value/ RIL share	**61**
GCA certified Reserves	
High (mn bbls)	391.0
Best (mn bbls)	251.0
Low (mn bbls)	174.0

Source: Niko, JPMorgan estimates.

Other quantified blocks

NEC-25: Could have upside

We value NEC-25 field at Rs47/share taking 50% recovery of 5.5 TCF of 3P reserves (GCA estimates). RIL has 7 exploration successes in this field and GCA estimates OGIP of 5.5TCF of gas in NEC-25. Commerciality of the first 6 exploration wells drilled has been approved and initial development plan has been submitted to DGH with first gas production in FY12 and peak production of 6.5 mmscmd. RIL plans to continue its drilling program (8 more wells to be drilled in FY08-09) in NEC-25, as it has not drilled to desired depth to explore certain prospects.

CBM Sohagpur: In place reserves in excess of 0.5B boes

We value RIL's CBM blocks (Sohagpur East and West) at Rs28/share taking 50% recovery of the gas in place reserves of 3.65 TCF. We value CBM recoverable reserves at US$3.5/boe. The development plan for Sohagpur (East and West) has been submitted to the DGH for approval. We estimate that first gas production from 2010 with a peak production of 5mmscmd.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Table 38: NEC-25 and CBM valuation

NEC-25		CBM Sohagpur	
US/boe	4.34	US/boe	3.50
Total reserves (TCF)	5.5	Total reserves	3.65
Recovery %	50%	Recovery %	50%
Recoverable reserves (TCF)	2.75	Recoverable (TCF)	1.83
RIL's Stake (%)	90%	RIL stake (%)	100%
Valuation (US$ mn)	1,788	Valuation (US$ mn)	1,065
Value/ RIL share	46.6	Value/ RIL share	27.7

Source: JPMorgan estimates.

Explaining our sustainability premium

Current visibility of E&P projects points to sustainability

We believe that the current visibility of E&P projects point to a more sustainable business than can be captured by NPV values of quantified discoveries. Our sustainability premium accounts for: (1) the potential value of known but as yet unquantified discoveries; (2) high prospects of blocks like the KG D-9 and MN D-4; and (3) RIL's track record on drill bit success coupled with a large portfolio of as yet unexplored blocks. Also, given RIL has opted for full cost method for accounting for its E&P business so the planned spend of US$1 billion/year will create substantial tax shields even if further E&P successes are elusive. After adding our sustainability premium of 45% (US$10.5 billion), the total E&P value of US$33.9 billion is ~7.5x average annual cash flows (FY11-15) from quantified E&P blocks.

(1) Unquantified discoveries

GS-01: RIL announced in May 2007 of a gas find in GS-OSN-2000/1 (GS-01). This was RIL's first discovery in the west coast. While the current discovery is likely to be small (sub 1TCF), RIL is likely to drill further in this block to explore prospects at greater depths, which could lead to a reassessment of the potential of this block.

Cauvery: In July 2007, RIL struck hydrocarbons in its first exploratory well in the Cauvery block (CY-DWN-2001/2). This was also India's first discovery ever made in the Cauvery basin.

KG D4: RIL has also announced an oil discovery in its KG - DWN-98/1 (KG D-4) block. The company holds 100% participating interest in this 8,100 sq. km block. This is the first time an oil discovery has been made in the Krishna deep-water basin. The well-encountered classic reservoir with gross oil column of more than 20 meters in the Mesozoic section. During the drill stem testing (DST), the well flowed 596 barrels of oil per day.

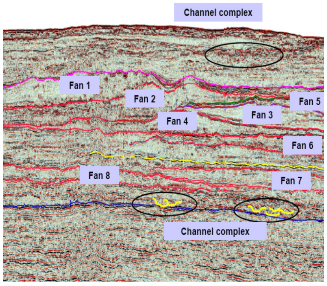
Table 39: Recent exploration success

Discovery	Date	Comments
Gujarat-Saurashtra	May-07	RIL's first discovery on the west coast
Cauvery	Jul-07	First-ever discovery made in the Cauvery basin
KG D-4	Sep-07	First oil discovery made in Deep-water Krishna Godavari block

Source: Company, JPMorgan.

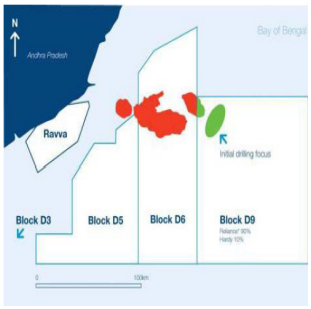
Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Figure 44: MN D-4 structure



Source: Niko.

Figure 45: KG D9



Source: Hardy.

(2) Prospects of blocks where seismic data are being collected

MN D-4: Niko (RIL's partner in KG D-6) is also RIL's partner in the block MN-DWN-2003/1 (MN D4). According to Niko, the initial prospects in MN D-4 look promising. In terms of acreage at 17,050 sq. km, MN D-4 is 120% larger than D-6 and initial seismic data point to 5 fan-like structures that could bear hydrocarbon (compared to 1 fan-like structure in KG D-6). RIL is likely to drill in the block only around end-2008.

KG D-9: RIL holds 90% stake in this block KG-DWN-2001/1. This block is adjacent to the prolific KG D-6 and the initial focus on drilling would be areas adjoining D-6. 3,440 sq km of seismic data has been acquired of the 1,1850 sq km block. Drilling locations have been identified and the drilling program is expected to begin in FY08.

According to internal estimates of Hardy, KG D-9 holds potential of 5,600MM boes of gas resources. We have not included KG D-9 in our E&P valuation but the table below shows that KG D-9 could be worth US$1.9-7.6 billion using risk weightage of (25-100%). This translates into Rs50-199/RIL share. Even a 50% risk weighted resource valuation (Rs100/RIL share explains 36% of our sustainability premium of Rs.274/share).

Table 40: KG D-6 value estimation (risk weighted)

Prospective resources (MM boes)	5600			
Prospective resources (TCF)	44.8			
RIL's share (TCF)	40.3			
Risk Weight	25%	50%	75%	100%
Risk weighted resources (TCF)	10.08	20.16	30.24	40.32
Recovery rate (%)	50%	50%	50%	50%
Recoverable resources (TCF)	5.04	10.08	15.12	20.16
EV/boe (US$/boe)	3.0	3.0	3.0	3.0
Total Value (US$MM)	1912	3824	5736	7647
Value/RIL Share	50	100	149	199
% of sustainability premium	18%	36%	55%	73%

Source: Hardy, JPMorgan estimates.

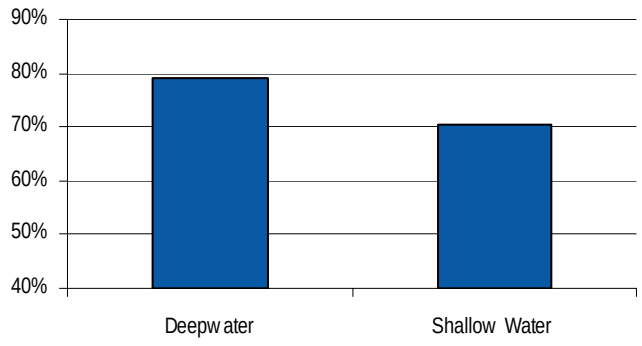
KG D-3: RIL holds a 90% stake in this block with Hardy Oil holding 10%. The block is located in the Krishna Godavari basin off the east coast of India. RIL is the operator of this block, which comprises 3,288 sq km with water depth ranging from 400 to 2,000 m. According to Hardy, this block was awarded under intense competition due to its existing 3D seismic identifying several prospects. The prospects initially identified are stratigraphic channel and fan lobes.

(3) RIL still has a large portfolio of unexplored blocks and good drill bit track record

RIL has a large exploration budget (USS$1 billion/year over the next 3 years) and a big portfolio of unexplored blocks.

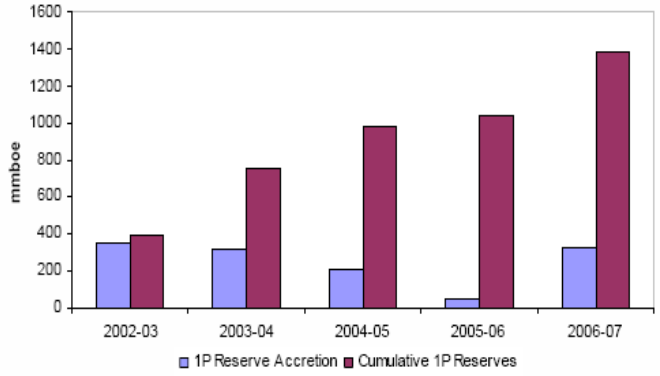
Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Figure 46: 80% success ratio is exploration wells



Source: Company, JPMorgan estimates.

Figure 47: Significant reserve accretion (1P reserves)



Source: Company, JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Figure 48: RIL—E&P portfolio

E&P Blocks	Region	Type	Area	Partners	Nelp round	Allocated
Mid and south Tapti		Offshore - Shallow	1471	BGEPIL, RIL & ONGC	Pre-NELP	Dec-94
Panna		Offshore - Shallow	430	BGEPIL, RIL & ONGC	Pre-NELP	Dec-94
Mukta		Offshore - Shallow	777	BGEPIL, RIL & ONGC	Pre-NELP	Dec-94
GK-OS/5	Gujarat	Offshore - Shallow	3750	RIL (40), TIOL (50) & OKLAND (10)	Pre-NELP	Jul-98
SR-OS-94/1	Saurashtra	Offshore - Shallow	6860	RIL (100)	Pre-NELP	Apr-00
KG-DWN-98/1	KG Basin	Offshore - Deep water	10810	RIL (100)	NELP I	Apr-00
KG-DWN-98/3	KG Basin	Offshore - Deep water	7645	RIL (90) & NIKO (10)	NELP I	Apr-00
MN-DWN-98/2	Mahanadi	Offshore - Deep water	7195	RIL (100)	NELP I	Apr-00
GK-OSN-97/1	Gujarat	Offshore - Shallow	1465	RIL (100)	NELP I	Apr-00
SR-OSN-97/1	Saurashtra	Offshore - Shallow	5040	RIL (100)	NELP I	Apr-00
KK-OSN-97/2	Kerala-Konkan	Offshore - Shallow	19450	RIL (100)	NELP I	Apr-00
KG-OSN-97/2	KG Basin	Offshore - Shallow	4790	RIL (100)	NELP I	Apr-00
NEC-OSN-97/2	Mahanadi	Offshore - Shallow	10755	RIL (90) & NIKO (10)	NELP I	Apr-00
KK-DWN-2000/1	Kerala-Konkan	Offshore - Deep Water	18113	RIL (100)	NELP II	Jul-01
KK-DWN-2000/3	Kerala-Konkan	Offshore - Deep Water	14889	RIL (100)	NELP II	Jul-01
GS-OSN-2000/1	Gujarat	Offshore - Shallow	8841	RIL (90) & HEPI (10)	NELP II	Jul-01
AS-ONN-2000/1	Assam	Onland	6215	RIL (90) & HEPI (10)	NELP II	Jul-01
KK-DWN-2001/1	Kerala-Konkan	Offshore - Deep water	27315	RIL (90) & HEPI (10)	NELP III	Feb-03
KK-DWN-2001/2	Kerala-Konkan	Offshore - Deep water	31515	RIL (90) & HEPI (10)	NELP III	Feb-03
CY-DWN-2001/2	Cauvery	Offshore - Deep water	14325	RIL (90) & HEPI (10)	NELP III	Feb-03
CY-PR-DWN-2001/3	Cauvery	Offshore - Deep water	8600	RIL (90) & HEPI (10)	NELP III	Feb-03
CY-PR-DWN-2001/4	Cauvery	Offshore - Deep water	10590	RIL (90) & HEPI (10)	NELP III	Feb-03
PR-DWN-2001/1	Palar	Offshore - Deep water	8255	RIL (90) & HEPI (10)	NELP III	Feb-03
KG-DWN-2001/1	KG Basin	Offshore - Deep water	11605	RIL (90) & HEPI (10)	NELP III	Feb-03
KG-OSN-2001/1	KG Basin	Offshore - Shallow	1100	RIL (90) & HEPI (10)	NELP III	Feb-03
KG-OSN-2001/2	KG Basin	Offshore - Shallow	210	RIL (90) & HEPI (10)	NELP III	Feb-03
NEC-DWN-2002/1	Mahanadi	Offshore - Deep water	25565	RIL (90) & HEPI (10)	NELP IV	Feb-04
KK-DWN-2003/1	Kerala-Konkan	Offshore - Deep water	18245	RIL (100)	NELP V	Sep-05
KK-DWN-2003/2	Kerala-Konkan	Offshore - Deep water	12285	RIL (100)	NELP V	Sep-05
KG-DWN-2003/1	KG Basin	Offshore - Deep water	33288	RIL (90) & HEPI (10)	NELP V	Sep-05
MN-DWN-2003/1	Mahanadi	Offshore - Deep water	17050	RIL (85) & NIKO (15)	NELP V	Sep-05
CB-ONN-2003/1	CAMBAY	Onland	635	RIL (100)	NELP V	Sep-05
KG - DWN - 2004/2	KG Basin	Offshore - Deep water	N/A	RIL (100)	NELP VI	Feb-07
KG - DWN - 2004/4	KG Basin	Offshore - Deep water	N/A	RIL (100)	NELP VI	Feb-07
KG - DWN - 2004/7	KG Basin	Offshore - Deep water	N/A	RIL (100)	NELP VI	Feb-07
MN - DWN - 2004/1	Mahanadi	Offshore - Deep water	N/A	RIL (100)	NELP VI	Feb-07
MN - DWN - 2004/2	Mahanadi	Offshore - Deep water	N/A	RIL (100)	NELP VI	Feb-07
MN - DWN - 2004/3	Mahanadi	Offshore - Deep water	N/A	RIL (100)	NELP VI	Feb-07
MN - DWN - 2004/4	Mahanadi	Offshore - Deep water	N/A	RIL (100)	NELP VI	Feb-07
MN - DWN - 2004/5	Mahanadi	Offshore - Deep water	N/A	RIL (100)	NELP VI	Feb-07
SP(E)-CBM-2001/1	Soharpur West	CBM	495	RIL (100)	CBM I	Jul-04
SP(W)-CBM-2001/1	Sohagpur East	CBM	500	RIL (100)	CBM I	Jul-04
SH(north)-CBM-2003/II	Sonhat	CBM	825	RIL (100)	CBM II	Feb-04
BS(1)-CBM-2003/II	Barmer	CBM	1045	RIL (100)	CBM II	Feb-04
BS(2)-CBM-2003/II	Barmer	CBM	1020	RIL (100)	CBM II	Feb-04

Source: DGH, Company

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Vijay Chugh[AC]
91 22 6639 3001
vijay.chugh@jpmorgan.com

Latika Chopra
91 22 6639 3014
latika.chopra@jpmorgan.com

Reliance Retail: Looking to redefine retail

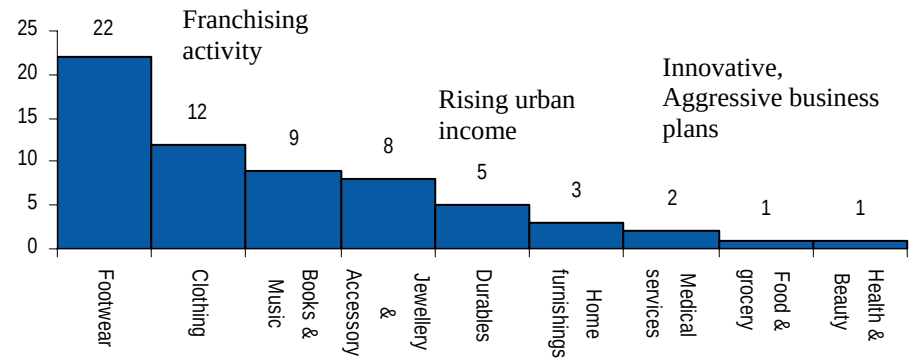
Organized Retail is a key investment are for RIL

Reliance Industries (RIL) has identified retail as one of the key investment areas and is looking to redefine the space through its management capabilities and balance sheet strength. The big picture on Reliance Retail has been articulated in the past—it is targeting revenues of US$20 billion on investments of US$8 billion. Reliance Group typically has low disclosures on companies in the project phase and we have scanty details on the actual business and roll-out plans.

Organized retailing still remains in a nascent stage in India

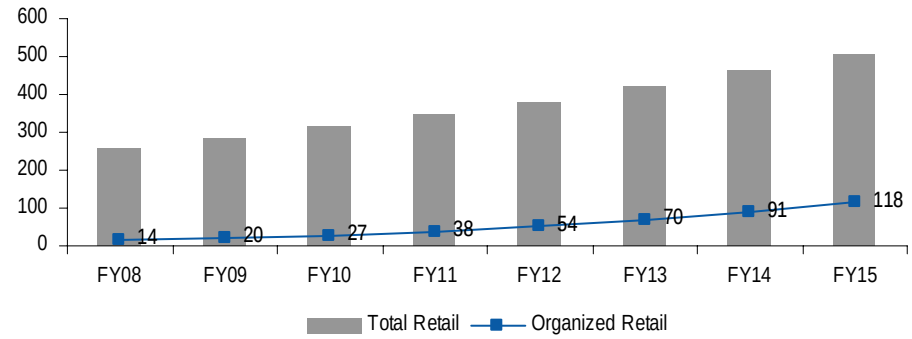
Organized retailing still remains in a nascent stage in India and we estimate this industry could grow from US$10 billion currently to US$100 billion implying a CAGR of 35%. Our confidence in these growth rates stems from the observed pace of acceptance and value proposition that it offers compared to traditional retail. The other enabling drivers for this growth are strong economic fundamentals, favorable demographics and rural areas where the untapped potential is huge. Most retailers are likely to adopt multi-format strategies considering the nascent state of the industry. A large part of this growth will be led by the food and beverage category, where organized retail penetration is quite low.

Figure 49: Organized retail penetration across categories



Source: Images F&R Research, JPMorgan.

Figure 50: Projected size of Indian retail market



Source: JPMorgan estimates.

We expect the company could scale up to 100MM sq ft over the next 8 years

RIL is approaching this growth opportunity in an integrated manner and is looking at starting multiple formats across nearly 800 towns in the country. Considering the multi-format approach the company is adopting, we expect the company could scale up from 2MM sq ft currently to 100MM sq ft over the next 8 years. Our assumptions imply a CAGR of 60%, which is achievable considering the execution capabilities and balance sheet strength. Correspondingly, on an aggregate investment of US$10 billion, we expect the company to achieve a sales turnover of US$20 billion in FY2015.

As was evident from the recent launch of its hypermarket, the company is looking to scale up private label initiative and will invest significantly in the supply chain to support this. Some of the important initiatives that the company has taken on the supply chain side are Ranger Farms (sourcing fresh products and B2B initiative) and Reliance Dairy Limited (Dairy operations).

The company also has adopted a hybrid approach to store rollouts and is open to ownership of certain properties. After taking into account these factors, we believe the company could achieve EBIDTA margins of 12%, i.e., 400bp above average (rental and supply chain costs for retailers are in the region of 8-12%).

We value retail at US$6.9B (Rs176 per share)

Estimating what Reliance Retail is worth

We attach a total value of US$6.9 billion (Rs176 per share) to Reliance Retail after considering the above plans, a debt:equity ratio of 2:1, cost of capital of 10%, and terminal net earnings multiple of 15x . The above valuation implies EV/Sales of 1x. We think the above valuations are in line with global valuations and appropriately reflect long-term growth opportunities in India.

Table 41: Valuation framework for Reliance Retail

	Assumption	FY08E	FY12E	FY15E
Space (MM sq ft)	63% CAGR	3	40	100
Sales (US$B)	US$ 200 per feet	0.6	8	20
Net Margins	EBIDTA of 12%			4.5%
Investment (US$B)				
Stores	US$50/sq ft	0.2	2.0	5.0
Ownership	30% is owned	0.1	1.2	3.0
Supply Chain	10% of sales	0.1	0.8	2.0
Total		0.3	4.0	10.0
Value (US$B)		6.9	10.1	13.5

Source: JPMorgan estimates.

Table 42: Global retail valuations

	Mkt cap	P/E (x)		Div. yield (%)		ROE (%)		EV/EBITDA (x)	
	US$MM	2007E	2008E	2007E	2008E	2007E	2008E	2007E	2008E
US		18.4	16.0	1%	1%	20%	20%	9.0	8.0
Europe		19.4	16.9	2%	3%	15%	16%	8.3	7.6
Asia		31.1	23.3	2%	2%	18%	19%	14.2	12.0
India		60.4	34.6	0%	1%	11%	14%	24.0	16.7
Global		26.0	20.4	2%	2%	18%	19%	12.0	10.4
Pantaloon Retail	1925	61.7	33.6	0%	0%	11%	14%	25.0	17.8
Shopper's Stop*	424	59.0	35.6	0%	1%	10%	14%	22.9	15.5

Source: JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

RIL SEZ venture

For RIL, SEZs present a huge opportunity in the line of SEZs developed in China. RIL is the promoter of two SEZs—Haryana and Jamnagar (where RPL is coming up). The Ambani family (MDA group) is also interested in two other SEZ projects (Navi Mumbai and Maha-Mumbai SEZs around Mumbai).

Policy incentives to lead to large-scale SEZ development: To enable and encourage investments into long gestation projects like SEZs and integrated townships and cities, the SEZ Act was approved by Parliament in May 2005. The table below shows the tax benefits extended to SEZ developers and units located in the SEZs.

Table 43: Key regulations for SEZs

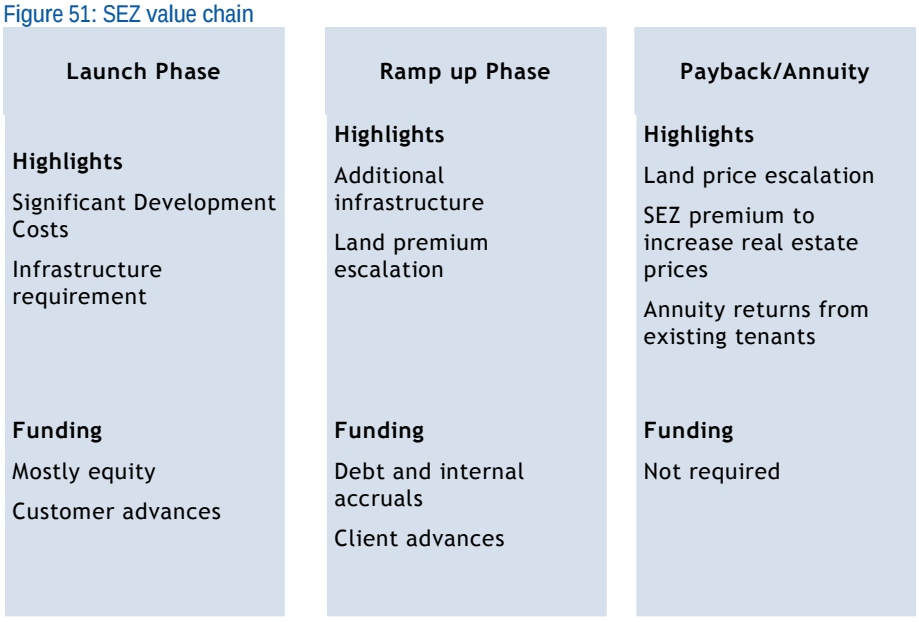
Direct tax: For developers	Direct tax: Units in SEZs	Indirect tax: Developers and units
10- year tax holiday for SEZ developers	15- year tax holiday	Exempt from custom duties
Exempted from minimum alternate tax (MAT)	Exempt from minimum alternate tax	Exempt from excise duties
Exempted from Dividend Distribution Tax	Exempted from capital gains tax on transfer of assets from urban areas to a SEZ	Exempt from service tax
Income from investments in developer companies exempt		Exempt from central service tax

Source: Govt. Of India (Commerce Ministry)

RIL has invested Rs15B in its Haryana SEZ

We currently do not ascribe value to the SEZ venture given the uncertainties and long gestation period

Figure 51: SEZ value chain



Source: JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Global refining outlook

Extracts from our JPMorgan Midstream Oil teams report ('Global refining outlook', 17 May 2007, Gordon Gray).

Global refining margins weakened substantially in early 2006 and again in 3Q06 before rebounding strongly in 1Q07, illustrating their high level of volatility. However, in our view, the key underlying trends are the continued robustness of light product demand, coupled with high levels of global capacity utilization. We expect these trends, coupled with surging refinery newbuild costs, to help support refining margins at levels well above their historical norms for the next few years. While we see capacity additions lowering utilization rates somewhat in the longer term, we expect normalized margins to remain at levels highly attractive for the complex incumbents. However, these levels are well below the bumper margins being seen at present, and we see downside from current levels.

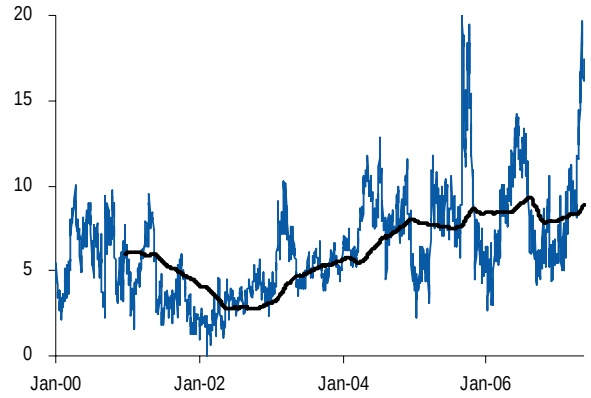
Medium-term outlook

Continued tight capacity utilization, a drive towards cleaner fuels and a near-term drop in crude quality underpin a robust outlook for margins

Tight global capacity utilization to continue to support margins

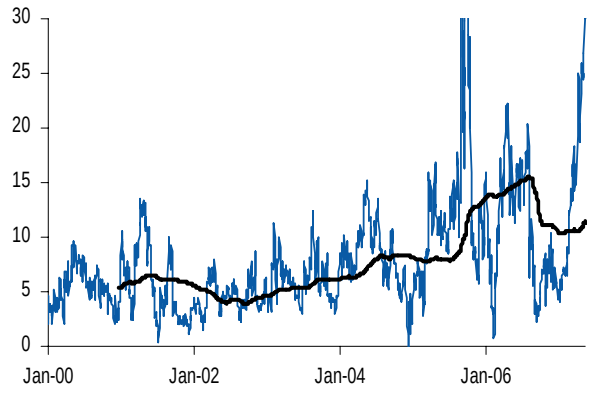
The past three years have seen an unprecedented rise in global refining margins, with 2005 and 2006 average margins in many regions around double the average of the previous five years. Although we saw high volatility and a severe decline in margins at the start of 2006 and again in 3Q, we believe the underlying fundamentals remained supportive through these periods, and remain so. Thus far in 2007, YTD complex margins (and supporting fundamentals in our view) are pointing to an even better year than 2005-06.

Figure 52: NW Europe Brent complex refining margins, 2000-present and 12-month rolling average
$ per barrel



Source: Bloomberg, JPMorgan.

Figure 53: US Gulf WTI complex refining margins, 2000-present and 12-month rolling average
$ per barrel



Source: Bloomberg, JPMorgan.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Table 44: Complex refining margins, 2001-present

US$ per barrel

	2001	2002	2003	2004	2005	2006	YTD 2007	5-yr avg to 06
NWE complex Brent	4.20	3.08	5.59	7.94	8.33	7.88	9.93	6.56
MED complex Urals	4.05	3.24	5.71	9.85	10.21	9.05	9.99	7.61
Singapore		1.46	3.43	7.04	6.49	5.17	7.11	4.72
US West Coast	15.15	9.02	12.29	18.05	21.07	22.50	27.79	16.59
US Gulf Coast	4.37	3.25	4.57	6.43	10.71	10.33	15.50	7.06
US Mid-Continent	4.74	3.44	5.73	11.12	12.96	13.32	22.13	9.31
US weighted average	6.89	4.70	6.72	9.77	12.99	13.02	18.71	9.44

Source: Bloomberg, JPMorgan.

When we analyze the reasons behind the margin strength of recent years, the most obvious factor has been the degree to which global oil demand growth has outpaced refinery capacity growth. The table below shows these respective growth rates over the past 10 and 20 years.

Table 45: Global growth of oil demand and refining capacity, past 20 years

	CAGR refining capacity		CAGR demand	
	20-yr	10-yr	20-yr	10-yr
USA	0.5%	1.1%	1.5%	1.6%
Europe	(0.2%)	0.4%	0.8%	0.7%
Asia Pacific	3.0%	2.8%	4.2%	2.9%
Global	0.8%	1.1%	1.7%	1.7%
Global ex-FSU			2.2%	1.9%

Source: BP Statistical Review of World Energy, JPMorgan estimates.

Global refining margins have risen dramatically since 2002….

In Europe, demand growth has been well below global averages but has nevertheless outstripped very slow growth in spare capacity. In Asia, refinery capacity has broadly matched demand in the past ten years, albeit with big imbalances at points within this period. However, in the US and other parts of the world, demand growth has outstripped refining capacity substantially, principally due to a reluctance to invest in what was historically a low-return business.

We estimate that the ratio of US demand to domestic refining capacity bottomed out in around 1982, and rose above 100% (i.e. the US becoming dependent on imports) in around 1985. Globally, the low point for capacity utilization appears to have also been in the early ’80s.

Over the past 20 years, US demand has risen fairly steadily to a level currently around 120% of domestic capacity. The trend also rose in Europe in the ’80s but has since slowed somewhat. In Asia, we have seen a more cyclical pattern in the past 15 years due to imbalances between strong demand growth and periods of heavy expansion of refining capacity.

Pulling all these threads together, we estimate that global refining capacity utilization has improved from around 80% 20 years ago to mid-90% in the past 3 years.

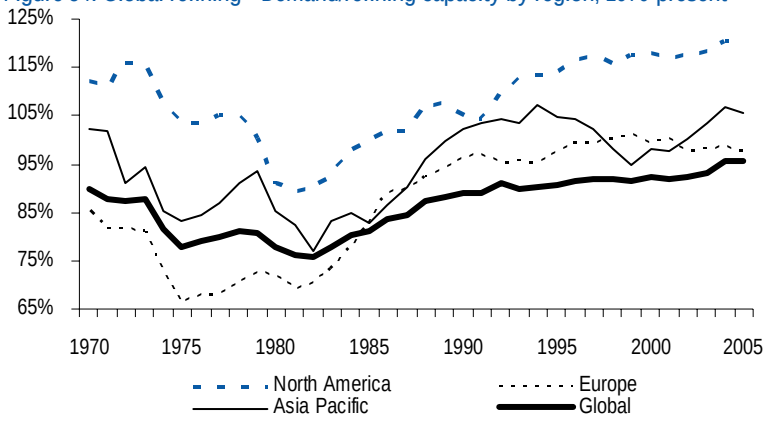
Figure 54 shows the three key regions having ratios of demand to domestic capacity well above the global average. This is compensated for principally in the former Soviet Union, Middle East and Latin America, where capacity comfortably outstrips domestic demand.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

The FSU has been an important factor in the equation. Over the past 10 or 20 years to 2005, demand growth rates globally averaged around 1.7% p.a. However, excluding the Soviet Union, they have been of the order of 2% p.a.

Global refining capacity is now running at mid-90s % utilization, compared with just 75% in the early 1980s...

Figure 54: Global refining—Demand/refining capacity by region, 1970-present



Source: BP Statistical Review of World Energy, JPMorgan estimates

High correlation between margins and global utilization

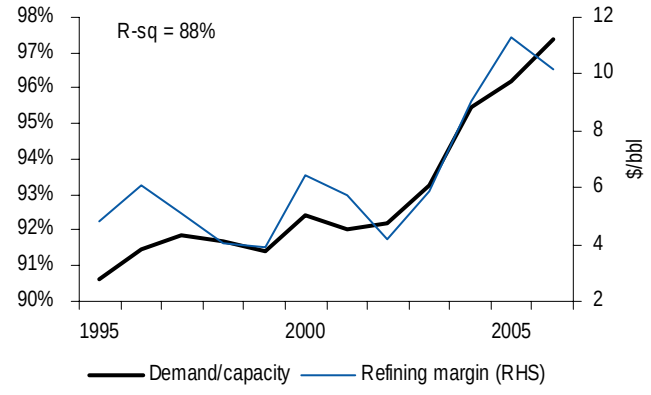
We have analyzed the correlations between regional and global capacity utilization and our calculations of complex refining margins to examine to what extent tightening capacity explains the recent margin strength.

... with a resulting strong positive correlation with global refining margins

Within each specific region, the results differ widely. Correlations in Europe are extremely poor, while they are moderate (c50% R^2) in the US, and much better in Asia Pacific. Things get more interesting when we look at correlations of regional margins with global utilization, as shown in the chart below. For data from 1999 to 2006, these show a high average R^2 of nearly 90%.

Figure 55: Global—Complex refining margins vs. regional product demand/refining capacity, 1995-2006

Percent and $ per barrel



Source: BP Statistical Review of World Energy, JPMorgan estimates

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Outlook for new refining capacity

In order to assess the outlook for global capacity utilisation over the next few years, we have developed a database of all refinery new-builds and capacity expansion worldwide.

Global refining capacity grew by around 1.3mbd, or 1.5%, in 2006. By far, the largest regional contribution to this growth was Asia, with more than 440kbd of new capacity in China alone and around 1mbd in total.

We expect the rate of new capacity addition to accelerate in the next few years. However, the rate of new capacity is unlikely to materially affect utilisation in 2007-2008 on our estimates. Although a substantial increase in refining capacity is expected by the end of 2008, we do not believe that much of the capacity increase will be fully utilised until 2009, and thus see support for continued tight utilisation through 2008, as we address further in this report. We also see noteworthy increases in new additions coming in 2009 and 2010, with our estimates currently showing 2.4mbd and 3.0mbd of new capacity respectively. The table below shows our forecasts of distillation capacity additions by region over the period 2005-10. Our estimates of total capacity by country and by region are given in the table below.

Table 46: Worldwide crude capacity additions at year-end by region

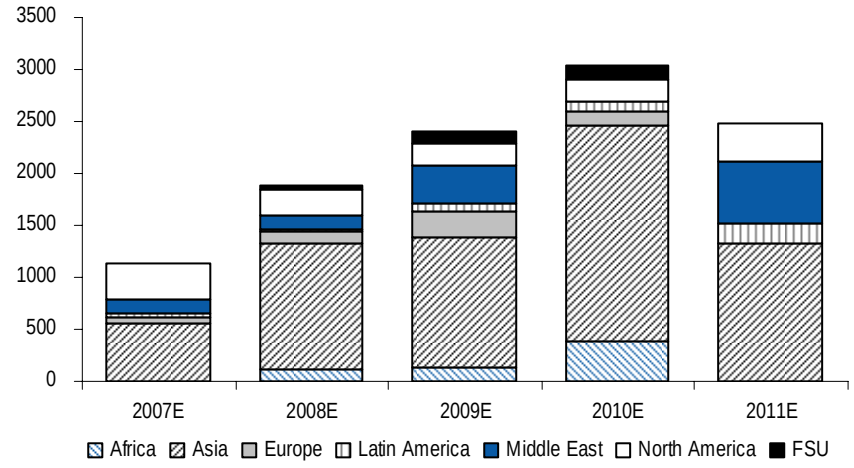
kbpd

	2004	2005	2006E	2007E	2008E	2009E	2010E	2011E	Total 07-11E
Africa	3311	3332	3336	0	107	137	384	0	628
Asia	22640	22948	23944	552	1229	1248	2076	1322	6427
FSU	8263	8243	8203	0	47	101	141	0	289
Europe	16907	16911	16968	72	101	252	141	0	566
Latin America	7543	7562	7563	35	18	66	101	202	422
Middle East	7101	7126	7221	137	147	372	(51)	583	1188
North America	19585	19807	20003	334	235	222	197	380	1368
Total announced additions				1131	1883	2398	2990	2487	8402
Total capacity, kbd	85,349	85,929	87,238	88,539	90,588	93,148	96,295	98,944	
Total capacity, mbd	85.3	85.9	87.2	88.5	90.6	93.1	96.3	98.9	
CAGR 2006E-Year				*1.5%*	*1.9%*	*2.2%*	*2.5%*	*2.6%*	

Source: BP Statistical Review of World Energy, Oil and Gas Journal, companies, JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Figure 56: Global refining capacity additions by region (2007E-11E)
kbpd



Source: Oil and Gas Journal, company data and JPMorgan estimates.

Between 2007 and 2011, the largest additions—perhaps unsurprisingly—look set to come from Asia, with around 6.4mbd of new capacity planned over this five-year period (including around 2.0mbd from China and 2.5mbd from India). In addition, we see around 1.2mbd coming from the Middle East.

Substantial risk of delays in 2010-12E

Our methodology has taken all announced capacity additions, based on numerous industry and governmental sources. We have then discounted or adjusted figures where we think there is a practical impossibility of deadlines being met. In particular, this occurs on major projects, which have a 2009-10 startup, but have not yet even reached the detailed planning stage.

Even with this approach, we think there is further risk of slippage to our figures. Anecdotal evidence continues to highlight the tightness of construction industry conditions and delays in a number of projects. One recent example of this is the Sines refinery in Portugal, which has been cancelled as costs escalated to US$7 billion, compared with an initial budget of US$5 billion. This gives an implied per barrel cost of around US$28,000/bbl. At this level it is unlikely that many worldwide projects would be financially viable and we would expect further evidence of slippage to emerge in the near future.

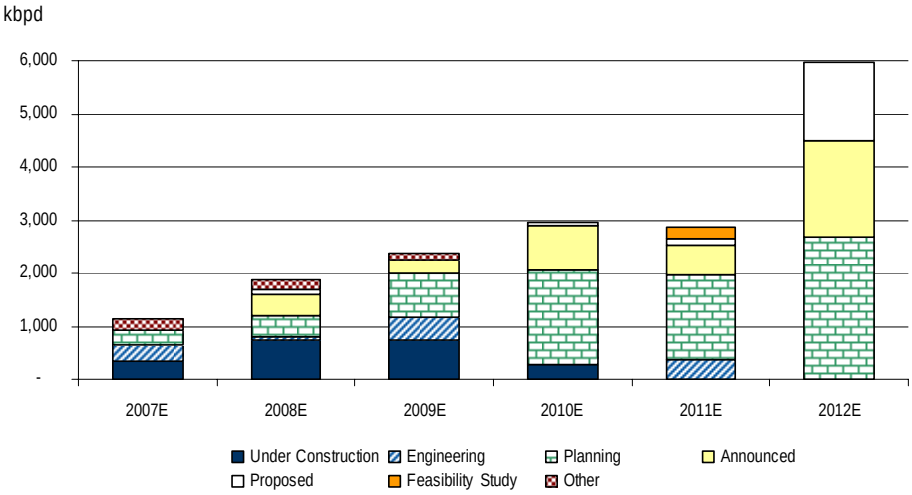
Capacity growth accelerates in 2012, in theory

Our numbers show global capacity rising by nearly 3mbd in the two-year period 2010-11E, but in theory it is accelerating to around 6mbd in 2012. **We would stress strongly the risk to the timing on most of the figures**, which is illustrated by Figure 57 which shows global capacity additions by current project status.

In our view, there must be significant slippage risk to major projects scheduled for 2008-09 and even 2010, which are still only at the planning stage. Looking at the 2010 data, some 0.9mbd does not appear even to be in the advanced planning stage.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Figure 57: Crude capacity additions by year and project stage



Source: Oil and Gas Journal, Company data and JPMorgan estimates.

Beyond 2010, while we see an even bigger theoretical boost to global capacity in 2012 in particular, we think these figures need to be taken with an even greater degree of caution and we should not assume that the upward trend of new additions continues. In our view, a large proportion of these projects may never materialise, as a result of cost pressures, lack of commitment on the part of major sponsors, and a host of other factors, and another large proportion is likely to be further delayed.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Table 47: World-wide crude capacity by region

mbpd

	2005	2006	2007E	2008E	2009E	2010E	2011E
North America							
USA	17.34	17.46	17.70	17.97	18.08	18.31	18.72
Canada	1.93	1.97	2.09	2.10	2.10	2.10	2.11
Mexico	1.46	1.46	1.47	1.47	1.62	1.63	1.63
Total	20.73	20.89	21.26	21.54	21.80	22.04	22.46
Europe							
France	1.98	1.96	1.96	1.97	1.97	1.98	1.98
Germany	2.32	2.39	2.40	2.40	2.40	2.41	2.41
Italy	2.35	2.36	2.36	2.47	2.47	2.48	2.48
United Kingdom	1.82	1.82	1.82	1.83	1.83	1.83	1.84
Other Europe	8.44	8.44	8.53	8.55	8.81	8.97	8.99
Total	16.91	16.97	17.07	17.21	17.49	17.67	17.70
AsiaPacific							
Australasia	0.82	0.82	0.82	0.82	0.86	0.86	0.86
China	6.59	7.03	7.14	7.67	8.29	8.72	9.14
India	2.56	2.99	3.17	3.68	3.92	5.04	5.66
Indonesia	1.06	1.13	1.23	1.23	1.23	1.76	1.76
Japan	4.53	4.54	4.55	4.56	4.57	4.58	4.59
Singapore	1.26	1.26	1.26	1.26	1.26	1.27	1.27
South Korea	2.60	2.63	2.64	2.64	2.65	2.65	2.66
Taiwan	1.16	1.14	1.17	1.17	1.18	1.18	1.18
Thailand	1.06	1.08	1.23	1.35	1.35	1.36	1.36
Other Asia Pacific	1.32	1.33	1.33	1.42	1.79	1.79	2.09
Total	22.95	23.94	24.54	25.81	27.10	29.21	30.58
Middle East							
Kuwait	0.91	0.91	0.91	0.91	0.91	0.71	0.71
Saudi Arabia	2.10	2.10	2.10	2.11	2.11	2.22	2.22
United Arab Emirates	0.62	0.62	0.62	0.62	0.62	0.62	0.63
Other Middle East	3.50	3.60	3.74	3.89	4.27	4.33	4.91
Total	7.13	7.22	7.37	7.53	7.92	7.88	8.47
Latin America							
Brazil	1.94	1.94	1.98	2.00	2.01	2.01	2.21
Venezuela	1.29	1.29	1.29	1.29	1.30	1.40	1.40
Other Latin America	3.41	3.45	3.46	3.46	3.54	3.54	3.55
Total	6.64	6.68	6.73	6.76	6.84	6.95	7.17
FSU							
Russia	5.49	5.49	5.50	5.51	5.62	5.78	5.79
Other FSU	2.75	2.71	2.72	2.77	2.77	2.78	2.79
Total	8.24	8.20	8.22	8.28	8.40	8.56	8.57
Africa	3.33	3.34	3.34	3.46	3.60	3.99	3.99
World	85.93	87.24	88.54	90.59	93.15	96.29	98.94

Source: BP Statistical Review of World Energy, Oil and Gas Journal, various company sources, JPMorgan estimates.

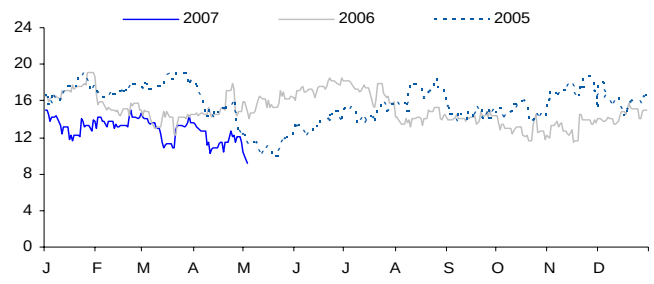
Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Crude types and product specifications

Longer term, crude quality discounts should remain wide. We expect crude quality differentials to remain wide during the coming years as an increasing number of refiners transition to the production of low sulphur fuels. While many refineries are already producing low sulphur gasoline and diesel fuel, a significant number of refiners were granted exemptions from the EPA due to various special circumstances. The switch to low sulphur fuels among these refiners should be supportive for crude quality discounts as many will likely need to lighten/sweeten their crude slate in order to meet the more stringent fuels specs.

Figure 58: Light-heavy differential (WTI-Maya)

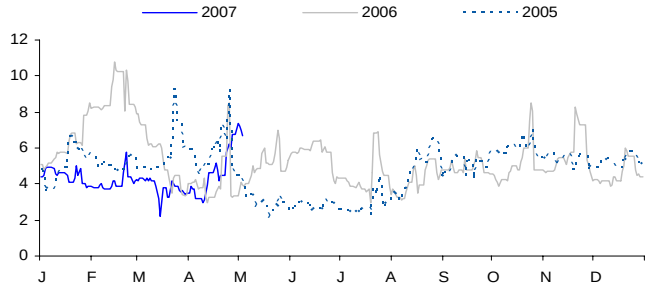
US$ per barrel



Source: Bloomberg.

Figure 59: Sweet-sour differential (WTI-WTS)

US$ per barrel



Source: Bloomberg.

Product specification changes and crude quality

The ability of the world's refining capacity to manufacture sufficient lighter-end products to meet this demand has resulted in a surge in demand for higher quality, sweeter crude barrels, significantly bidding-up the price of benchmark crudes such as WTI, Brent and Nigerian Bonny Light. This leads to two key issues that we believe have had and will continue to have a material impact on refining margins:

u

(1) Product quality: A continued global drive towards cleaner fuels is leading to the progressive desulphurization of crude products, which requires either higher-quality input barrels or more complex refining capacity, or both.

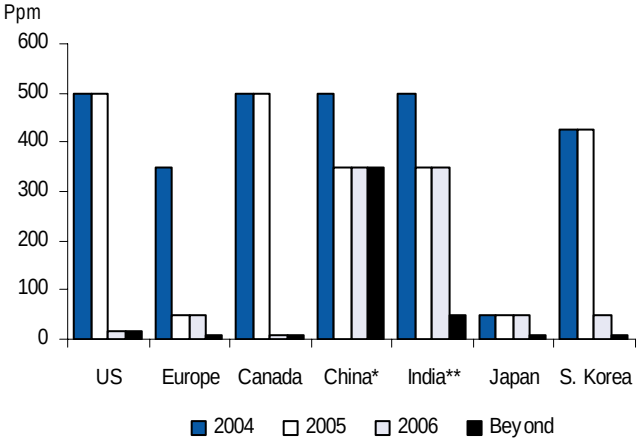
(2) Crude quality: Assuming no major pull-back in global demand and until such time as sufficient depth has been added to global refining capacity, the demand for higher quality crudes should persist as should the relevant light-heavy and sweet-sour differentials. Thus, the composition of future crude supply should have a material impact on forecasting crack spreads (product price less crude prices).

Product quality

The move towards sulphur-free fuels has been driven by the governments' awareness of efforts to curb the rise in global emissions. One route adopted by many countries has been the progressive reduction of sulphur content in transport fuels. Broadly, this involves construction/adaptation of refineries that can manufacture low-sulphur grade fuels, with the economic burden in the first instance being borne by the refinery owners, although ultimately this cost will fall on the end consumer.

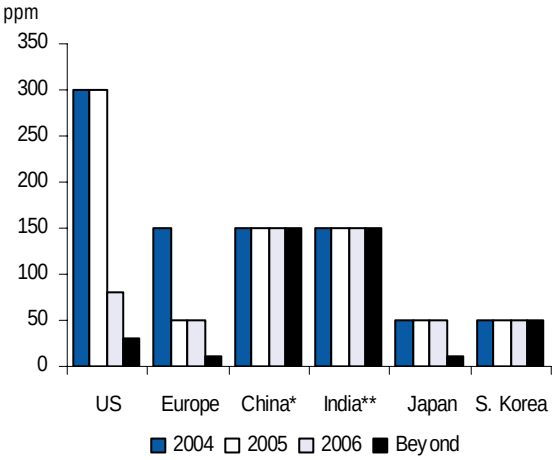
Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Figure 60: Government-mandated diesel sulphur limits



Source: Government reports, Company data and JPMorgan. *Implemented in Beijing July 2008 ahead of Olympics, to be enforced nationwide 2010. ** Implemented in major cities in 2005, to be enforced nationwide 2010.

Figure 61: Government-mandated gasoline sulphur limits



Source: Government reports, Company data and JPMorgan. Canadian limits for gasoline are given by proportion of total weight: 2004 @ 0.03% and 0.008% by 2005. *Implemented in Beijing July 2008 ahead of Olympics, to be enforced nationwide 2010. ** Implemented in major cities in 2005, to be enforced nationwide 2010.

In particular, the dramatic drop in the allowable sulphur content in diesel poses a serious challenge for refiners given the requirement to make significant investment to achieve the necessary conversion capacity. However, refiners have long memories, and the fear of a reversion to the long-term mean refining margin has to some degree kept in check new investments, particularly across the private sector.

Transition to low sulphur non-highway diesel

Sulphur limits for non-highway diesel in the US drop to 500ppm on June 1
Beginning June 1, 2007, US refiners will be required to produce non-road, locomotive, and marine (NRLM) diesel fuel with a maximum sulphur content of 500ppm, down from about 3,000ppm.

Table 48: Distillate standards applicable to most US refiners and importers

Numbers in cells equal parts per million of sulphur allowed

Fuel	2006	2007	2008	2009	2010	2011	2012	2013	2014
Highway (67%)		80% 15 ppm / 20% 500 ppm				100% 15 ppm			
Nonroad (12%)	HS		500	500		15	15	15	15
Locomotive & Marine (6%)	HS		500	500	500	500		15	15
Heating Oil (15%)	HS	HS	HS	HS	HS	HS	HS	HS	HS
Jet Fuel	HS	HS	HS	HS	HS	HS	HS	HS	HS

Source: US Environmental Protection Agency and JPMorgan. Note: All new standards take effect on June 1 of the applicable year. Matrix does not reflect special considerations given to refineries located in the Geographic Phase-in Area, small refiners, and other refiners subject to general hardship provisions. "HS" stands for High Sulphur.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

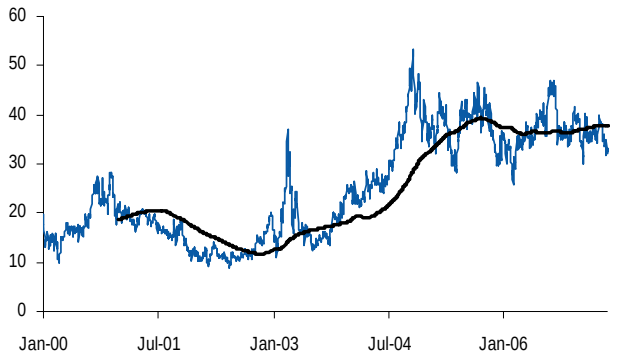
Crude quality

As the rate at which the global average crude slate changes in quality is slow and a significant proportion of recent crude volume increases (c. 500kbd) have been at the heavier end, we do not expect to see a material swing back towards lighter-end sweeter crude supply in the very near term. Hence, in the short term, and assuming a continued strong outlook for middle distillates and a structural shortage in deep conversion capacity, we expect light-heavy crude price spreads to remain high in the next one to two years at least. However, much of the recent incremental supply has come from what has been previously idled capacity, which by its nature has tended to be poor quality as producers have previously supplied better quality crudes to maximize revenues.

In the longer term, we see a risk that a greater proportion of light/medium crudes could dominate new supply barrels. For example, energy consultants, CERA, estimate that the proportion of new barrels that fall above 34 degrees API (i.e. light) coming onstream will rise to 56% in 2010 from 50% in 2006.

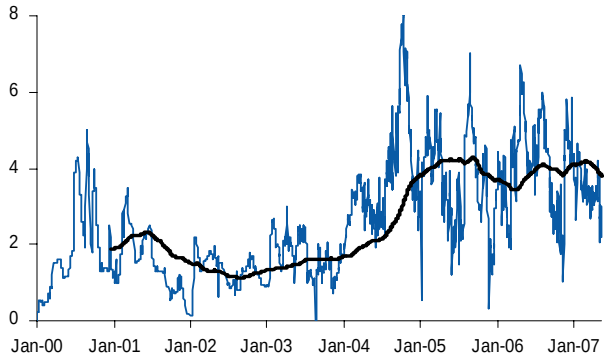
In our view, the balance between crude and product quality is a fine one. At present, coupled with a lack of depth in global conversion capacity and continued strength in middle distillate demand, these issues are exacerbating the volatility in crude and product prices.

Figure 62: WTI-Maya crude price spread, 2000-present
US$ per barrel



Source: Bloomberg.

Figure 63: Brent-Urals crude price spread, 2000-present
US$ per barrel



Source: Bloomberg.

We think these differentials are unlikely to ease substantially until all or at least a combination of the following factors occurs: (1) significant new supplies of lighter and sweeter crude volumes hit the market; (2) demand for middle distillates eases or (3) material new conversion capacity is added to the global refining system.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Global petrochemicals outlook

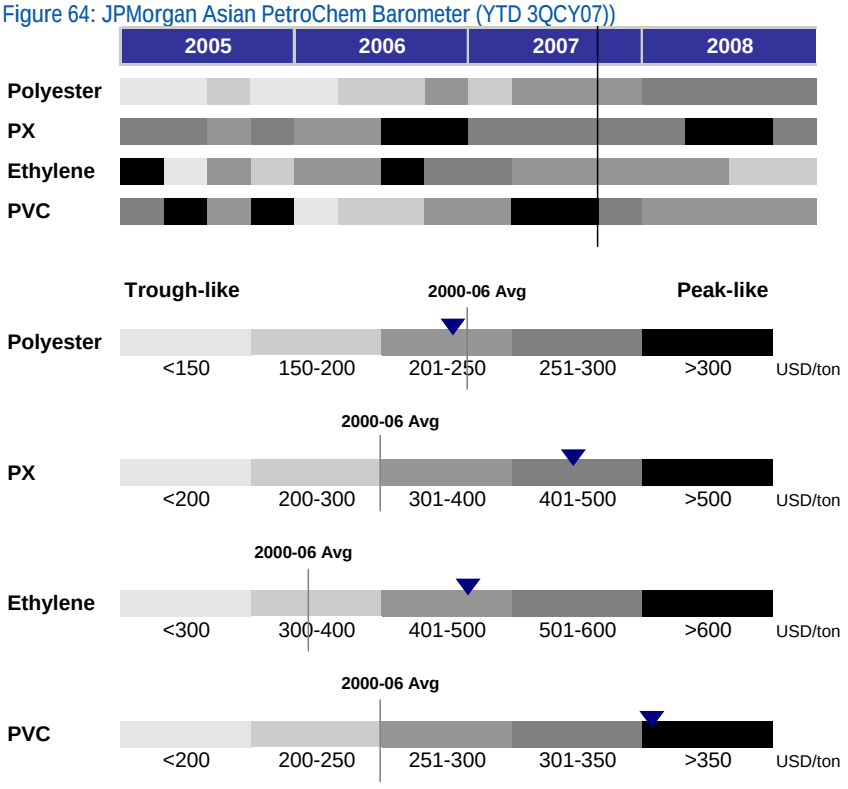
Extracts from our JPMorgan Asian Petrochemical teams report ('The party's not over yet dated' 20 June 2007, Samuel Lee, Brynjar Bustnes).

JPMorgan Asian PetroChem Barometer
The *JPMorgan Asian PetroChem Barometer* captures the historical margin trends for the various petrochemical sectors covered in this report and at the same time, highlights where margins could trend in the future, all in an easy to read graphical format.

For each major sector, we have shown a range of margins from 2000-06, represented by five distinct color blocks. The lower end of the scale represents trough-like margin conditions while the other extreme represents peak-like margins. As a reference point, the average margin achieved for each sector over the past six years is also indicated. The current margin, represented by the inverted blue triangle, allows a quick comparison with respect to the historical average.

In the top section, we show the historical and future margin trends by quarter using the same color scheme as the bottom section (i.e., the same color block is used for the same margins achieved for any given sector). We think this is a very useful tool to enable the reader to quickly compare margins across the different sectors for any given time.

Figure 64: JPMorgan Asian PetroChem Barometer (YTD 3QCY07))



Source: CMAI Global, JPMorgan estimates.

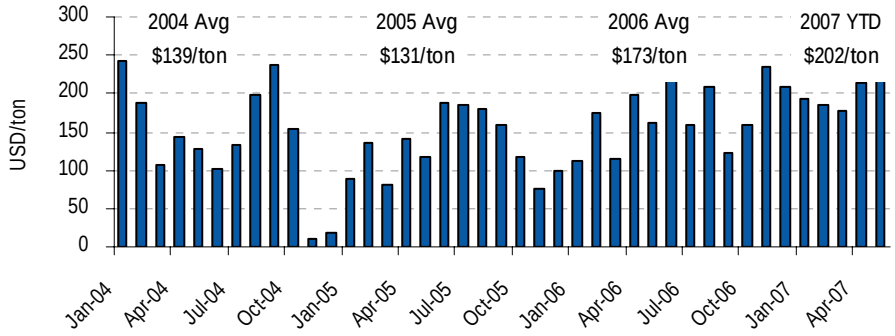
Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Polyester: The turnaround is now underway

We believe polyester margins will continue their upward climb in 2007 after their recovery in the latter half of 2006. On average, 2006 polyester margins were US$173/ton, representing 32.1% Y/Y growth. YTD margins are at US$199/ton, or an increase of another 15.0%. This is encouraging as traditionally polyester production in the first quarter of the year tends to be slower than the rest.

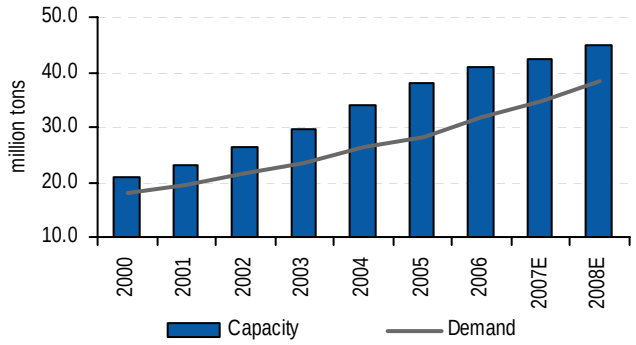
Figure 65: Asian polyester margins have been moving upwards



Source: CMAI Global, JPMorgan estimates.

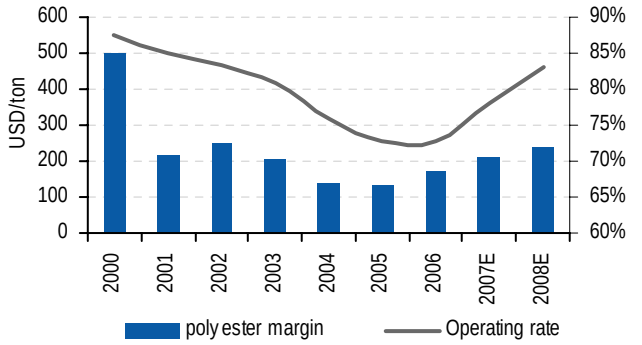
This has been a long-awaited recovery after the rapid expansion of Chinese polyester capacity from 2003-05 by almost 13.0MM tons. Global demand remains robust with a forecast growth rate of 8% by leading industry consultants for 2007 and 2008 over 2006. This is in line with the long-term average of 2-2.2x global GDP growth. More importantly, polyester production in China is expected to maintain its strong growth due to the growing demand within the region and the migration of textile and apparel production from other parts of the world.

Figure 66: Asian polyester expansion is expected to slow down



Source: PCI, JPMorgan estimates.

Figure 67: Asian polyester margin is expected to grow with utilization



Source: CMAI Global, PCI, JPMorgan estimates.

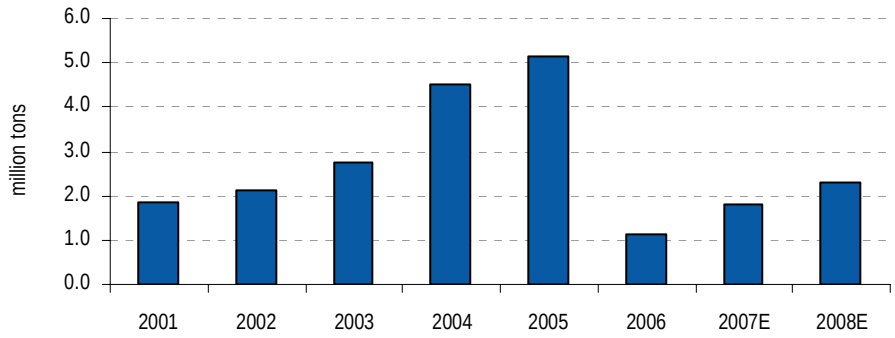
Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Factors supporting the turnaround

Aside from the very robust growth of polyester demand worldwide, we believe there are three main factors for polyester margins continuing to recover in 2007-08.

Slowdown of new capacities, especially in China: Given the high profitability enjoyed by Asian polyester producers before 2000, Chinese investors have jumped to take part in this lucrative business. Consequently, polyester utilizations plunged to 72% in Asia while margins dropped to around US$130/ton in 2005, making it a loss-making business for most. Subsequently, new China polyester capacity slowed significantly in 2006, which was contrary to earlier predictions of the continuation of the growth in 2004-05. Aside from the new capacities shown here, there will be minimal polyester expansion outside China in the future. As the lead time for new polyester capacity is around 12-18 months, we believe Asian polyester operating rates could approach 85% by the end of 2008 based on our latest capacity update.

Figure 68: China incremental polyester capacity is slowing down



Source: PCI, JPMorgan estimates.

Rationalization of capacities in Korea and Taiwan: As margins dropped to cash cost levels during the capacity boom, many Korean and Taiwanese producers found themselves in a difficult financial situation. This was heightened by the fact that traditional downstream industries based in Korea and Taiwan have also moved to the mainland, directly fueling the polyester boom. After many years of losing money and being in debt, many producers simply folded up and walked away from the polyester business. Taiwanese players such as Shinkong and Nan Ya Plastics have moth-balled their older lines as they have built newer ones in China or other parts of Asia. While these assets can be put on-stream relatively quickly, we believe it will take a new owner to do that given the previous owners' financial difficulties.

Table 49: Industry consolidation in Asia ex-China

Korea			Taiwan		
Company	Capacity ('000 tons)	Shutdown	Company	Capacity ('000 tons)	Shutdown
Kumkang	100	2003	Hualon	468	2005
Tongkook	180	2004	Tuntex	410	2006
Daehan	100	2004	Chia Hsin	118	2007
Hankook	300	2006	Chung Shing Textiles	234	2007
% of peak capacity	17.6%		% of peak capacity	28.4%	

Source: CMAI Global, PCI, Industry contacts, JPMorgan estimates.

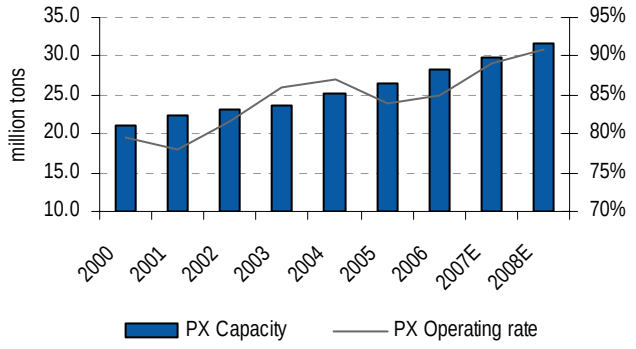
Bargaining power on PTA feedstock: After several years of profitability, PTA producers are now facing a situation similar to polyester back in 2004. From 2006-08, Asia will see around 11.7m tons new PTA capacity, with the majority based in China. Asia PTA demand is only expected to grow by 7.0m tons (part of the 8% growth in global polyester demand) during the same period, so there will be significant capacity overhang. YTD PTA margins have already dropped 31% from a peak of US$233/ton to US$160/ton now. Furthermore, Chinese polyester producers have demonstrated that when they feel raw materials prices are too high, they will stop buying en masse for up to a month. We believe as China requires less and less imported PTA from the rest of Asia, there will be pressure on regional PTA producers to move volume at very competitive prices. As PTA accounts for about 72% of the raw material costs, any savings achieved here will flow directly to the bottom line.

Finally, we want to highlight that the variability of monthly average margins have significantly declined during 2006-07 compared to 2003-04, as the average margin earned has gone up. We believe this is due to the progressively higher operating rates, which reduce pressure on the various polyester producers to move volume at all costs. Aside from the consolidation in the industry, we have also seen fewer and fewer newcomers as most of the new capacities are from existing producers. During 2003-05, when most of the new capacity was from newcomers, they fought aggressively for market share in order to generate cash flow (many of these projects were based on bank loans) which drove margins down to unsustainable levels.

Bullish on PX for 2007-08

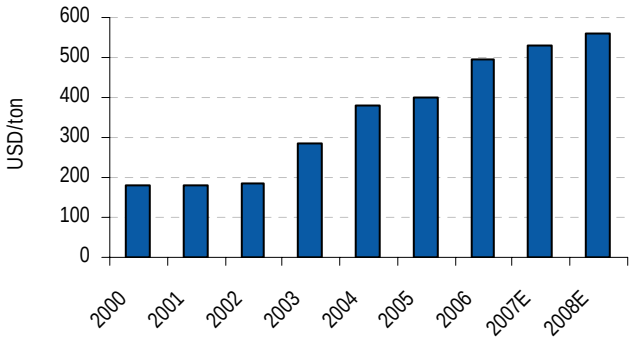
Because of the over-investment in PX during the late 1990s, its margin dropped below US$200/ton, which is lower than the US$220/ton rule-of-thumb for reinvestment economics. Consequently, PX investment slowed down considerably and with the explosive growth of polyester, PX supply growth inevitably fell behind demand, which has led to the situation prevailing today.

Figure 69: Global PX capacity has lagged demand growth



Source: PCI, JPMorgan estimates.

Figure 70: Forecast and historical Asia PX margins



Source: CMAI Global, JPMorgan estimates.

Historically, the global maximum operating rate for PX has been around 91-92%, which takes into account annual maintenance shutdowns. We believe as utilization rates approaches the historical maximum in 2007-08, PX producers will have

substantial pricing power in the market place. In fact, while 90% of the Asian market is on a contractual basis, many of these contracts have been negotiated with a spot pricing element included, as PX suppliers had forecast an increasingly tight market several years ago. We expect PX margins to move up to US$530/ton in 2007, and further to US$560/ton in 2008.

Table 50: Global PX capacity additions (Capacity in thousand tons)

Company	Country	2006	2007E	2008E
Liaoyang #2	China	450 (Q1)		
Reliance	India	210 (Q1)		
TPPI	Thailand	550 (Q2)		
YPC	China	350 (Q2)		
IOCL	India	400 (Q3)		
Lidong	China	700 (Q4)		
FCFC #3	Taiwan		720 (Q3)	
Thai Paraxylene	Thailand		120 (Q4)	
Japan Energy	Japan			420 (Q1)
Exxon Mobil	Europe			100 (Q2)
ATC #2	Thailand			615 (Q3)
Jinling	China			625 (Q3)
Borzoyeh (NPC)	Iran			750 (Q4)
Global Effective new capacity		1,050	1,610+390	450+1,300
Global demand growth		1.900	2,160	2,040

Source: PCI, JPMorgan estimates. Note: 1,160 and 450 for 2007-08 respectively represents capacities not counted in the previous year carried over to the next.

Over the next two years, there will be minimal new plant startups around the world, with nearly all new capacities slated for Asia. As a testament to the strength of the PX market in 2006, PX margins achieved new highs despite the start-up of six new plants. Furthermore, the Iranian project slated for 4Q08 could be delayed, in line with the ethylene projects in the country.

Global ethylene outlook

The ethylene upcycle is maturing. We present our updated assessment of global supply/demand fundamentals for ethylene in table below. We estimate that industry utilization rates averaged approximately 91% of global rates during 2006, though the markets ended the year on a weaker note. At utilization rates of 92% or above producers should achieve a meaningful pricing power. As rates fall further below the 92% “scarcity threshold” producers are finding it increasingly difficult to implement margin-enhancing price increases.

Table 51: World ethylene supply/demand forecast 2002-10E

Year	Capacity change (%)	Demand growth (%)	Utilization rate (%)	
			Asia	Global
2002	5.2%	3.7%	97%	86%
2003	1.3%	2.1%	98%	87%
2004	0.6%	6.0%	100%	92%
2005	4.0%	4.0%	100%	92%
2006E	3.8%	3.0%	98%	91%
2007E	4.4%	4.0%	97%	90%
2008E	4.6%	4.0%	97%	90%
2009E	7.5%	4.0%	92%	86%
2010E	6.9%	4.0%	88%	83%

Source: CMAI Global, JPMorgan estimates. Note: Global ethylene capacity at year-end 2005 is approximately 116 million tons.

In general, we expect global ethylene utilization rates to decline incrementally during 2007-08 and then fall sharply in 2009 and again in 2010 as growth in industry capacity outpaces the forecast 4% rate of increase in global demand. Acceleration in the rate of industry capacity additions should depress utilization rates. We expect annual capacity growth in 2009-10 to average more than 7% versus an average of approximately 4% in 2005-08, and an average of less than 1% during 2003-04.

Should the pace of industry capacity expansion proceed more slowly than we expect (e.g., if several Iranian projects now under development experience further delays, or if significant capacity closures were to occur) industry utilization rates could be higher than our current forecast, and ethylene margins could widen further in 2007.

By contrast, should global demand fall below our forecast long-term trend rate of 4% (approximately 1.2-1.3x forecast growth in GDP), declines in ethylene utilization rates could be greater than we currently expect. We also believe that many new facilities have been "over-engineered" and therefore are capable of running at rates above the initial capacity with little or no modification. If so, the pace of industry capacity growth could exceed our current forecast.

Overview of ethylene expansions in Iran and Saudi Arabia

Further delays in ethylene expansion in Iran: Recent and planned Iranian ethylene crackers which were to start in 2005-07 are updated in Table 52.Three new world-scale crackers expected to come on-stream by the first quarter of 2007 have been delayed. Sources of delays, both reported and speculated include:

- Lack of engineering participation in construction from the West due to restrictions on foreign companies.
- Lack of co-operation and coordination between upstream and downstream units.
- Lack of utilities such as fresh water and electricity.
- Lack of gas feedstock during the winter months as it is diverted for heating homes.
- Lack of experience in starting a massive petrochemical unit.
- Relatively inexperienced local project management.
- Potential lack of funding as there are restrictions on investing and lending in Iran by foreign governments.

We believe that the problems indicated above are symptoms of a country trying to create an industry from scratch, rather than purely manage projects. Keep in mind that in Europe, North America and even Saudi Arabia, the creation of a petrochemical industry took many years and involved different parties bringing on-stream their own capacities at different stages. Teething problems are bound to occur as Iran has tried to do it all at once, that too, essentially under one entity.

In general, we estimate that the start-up date of these projects could be pushed back an additional nine months. Should these conditions prevail, we estimate that global ethylene utilization rates will rise by 0.5% in 2007 and a further 1.2% in 2008. Industry operating rates should then approximate 90-91% during the next 18-24 months, close to the assumed 92% threshold associated with producer pricing power.

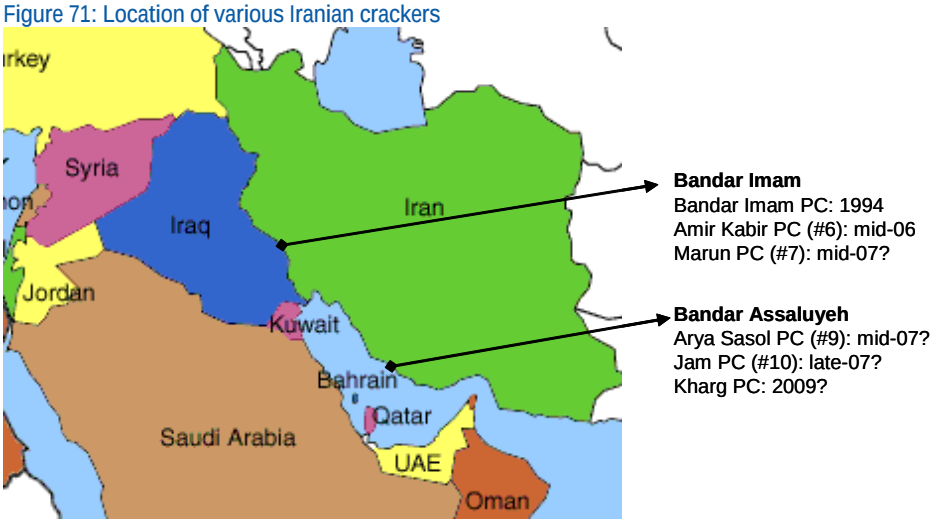
Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Table 52: Iran ethylene—Status of new crackers under construction

Project	Location	Nameplate Capacity (000 ton)	Original Targeted Start-up	Comments
Amir Kabir (#6)	Bandar Imam	520	Mid 2005	On-stream mid-06, operating well below nameplate capacity.
Arya Sasol (#9)	Bandar Assaluyeh	1,000	Late 2006	Not yet on-stream, estimate mid-07 start-up.
Marun (#7)	Bandar Imam	1,100	Late 2006	Not yet on-stream, estimate mid-07 start-up.
Jam (#10)	Bandar Assaluyeh	1,320	Late 2007	Not yet on-stream, estimate late-07 start-up.
Total		3,940		Equals to 3.3% of estimated 121 million tons of 2006 global ethylene capacity.

Source: CMAI Global, JPMorgan estimates.

Figure 71: Location of various Iranian crackers



Source: CMAI Global

Ethylene expansion in Saudi Arabia is still on schedule: The table below highlights the status of six planned Saudi Arabian ethylene crackers with a total nameplate capacity of 6.4m tons currently scheduled to start in 2008-09. We are unaware of any delays in these projects. The Saudi projects include significant participation by western companies in engineering, construction, and financing in contrast with the Iranian projects. We expect the pace of new capacity additions to outpace global demand growth for several years beginning in late 2008. Global utilization rates for ethylene should decline 3-4% in 2009 to 86% and remain below 90% for the next few years after 2009.

Table 53: Saudi Arabia ethylene—Status of new crackers under construction

Project	Location	Nameplate Capacity (000 ton)	Original Targeted Start-up	Comments
Jubail ChevronPhillips	Al Jubail	300	Early 2008	Construction on-schedule.
SHARQ	Al Jubail	1,200	Late 2008	Construction on-schedule.
Tasnee/Sahara	Al Jubail	1,000	Late 2008	Construction on-schedule.
Yansab	Yanbu	1,300	Late 2008	Construction on-schedule.
Petro-Rabigh	Rabigh	1,300	Early 2009	Construction on-schedule.
Kayan	Al Jubail	1,325	Late 2009	Construction on-schedule.
Total		6,425		Equals to 5.1% of estimated 126 million tons of 2007 global ethylene capacity.

Source: CMAI Global, JPMorgan.

Overview of ethylene expansion in Asia

While most of the attention has been focused on the capacity expansion in the Middle East, ethylene production has been quietly expanding in Asia through de-bottlenecks and is supplying its growing appetite. Almost all the Korean ethylene producers are taking this route, starting with YNCC (50% owned by Hanwha Chemical) expanding by 350,000 tons in late 2006, and then LG Daesan, Samsung Total and Lotte Daesan de-bottlenecking in 2007-08 (highlighted in the table below).

However, the biggest news is the start of Formosa Petrochemical #3 Olefins unit at Mailiao in late May 2007. This is currently the world's biggest single-train ethylene unit. Originally, the start-up was scheduled for April but possibly due to integration with both upstream (refining) and downstream units (FCFC, Nan Ya Plastics, Formosa Plastics), the project was somewhat delayed. The most important point is that with the new Olefins #3 unit, Taiwan will become a net exporter of ethylene. Short-term price volatility is expected as Formosa seeks a market in Asia to export ethylene.

Table 54: Asia ethylene—Status of new crackers under construction

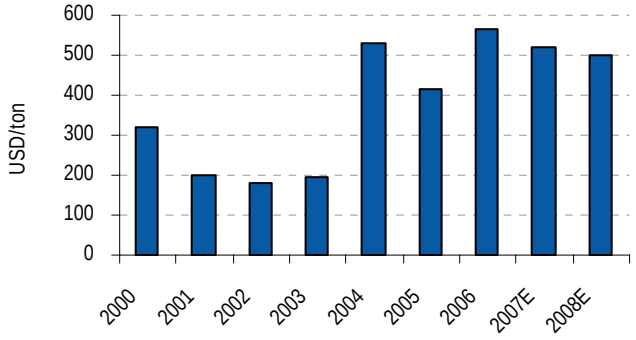
Project	Country	Nameplate Capacity (000 ton)	Original Targeted Start-up	Comments
Formosa PC	Taiwan	1,200	2Q 2007	Latest update is Jun 2007
LG Daesan	Korea	200	2Q 2007	Latest update is 3Q 2007
Samsung Total	Korea	200	3Q 2007	Construction on-schedule.
Haldia	India	150	1Q 2008	Construction on-schedule.
Lotte Daesan	Korea	350	2Q 2008	Construction on-schedule.
Dushanzi (Petrochina)	China	1,000	4Q 2008	Latest update is 1Q 2009
Total		3,100		Equals to 2.5% of estimated 126 million tons of 2007 global ethylene capacity.

Source: CMAI Global, JPMorgan.

Outlook for Asian ethylene margins

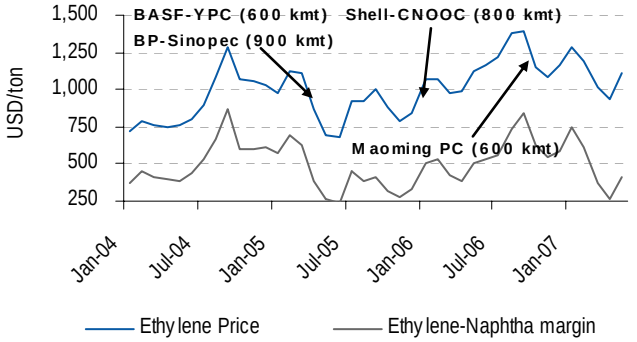
Ethylene unexpectedly saw one of its strongest years on record in 2006, with prices hitting the peak at US$1400/ton in September due to tight regional supply. Despite crude prices hitting US$78/bbl in May 2006, average Asian ethylene margins over naphtha for 2006 reached US$565/ton. During 1Q07 margins expanded further to US$576/ton as crude dropped to US$50/bbl in January. However, margins quickly fell in April to US$264/ton as weaker downstream demand and higher crude values put squeezed margins.

Figure 72: Asia—Yearly average ethylene margins



Source: CMAI Global, JPMorgan estimates.

Figure 73: Asia—Monthly ethylene prices and margins since Jan 2004



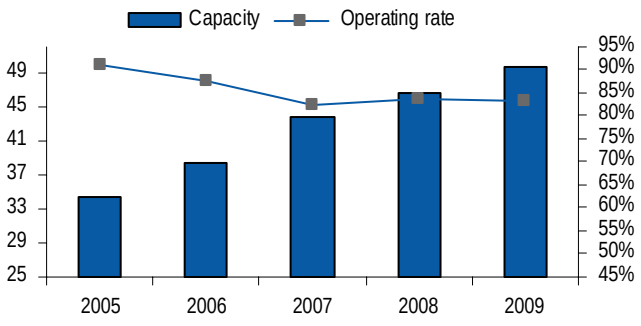
Source: CMAI Global, JPMorgan estimates.

We expect Asian ethylene margins to be around US$480-520 in 2007, slightly weaker than 2006. As mentioned earlier, there will be some volatility in margin when Formosa adds its 1.2m tons of new capacity. This is the first time that such a large scale unit will come on-stream globally. In magnitude, this will be similar to early 2005 when the BASF-YPC and BP-Sinopec crackers started within two months of each other, with a subsequent fall in prices and margins of more than $200/ton

Polyester intermediaries: Margins are robust for integrated players, PTA and MEG**.** With robust capacity additions witnessed in PTA in 2006 and ongoing expansions in China, we expect operating rates to fall in 2007. Also, given the capacity tightness in the PX market, we expect PTA margins to be under significant pressure. But for an integrated player, the loss in PTA margins would be compensated by increasing PX margins.

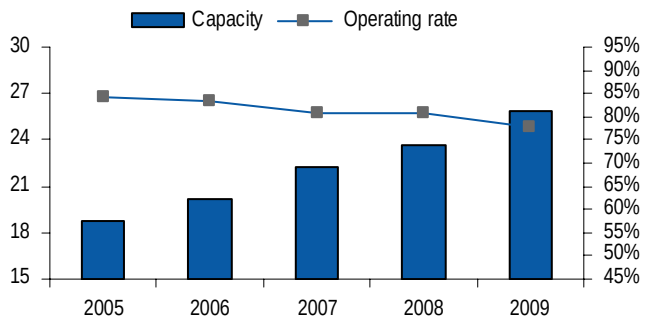
For MEG, though gradual capacity additions would bring operating rates lower globally, we expect margins to remain fairly robust as we expect moderation in record ethylene margins witnessed in 2006, lower feedstock prices would lead to higher MEG margins than that witnessed in 2006.

Figure 74: PTA operating rate



Source: CMAI I, JPMorgan estimates.

Figure 75: MEG operating rate



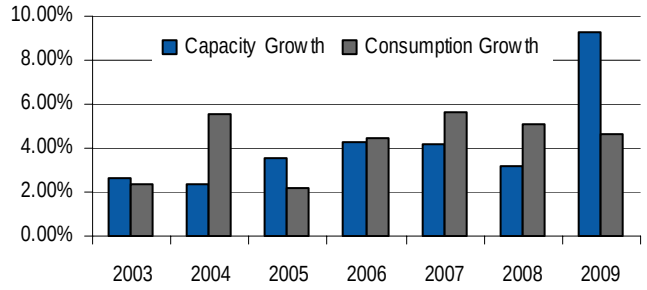
Source: CMAI I, JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Polymers: Robust demand to outpace capacity expansion over medium term

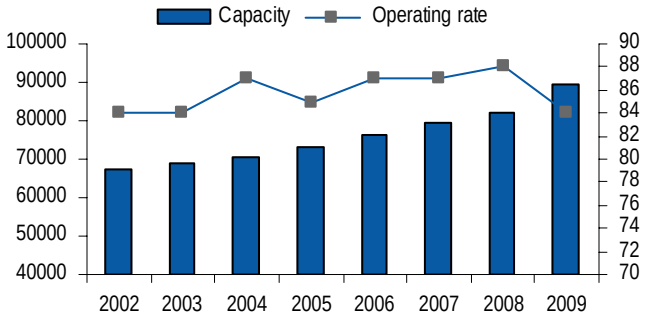
We expect polyethylene (LDPE and HDPE) margins to rebound from low of US$53/MT in 2006. With demand growth outpacing capacity expansion, we expect polyethylene margins to remain robust for the next 2 years. We expect the demand growth for polyethylene at >5% over the next 2 years but capacity to grow by only 3.5% during the same period and hence increasing operating rates to 88% in 2008 from 84% in 2005. With capacity additions in Asia and Middle East to come on stream from 2009 we expect operating rates to fall thereafter.

Figure 76: PE consumption and capacity growth



Source: CMAI, JP Morgan estimates.

Figure 77: PE Operating rates to fall in 2009

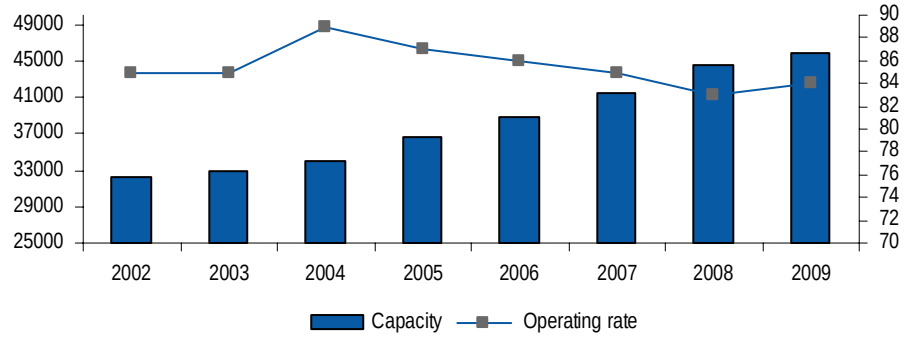


Source: CMAI, JP Morgan estimates.

PVC margins may remain under-pressure

Globally, we expect demand for PVC to remain robust for PVC but capacity expansions and trade balances in china have brought operating rates for PVC down from 89% in 2004 to 84% in 2007. With further capacity build-up expected in China, we expect PVC margins to remain under pressure.

Figure 78: Global PVC operating rates



Source: CMAI, JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Table 55: Global petrochemical valuations

		P/E			EV/EBITDA		
	Rec	2006	2007E	2008E	2006	2007E	2008E
Asia							
FCFC	OW	15.23	11.70	10.37	23.17	16.93	14.37
Nan Ya Plastics	OW	14.87	12.23	11.43	29.96	21.69	18.71
Formosa Plastics	N	18.07	14.91	14.10	29.51	24.97	23.76
LG Petrochem	NR	11.17	8.90	10.33	6.79	5.68	6.63
KP Chemical	NR	16.08	18.10	13.71	5.96	4.75	4.50
LG Chem	OW	21.84	13.40	10.32	8.84	6.93	4.28
Honam Petrochem	OW	13.32	10.47	9.14	13.16	9.72	9.12
Hanwha Chemical	N	13.09	10.27	9.61	13.99	10.91	11.12
ATC	OW	12.26	7.51	6.27	11.42	7.32	5.55
PTTCH	OW	9.41	11.56	10.35	7.58	8.16	7.67
IRPC PCL	UW	29.18	10.30	8.09	28.80	10.09	7.04
Formosa Petrochem*	NR	20.56	15.35	15.63	13.73	10.98	10.63
Shanghai Petrochem*	OW	15.77	15.56	21.99	8.41	8.43	8.42
Asian Average		16.22	12.33	11.64	15.49	11.28	10.14
Asia excl. Taiwan		16.27	12.14	11.54	11.87	8.30	7.50
US							
NOVA Chemicals	N	-4.49	16.52	13.16	-12.22	6.91	6.54
Dow Chemical	OW	10.17	11.11	12.39	6.11	6.61	7.13
Eastman Chemical Co	N	13.89	15.66	NA	6.39	6.60	n.m.
Lyondell	OW	63.57	12.73	12.57	7.24	6.87	6.69
Huntsman Corporation	N	17.05	19.30	NA	9.18	9.38	n.m.
Westlake Chemical Corp	N	7.78	9.54	11.67	4.81	4.99	5.72
Ashland Inc.	N	10.15	10.15	10.15	4.55	4.45	4.11
Cabot Corporation	N	29.94	14.85	16.19	10.41	7.14	7.41
DuPont	OW	17.19	15.83	14.71	10.02	9.44	8.93
Rockwood Holdings	OW	25.94	20.20	NA	9.29	8.61	8.04
US Average		19.12	14.59	12.98	5.58	7.10	6.82
Global Average		17.69	13.37	12.13	8.72	7.70	7.20

Source: JPMorgan estimates; Bloomberg for NR companies. Note: Valuations are as of 5th October 2007.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Table 56: Global refiners valuation

		P/E			EV/EBITDA		
	Rec	2006	2007E	2008E	2006	2007E	2008E
Europe							
CEPSA	UW	24.07	25.72	24.32	12.35	12.80	12.20
ERG	OW	21.57	13.41	8.67	7.20	5.93	4.11
Neste	UW	15.37	11.22	9.63	9.78	7.78	6.88
Saras	OW	17.24	13.90	10.67	7.90	6.47	5.51
Petroplus	OW	54.18	20.77	9.03	26.39	13.60	6.89
Hellenic **	NR	13.05	13.65	13.71	8.22	8.51	8.37
Motor Oil **	NR	11.97	12.66	12.40	8.67	9.26	9.23
Tupras	OW	9.59	10.07	8.75	7.03	5.95	4.88
OMV	N	9.60	10.30	10.34	5.32	5.27	5.01
MOL	N	7.62	13.11	13.08	5.58	7.78	7.64
PKN	N	11.95	9.63	8.74	6.89	5.62	5.07
Europe average		17.84	14.04	11.76	9.58	8.09	6.89
US							
Alon USA Energy	N	11.41	7.87	11.91	7.98	4.84	6.79
Frontier Oil	N	12.44	11.33	16.22	7.26	6.53	9.15
Holly Corporation	OW	15.14	11.21	18.12	8.23	6.47	10.01
Sunoco	N	9.64	9.72	10.70	5.05	5.29	5.84
Tesoro Corporation	UW	4.26	3.67	6.66	5.41	4.38	6.37
Valero Energy	OW	8.23	7.19	10.36	4.95	4.62	6.62
Western Refining	UW	12.80	8.59	16.79	11.16	6.42	8.35
US Average		10.56	8.51	12.96	7.15	5.51	7.59
Asia							
Thai Oil	OW	12.99	12.04	8.42	8.31	7.73	5.47
Rayong	OW	10.25	10.35	10.18	9.34	6.97	6.82
SK Energy	OW	12.63	10.70	8.91	8.44	8.41	7.66
S-Oil	NR	8.84	10.74	11.85	8.52	6.99	7.73
Singapore Pet	NR	13.45	10.88	10.42	7.39	6.54	6.38
Shell Malaysia	NR	13.37	12.50	14.56	4.75	7.89	8.96
Formosa Petrochem*	NR	20.56	15.35	15.63	13.73	10.98	10.63
Shanghai Petrochem*	OW	15.77	15.56	21.99	8.41	8.43	8.42
Asian Average		13.48	12.27	12.75	8.61	7.99	7.76
Global Average		14.54	12.01	12.39	8.63	7.36	7.35

Source: JPMorgan estimates. Bloomberg for NR companies, Note: Valuations are as of 5th October 2007.,

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Table 57: Global retail valuations

	Mkt cap	P/E (x)		Div. yield (%)		ROE (%)		EV/EBITDA (x)	
	US$MM	2007E	2008E	2007E	2008E	2007E	2008E	2007E	2008E
North America									
J.C. Penney	15,229	12.5	10.6	1.2%	1.6%	25.0%	24.7%	6.5	5.8
Kohl's	19,439	16.0	13.7	0.0%	0.0%	19.2%	18.1%	8.2	7.2
Nordstrom	12,213	17.1	15.3	1.1%	1.1%	31.2%	28.9%	10.7	9.6
BJ's	2,361	21.2	19.1	0.0%	0.0%	11.4%	11.0%	7.6	7.2
Costco	27,708	24.8	21.1	0.9%	0.9%	13.9%	20.0%	11.4	10.1
Target	57,205	18.8	16.5	0.8%	0.8%	18.8%	19.4%	9.5	8.5
Wal Mart	184,575	14.9	13.7	1.9%	2.3%	19.7%	20.0%	8.3	7.8
North America average		17.9	15.7	1%	1%	20%	20%	8.9	8.0
Europe									
Ahold	17,877	18.6	15.6	2.2%	2.5%	18.3%	18.0%	4.8	4.7
Carrefour	47,428	18.5	16.6	2.1%	2.3%	14.6%	16.2%	8.3	7.6
Casino	10,963	18.1	15.6	3.1%	3.2%	10.0%	9.4%	8.8	8.0
Metro	27,369	22.1	19.3	1.9%	2.0%	15.7%	16.4%	8.8	8.1
Tesco	74,558	19.5	17.2	2.4%	2.7%	18.4%	18.5%	10.9	9.8
Europe Average		19.4	16.9	0.0	0.0	0.2	0.2	8.3	7.6
Asia									
Parkson Retail	4849	59.8	45.4	0.8%	1.1%	23.9%	26.8%	34.4	26.8
Golden Eagle	1933	53.1	43.5	0.9%	1.1%	31.1%	32.1%	25.8	20.2
FEDS	1240	73.4	44.8	0.7%	1.1%	2.5%	4.1%	10.2	8.8
PCSC	2535	19.5	18.0	4.4%	4.7%	25.6%	26.5%	11.6	11.1
Dairy Farm	4504	18.0	15.8	3.4%	3.8%	56.0%	49.0%	17.8	16.6
Lianhua	1000	30.3	25.5	1.1%	1.3%	16.0%	11.4%	4.9	5.5
Siam Makro	634	17.0	14.1	4.4%	5.3%	16.2%	18.3%	7.8	6.7
C.P. Seven Eleven	1347	32.9	26.0	2.2%	2.6%	16.9%	20.0%	15.2	15.2
Big C Supercenter	1036	16.2	15.1	3.7%	4.0%	15.3%	15.4%	7.1	6.5
Home Product Center	269	15.8	13.7	2.3%	1.9%	15.1%	15.7%	7.8	6.7
Robinson Department Store	323	14.1	12.9	3.6%	3.6%	14.0%	14.0%	6.7	6.0
Shinsegae	12953	22.4	18.4	0.2%	0.2%	16.0%	17.0%	14.1	12.2
Hyundai Department Stores	2548	12.5	10.7	0.9%	0.9%	14.8%	14.7%	13.4	13.4
Ramayana Lestari Sentosa	668	16.0	13.8	4.5%	5.1%	18.4%	19.8%	10.5	9.4
Matahari Putra Prima	414	18.2	13.3	1.3%	1.4%	7.6%	7.7%	4.3	3.7
SM Prime Holdings Inc.	2922	19.6	18.5	2.3%	2.6%	16.1%	15.6%	15.6	14.6
Pantaloon Retail	1925	61.7	33.6	0.2%	0.4%	11.0%	14.0%	25.0	17.8
Shopper's Stop*	424	59.0	35.6	0.3%	0.6%	10.0%	14.0%	22.9	15.5
Asian average		**31.1**	**23.3**	**2%**	**2%**	**18%**	**19%**	**14.2**	**12.0**

Source: JPMorgan estimates. Note: Valuations are as of 5th October 2007.

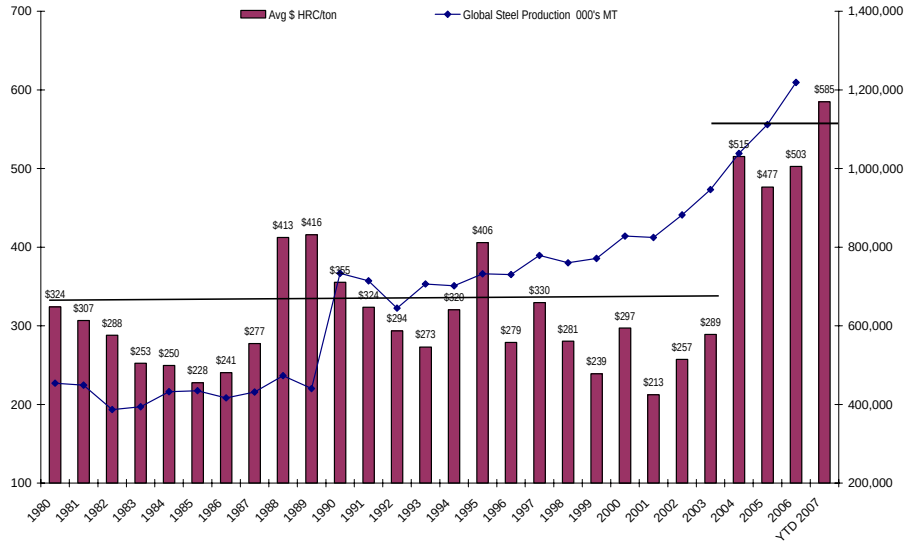
Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Steel Industry: An Illustration of elongated prices and expanding multiples

Steel prices in the last 4 years have remained much above historical levels due to an elongated cycle…

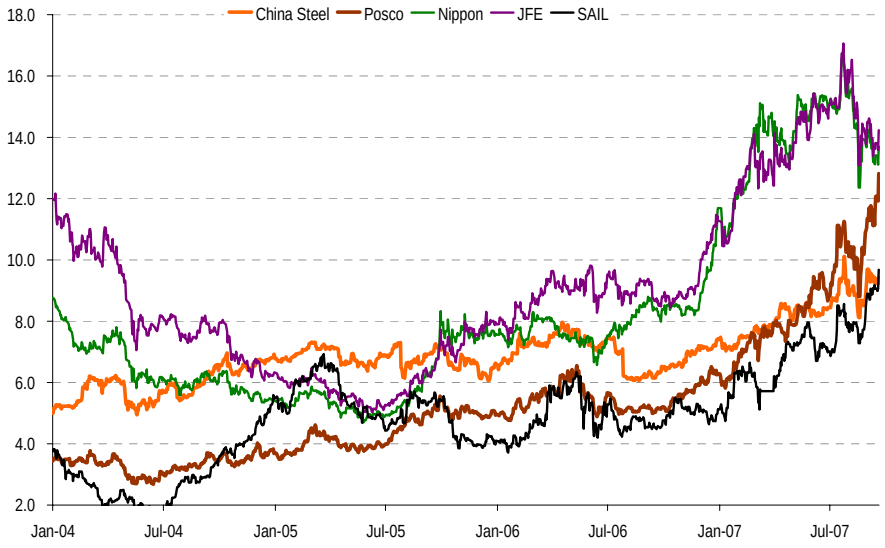
Figure 79: Elongated steel cycle…



Source: JPMorgan estimates.

….leading to expansion in earnings multiples for steel manufacturers

Figure 80: ... Has led to expanding multiples (P/E)



Source: JPMorgan estimates.

Glossary:

Refining

- Crude Distillation: Separates: crude oil into fractions according to their boiling range
- Isomerisation: Transforms light naphtha (low octane component) into isomerate (higher octane component) with the presence of a catalyst and hydrogen.
- Alkylation: Converts feedstock into alkylate, a premium gasoline blendstock
- Continuous Catalyst Regeneration (CCR) Platforming: Transforms low octane components into higher octane ones, in the presence of a catalyst.
- Fluidised Catalyticn Cracking (FCC): Transforms vacuum gas oils principally into LPG and gasoline, but also produces diesel and fuel oil, in the presence of a catalyst.
- Hydrocracking: Transforms vacuum gas oils principally into kerosene and diesel in the presence of a catalyst and hydrogen.
- Thermal Cracking: Vacuum residue Fuel oil Reduces viscosity of vacuum residue by use of high temperature without catalyst.
- Delayed Coking: Maximizes: Conversion to light and middle distillates through high severity.
- Hydrotreating/ Hydrodesulphurization: Reduces the sulphur content and other impurities in the presence of a catalyst and hydrogen.

Petrochemicals:

- Polyester margins: Partially Oriented Yarn (POY)–0.865PTA–0.335MEG.
- PTA margins: PTA–0.67PX.
- PX margins: PX–Naphtha.
- Benzene margins: Benzene–Naphtha.
- Ethylene margins: Ethylene–Naphtha.
- Propylene margins: Propylene–Naphtha.
- Integrated PVC margins: (PVC+Caustic)–(ECU–0.48Ethylene).
- PVC margins:: PVC–VCM.

Exploration and Production

- US$/mmbtu: US dollar per million british thermal units
- Lifting cost: Operating cost to take out one barrel of oil
- Boe: Barrel of oil equivalent
- TCF : Trillion cubic feet

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Reliance Petroleum

Initiating Coverage with UW rating; PT of Rs.156; switch to RIL

- **We initiate with UW, Mar-08 PT of Rs156:** We are positive on the outlook for the refining business, but we believe the recent run-up in the share price does not factor in risks of RPL being at the project stage in what remains a cyclical industry.
- **Projects in the pipeline:** RPL is setting up a 580,000bpd refinery and a 0.9mMT Polypropylene facility. High secondary conversion (complexity) will ensure ability to convert cheaper heavy (high sulphur) crudes to high value (ultra low sulphur) clean fuels catering to US, European demand. Intelligent repeat of RIL's refinery design has crushed project timelines and costs.
- **But it is fully valued:** RPL trades at an EV of US$22B compared our valuation of RIL's refinery of US$19bn. Advantage of greater complexity, better product slate, and tax benefits will be offset by smaller size, higher operating costs and current cash flows from RIL's refinery. News flow on refinery project progress will be the key driver of the share price, in our view.
- **Valuation, price target, risks:** Our PT of Rs156 is based on EV/EBITDA of 8.0x. We have also added the NPV of tax benefits (US$3.1B) to our EV valuation. Our valuation is supported by our DCF estimate of Rs152 based on 9.9% WACC and 3.0% terminal growth. RPL is exposed to global refining cycle risks in addition to project execution risks that could impact our valuation estimates and our price target.

Initiation
UnderWeight
Rs172.9

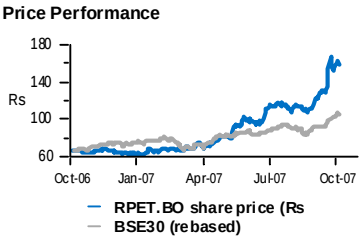
10 October 2007
Price Target: 156.00
India
Independent Refiners

Pradeep Mirchandani[AC]
(91 22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Adarsh Parasrampuria
Adarsh.x.parasrampuria@jpmorgan.com

Brynjar E. Bustnes
(852) 2800 8578
brynjar.e.bustnes@jpmorgan.com

Price performance



Source: Reuters.

Performance

	1M	3M	12M
Absolute (%)	26%	41%	142%
Relative (%)	8%	20%	76%

Source: Reuters.

Reuters: RPET.BO, Bloomberg: RPET IN

Rs in millions, year-end March

	FY09E	FY10E	FY11E		
Net sales	92,872	540,922	565,668	52-week range (Rs)	173-56
EBITDA	15,864	89,361	98,887	Market cap (RsB)	777825
Net profit	10,985	68,545	80,107	Market cap (US$B)	19692
EPS (Rs)	2.4	15.2	17.8	Shrs outsting (MM)	4500
Sales growth (%)	0.0%	482.4%	4.6%	Price (Rs)	172.9
Ebitda growth (%)	0.0%	463.3%	10.7%	Date of Price	10-Oct-07
Net profit growth (%)	0.0%	524.0%	16.9%	Free Float (%)	20.00
ROE (%)	7.8%	39.1%	33.9%	3 mth trading value (RsMM)	2312
ROCE (%)	4.9%	24.7%	23.1%	3 mth trading value (US$MM)	53.4
P/E (x)	70.8	11.3	9.7	3 mth tradinig volume (MM)	18.7
P/BV (x)	5.3	3.8	2.9	BSE 30	18,658
EV/EBITDA (x)	56.4	9.4	7.7	Exchange rate (Rs/US$)	39
Dividend yield (%)	0%	1%	2%	Fiscal year-end	Mar

Source: Company, JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Investment summary

RPL: A great project but expensive

RPL has been created as a sharper mirror image of the Reliance refinery ('intelligent repeat', according to management). The RPL project uses RIL's formidable project management skills and experience in setting up and running a complex refinery to seize the 'window of opportunity' caused by underinvestment in global refining. However, we believe that at the current share price, the company is fully valued and does not offer adequate upside for investors given the project risk on RPL. We recommend that investors to switch to RIL as it provides a more de-risked play on the refining cycle due to exposure to other earnings streams.

Investment negatives

RPL is executing a large refinery project in Jamnagar. Projects of the size and complexity of RPL's refinery are prone to delays and teething problems. RPL's refinery will function in a global cyclical industry and will be prone to business cycle downturns in the event of a slowdown in demand growth or excessive capacity additions. RPL also faces risk from forex exposure—while both raw material and products will be sourced internationally in dollar terms, the reporting currency is the Indian rupee.

We believe RPL is fully valued and offers limited upsides

RPL is fully valued, on our estimates

We compare RPL's valuations with the value we ascribe to RIL's existing refinery. We estimate RPL's equity value in Mar-09 to be US$19.6 billion. This accounts for its higher margins (we have assumed a differential of US$1.6/bbl) and the NPV of its tax benefits (US$3.1 billion). This assumes a Dec-08 start-up and 100% utilization in FY10, with no teething issues which are the norm in refinery projects of this size. An investment in the existing refinery at our fair value (US$19 billion on Mar-08) will participate in cash generation of the current refinery over FY09 (US$3.3 billion), implying that EV+ cash generation from current asset till Mar-09 will be worth more than our estimate of RPL value in Mar-09.

RIL offers >40% exposure to refining and downside protection

The refining business will form c40% of RIL's consolidated earnings in FY10/11—while not a pure play, current refining cash flows and downside protection weigh in favor of RIL.

Table 58: RPL Valuations

	FY08	FY09 March *	FY10 March	RIL March 08	RIL March 09
GRMs (US$/bbl)		13.6	13.6	12.5	12.0
Throughput (mmt)		29.00	29.00	33.00	33.00
Ebitda (Inr mn)		98887	98887	97198	90539
EV (Inr mn) @ 8.0x EV/Ebitda		791099	791099	777585	724310
EV (US$ bn)		19.3	19.3	19.0	17.7
Tax benefits (Inr mn)		127413	117331	0	0
Tax benefits (US$ bn)		3.1	2.9	0.0	0.0
Net Debt /Cash (Inr mn)	99002	116030	62612	-48599	-135808
Net Debt /Cash (US$ bn)		2.83	1.53	-1.19	-3.31
Equity Value (Inr mn)		802482	845818	826184	860119
Equity Value (US$ bn)		19.6	20.6	20.2	21.0
Value per Share (inr)	156	178	188		

Source: JPMorgan estimates * Equity value in Mar-08, discounted ar Cost of Equity (14%).

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Even an early start-up and stabilization leaves little upside

We have assumed that the RPL refinery will start in Dec-08 and run at 60% utilization over Jan-Mar-09. If the RPL refinery starts in Jun-08 and ramps up in utilization to 90% by 4QFY09 (i.e. 60% utilization in 1st quarter of operations moving up to 80% in 2nd quarter and 90% in the 3rd quarter of operations), our DCF value for RPL moves from Rs152 to Rs161.

RPL will also be sensitive to product spreads for high spec fuels. Here again the introduction of tighter fuel norms across markets could cause significant mis-matches in supply and demand, which could lead to fluctuations in product spreads. The table below shows RPL's sensitivity to GRM and product spread assumptions.

RPL's value is highly sensitive to GRMs and diesel spreads

Table 59: RPL—Sensitivity

Overall GRMs	DCF (%)	Diesel Spreads	RPL DCF	Gasoline Spreads	RPL DCF
-$3.0	-28.2%	-$3.0	-12.2%	$3.0	-9.1%
-$2.0	-18.8%	-$2.0	-8.2%	$2.0	-5.7%
-$1.0	-9.8%	-$1.0	-4.1%	$1.0	-2.3%
$0.0	0%	$0.0	0%	$0.0	0%
$1.0	9.0%	$1.0	4.1%	-$1.0	4.4%
$2.0	18.4%	$2.0	8.2%	-$2.0	7.7%
$3.0	27.8%	$3.0	12.3%	-$3.0	11.1%

Source: JPMorgan estimates.

Positive drivers: External

(1) The world has underinvested in refining

Years of underinvestment in the refining industry globally has resulted in a: (1) strong upswing in margins with higher capacity utilizations; and (2) scramble for putting up new refinery capacities, thus pushing up costs across the EPC chain, impacting project economics and schedules. The lower levels of secondary processing ability amongst older refineries have also led to widening differentials between light and heavy crude.

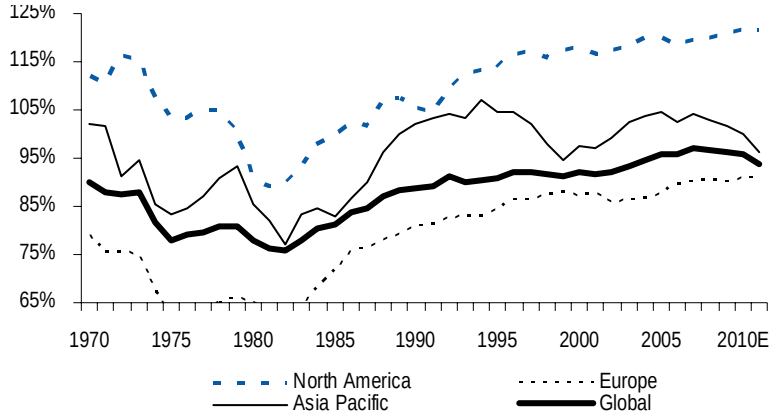
Table 60: Two decades of refining under-investment...

	CAGR refining capacity		CAGR global oil demand	
	20-yr	10-yr	20-yr	10-yr
USA	0.5%	1.1%	1.5%	1.6%
Europe	(0.2%)	0.3%	0.8%	0.7%
Asia Pacific	3.0%	2.9%	4.2%	2.9%
Global	0.8%	1.2%	1.7%	1.7%
Global ex-FSU			2.2%	1.9%

Source: IEA, JPMorgan estimates.

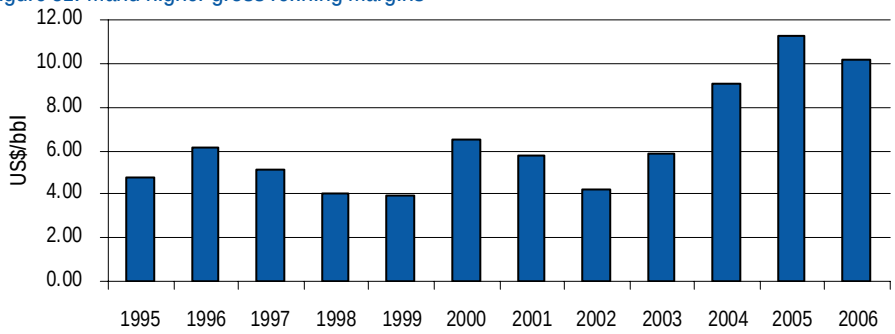
Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Table 61 ... Has led to rising utilization levels....



Source: BP statistical review, JPMorgan estimates.

Figure 81: ...and higher gross refining margins



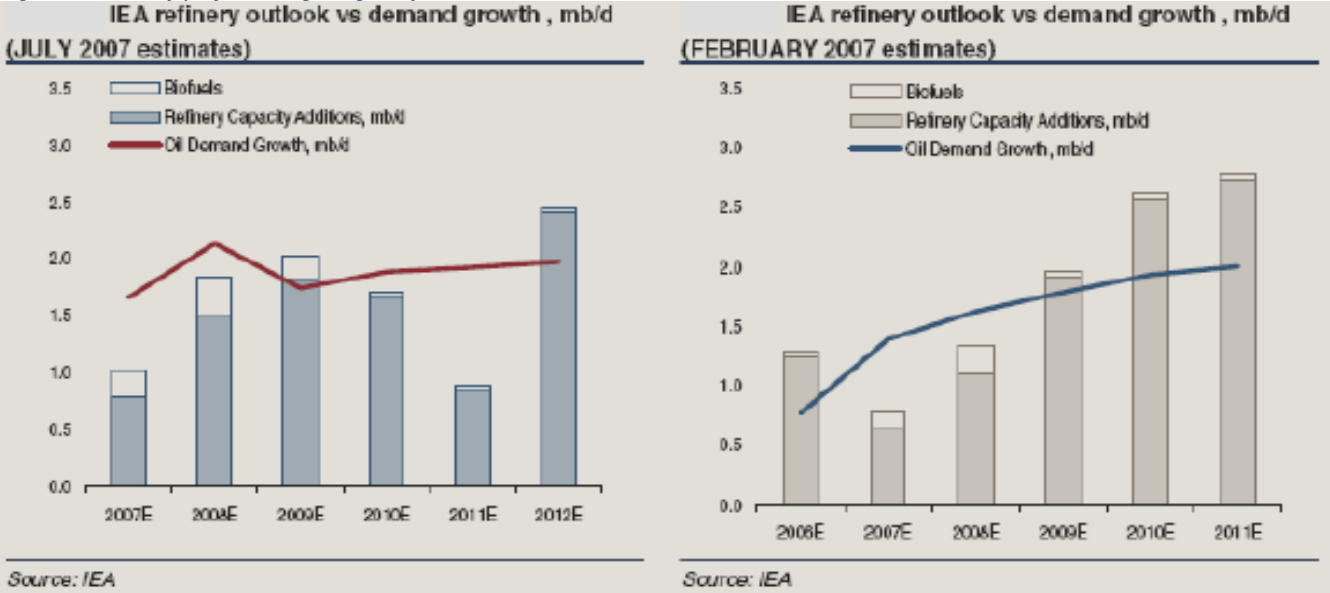
Source: Bloomberg, JPMorgan estimates.

(2) Projects are getting delayed; refining tightness is likely to extend

Anecdotal evidence continues to highlight the tightness of construction industry conditions and delays to a number of projects. The most notable example of this is the Al-Zour refinery in Kuwait, which has been delayed until at least 2011 as initial cost estimates of over US$15 billion were tendered, compared with an initial budget of US$6 billion (recently revised to US$12 billion). This gives an implied per barrel cost of well over US$20,000/bbl. At this level it is unlikely that many worldwide projects would be financially viable and we would expect further evidence of slippage to emerge in the near future.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Figure 82: Refinery projects are getting delayed



Source: IEA

(3) Product specification changes and crude quality; complex refineries to benefit

The ability of the world's refining capacity to manufacture sufficient lighter-end products to meet demand for low sulphur light-end products has resulted in a surge in demand for higher quality, sweeter crude barrels, significantly bidding-up the price of benchmark crudes such as WTI, Brent and Nigerian Bonny Light.

Positive drivers: Internal

'Intelligent repeat' of the RIL refinery design has cut down project implementation timelines and costs…. the project is well on schedule…

(1) Project management skills, lower project cost

RPL has been created as a sharper mirror image of the RIL refinery. RIL has used its formidable project management skills and experience in setting up and running a complex refinery to seize the 'window of opportunity' in global refining.

Figure 83: On schedule with likelihood of early commissioning

Scheduled to be completed	Expected completion date	Months from Zero date	Current status
Start of Project	Dec-05		
Technology Selection/ Project scope	Jan-06	1	Completed
Completion of Basic engineering	May-06	6	Completed
Order placement for critical equipment	May-06	6	Completed
Completion of Detailed engineering	Sep-07	22	Ongoing
Completion of Civil work	Nov-07	24	Progressing
Completion of Equipment erection	Jan-08	26	Progressing
Mechanical completion	Aug-08	33	
Ready for Start up	Sep-08	34	
Commencement of operations	Dec-08	36	

Source: Company

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Project funding has been tied up

Table 62: RPL—Funding requirements

Rs in millions

Total capex requirements		Funding	
Land, utilities	5,990	Total Equity	135,000
Equipment/construction costs	163,840	RIL Initial equity (60%)	27000
Technical fees	39,918	RIL IPO Subscription (15%)	40500
IDC, pre-operating cost	31,216	Chevron Stake (5%)*	13500
Contingency	19,496	IPO (Retail + Institution) (20%)	54000
Margin money for working capital	9,540	Debt	135,000
Total	270,000	Total	270,000

Source: Company, JPMorgan estimates. **Chevron has an option to increase its stake to 29% from 5% currently.*

(2) Product slate caters to new product specifications

High capital costs and environmental factors are impacting investment in new facilities in developed markets. Simultaneously, product specifications are tightening. This will lead to large demand for high spec gasoline in the US and high spec diesel in Europe.

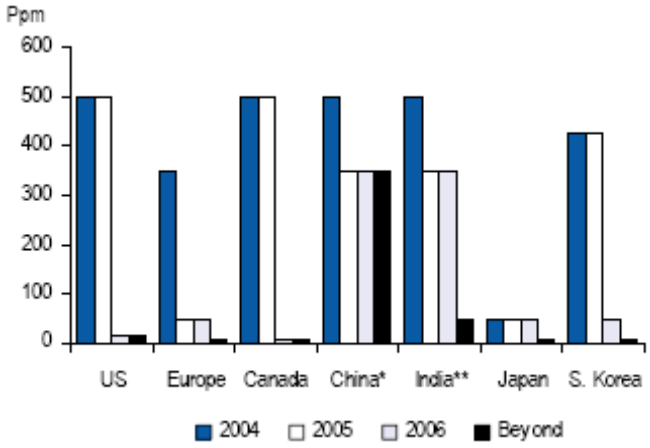
RPL will cater to high quality (low sulphur) product demand in Europe and America

Figure 84: Product slate skewed towards US and European Markets

Product	Capacity (mtpa)	Proportion	Target Market
Diesel	12.0-13.0	43%	Asia/Europe/America
Gasoline	8.0-10.0	31%	USA/Asia
Jet / Kerosene	1.0-2.0	5%	Europe
Petcoke	2.0-3.0	9%	Domestic
Alkylates	2.0-3.0	9%	USA
Polypropylene	0.85-0.9	3%	Asia
Sulphur	0.45-0.6	2%	Domestic
Light + Middle distillates (%)		90%	

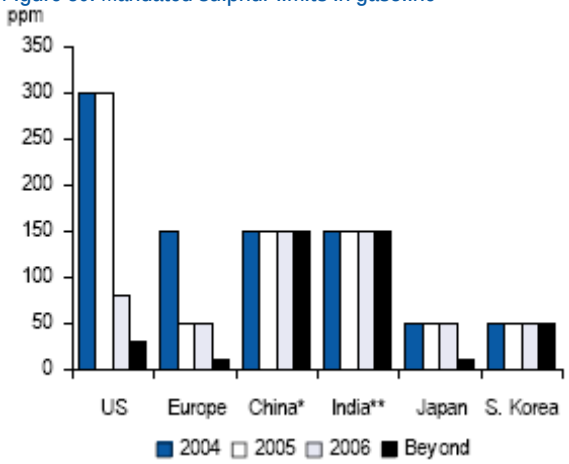
Source: Company, JPMorgan estimates.

Figure 85: Mandated sulphur limits in diesel



Source: Government reports, Company data and JPMorgan. *Implemented in Beijing July 2008 ahead of Olympics, to be enforced nationwide 2010. ** Implemented in major cities in 2005, to be enforced nationwide 2010

Figure 86: Mandated sulphur limits in gasoline

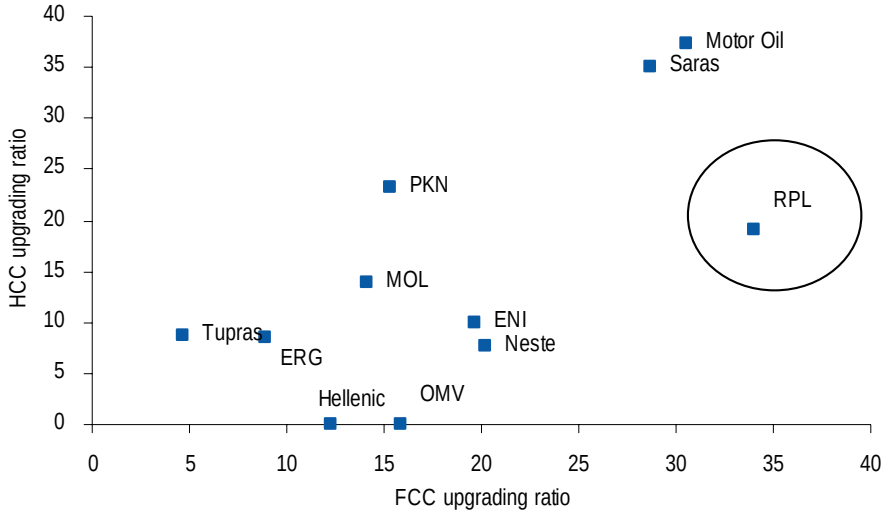


Source: Government reports, Company data and JPMorgan. Canadian limits for gasoline are given by proportion of total weight: 2004 @ 0.03% and 0.008% by 2005. *Implemented in Beijing July 2008 ahead of Olympics, to be enforced nationwide 2010. ** Implemented in major cities in 2005, to be enforced nationwide 2010.

(3) High secondary processing enables heavier, cheaper crude diet.

RPL has significant secondary processing capacity, making it amongst the most complex refineries in the world

Figure 87: Global upgrading ratio comparisons

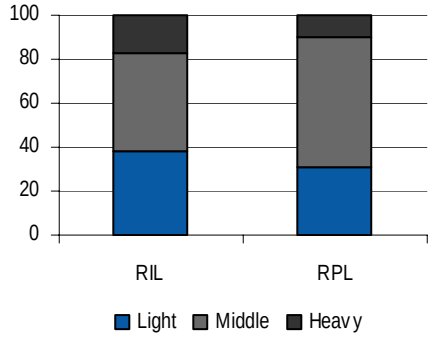


Source: Company,JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

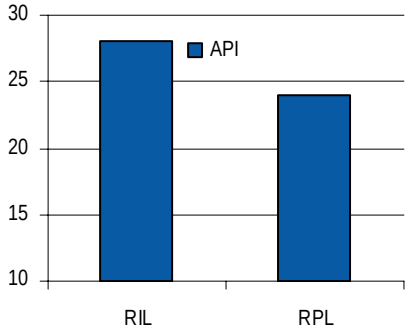
This will enable it to produce higher quality products with a cheaper heavier crude diet…

Figure 88: Higher light + middle distillates



Source: Company, JPMorgan estimates.

Figure 89: Crude diet

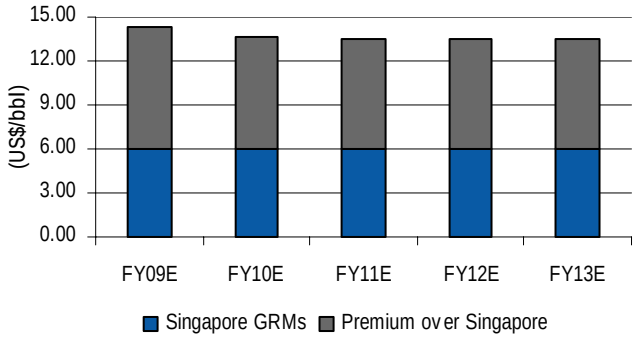


Source: Company, JPMorgan estimates.

Premium to regional GRMs and also RIL

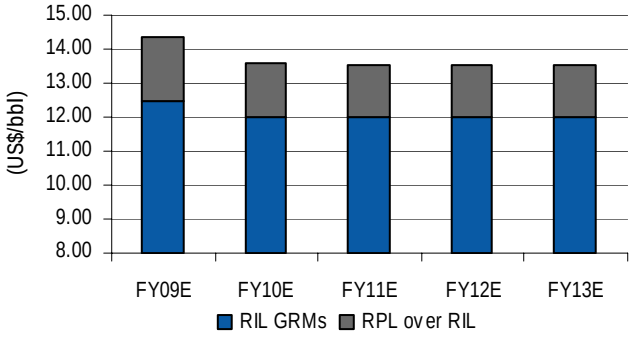
We expect RPL's GRMs to command a premium of US$7.5-8.0/bbl over our regional benchmark. Given the higher complexity of RPL compared to RIL's existing refinery, we expect RPL to have a US$1.5/bbl premium over RIL.

Figure 90: RPL premium over Singapore GRMs



Source: JPMorgan estimates.

Figure 91: RPL premium over RIL



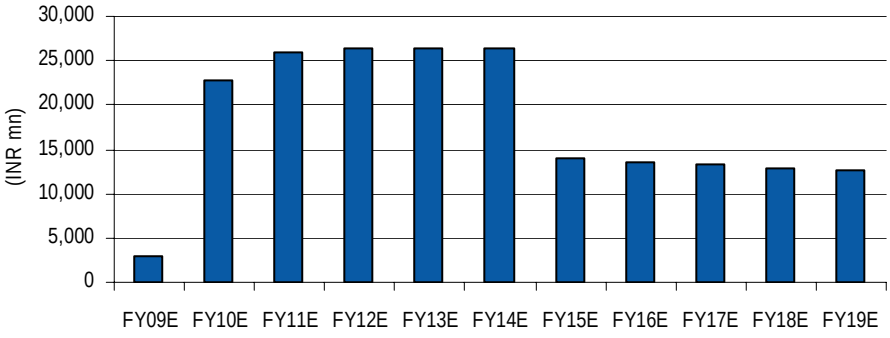
Source: JPMorgan estimates.

(4) Tax benefits.

RPL also benefits from tax incentives on account of its SEZ status

NPV of tax benefits is US$ 3.1B

Figure 92: Annual tax benefits



Source: JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

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Valuations and share price analysis

Our PT of Rs156 for RPL is based on 8.0x EV/EBITDA for a normalized FY10 EBITDA of Rs99 billion (assuming 100% utilization, which is not going to be easy to achieve in a refining project of this scale). We have added NPV of RPL's tax benefit (US$3.1 billion) to our EV as the EV/EBITDA multiple does not capture value of tax benefits.

Fair value of Rs156/share based on 8.0x EV/EBITDA including US$ 3.1B of tax benefits

Table 63: RPL vs. RIL refinery—Valuation based on EV/EBITDA

	FY08E	FY09E March *	FY10E March	RIL March 08E	RIL March 09E
RPL GRMs (US$/bbl)		13.6	13.6	12.5	12.0
Throughput (mmt)		29.00	29.00	33.00	33.00
EBITDA (RsMM)		98887	98887	97198	90539
EV (RsMM) @ 8.0x EV/EBITDA		791099	791099	777585	724310
EV (US$B)		19.3	19.3	19.0	17.7
Tax benefits (RsMM)		127413	117331	0	0
Tax benefits (US$B)		3.1	2.9	0.0	0.0
Net Debt /Cash (RsMM)	99002	116030	62612	-48599	-135808
Net Debt /Cash (US$B)		2.83	1.53	-1.19	-3.31
Equity Value (RsMM)		802482	845818	826184	860119
Equity Value (US$B)		19.6	20.6	20.2	21.0
Value per share (Rs)	156	178	188		

Source: JPMorgan estimates * Equity value in Mar-08, discounted ar Cost of Equity (14%).

Our valuation is supported by a DCF value of Rs.152/share assuming a WACC of 9.9% and terminal growth of 3%.

Table 64: RPL—DCF valuation

	FY08E	FY09E	FY10E	FY11E	FY12E	Terminal cash flow
EBITDA	0	15,864	89,361	98,887	98,887	
Cash Tax Payable	0	0	0	0	0	
Working Capital changes	2,781	(3,515)	(32,343)	(1,647)	0	
Capex	(50,000)	(22,344)	(2,000)	(3,000)	(3,000)	
Free Cash Flow	(47,219)	(9,996)	55,018	94,241	95,887	69,719
Terminal growth rate	3.0%					
WACC	9.9%					
DCF Valuation						
NPV of explicit cashflows	485,780					
NPV of Terminal Value	297,265					
Enterprise Value	783,045					
Less: Net Debt	99,002					
Equity Value	684,043					
Per Share Equity Value	152					

Source: JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

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Financial summary and analysis

We estimate a premium of US$1.5/bbl over RIL for RPL

Table 65: RPL—Key assumptions

	FY09E	FY10E	FY11E	FY12E
Rs/US$	41	40	40	40
GRMs (US$/bbl)	14.4	13.6	13.5	13.5
Singapore GRMs (US$/bbl)	6.0	6.0	6.0	6.0
GRMs over RIL (US$/bbl)	1.9	1.6	1.5	1.5
Refinery Throughput (mmt)	4.4	26.1	29.0	29.0
Capacity Utilization (%)	15%	90%	100%	100%

Source: JPMorgan estimates.

We estimate EPS of Rs15-18/share in FY10-11E based on GRMs of US$13.6/bbl

Figure 93: RPL—P&L statement

Rs in millions, year-end March

	FY09E	FY10E	FY11E	FY12E	FY13E
Net Revenues	92,872	540,922	565,668	565,668	565,668
EBITDA	15,864	89,361	98,887	98,887	98,887
Depreciation	3,412	13,650	13,806	13,962	14,118
Interest	1,882	8,581	8,588	7,634	7,074
Other Income	416	2,135	5,450	8,640	12,059
PBT	10,985	69,265	81,944	85,932	89,755
Tax	-	719	1,837	2,912	4,064
PAT	10,985	68,545	80,107	83,020	85,691
EPS (Rs)	2.44	15.23	17.80	18.45	19.04

Source: JPMorgan estimates.

Operating cashflows from FY10 will reduce leverage

Table 66: RPL—Balance sheet

Rs in millions, year-end March

	FY09E	FY10E	FY11E	FY12E	FY13E
Net fixed assets	259,862	248,212	237,407	226,445	215,327
Cash & bank balances	10,901	68,656	137,675	195,902	274,147
Total current assets	13,901	137,319	208,855	267,081	345,326
Total assets	273,763	385,531	446,261	493,526	560,654
Total current liabilities	3,000	36,320	37,190	37,190	37,190
Long-term debt	127,014	137,014	127,228	107,654	110,000
Provisions		10,267	15,983	20,705	21,372
Shareholders' equity	143,748	201,930	265,861	327,977	392,092
Total liabilities	273,763	385,531	446,261	493,526	560,654

Source: JPMorgan estimates.

Free cash flows in excess of US$1.5B from FY11 onwards

Table 67: RPL—Cash flows

Rs in millions, year-end March

	FY09E	FY10E	FY11E	FY12E	FY13E
Net income	10,985	68,545	80,107	83,020	85,691
Depreciation	3,412	13,650	13,806	13,962	14,118
Net change in WC	(9,081)	(26,777)	(1,647)	0	0
Cash from operations	5,317	55,418	92,266	96,982	99,809
Capital Expenditure	(22,344)	(2,000)	(3,000)	(3,000)	(3,000)
Cash from investing	(22,344)	(2,000)	(3,000)	(3,000)	(3,000)
Change in borrowings	22,344	10,000	(9,787)	(19,573)	2,346
Equity raised	0	0	0	0	0
Dividends paid	0	0	(10,282)	(16,021)	(20,755)
Cash from financing	22,344	10,000	(20,069)	(35,595)	(18,409)
Net cash flow	5,317	63,418	69,198	58,387	78,400

Source: JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

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RPL: Summary of financials

Profit and Loss statement

RsMM, year-end Mar	FY09E	FY10E	FY11E	FY12E
Revenues	92,872	540,922	565,668	565,668
% change Y/Y		482%	5%	0%
EBITDA	15,864	89,361	98,887	98,887
% change Y/Y		463%	11%	0%
EBITDA Margin (%)	17%	17%	17%	17%
EBIT	12,451	75,711	85,082	84,926
% change Y/Y		508%	12%	0%
EBIT Margin (%)	13%	14%	15%	15%
Net financial income	(1,466)	(6,446)	(3,138)	1,006
Earnings before tax	10,985	69,265	81,944	85,932
% change Y/Y		531%	18%	5%
Tax	0	(719)	(1,837)	(2,912)
as % of EBT	0%	1%	2%	3%
Net Income (adjusted)	10,985	68,545	80,107	83,020
% change Y/Y		524%	17%	4%
Shares Outstanding	4,500.0	4,500.0	4,500.0	4,500.0
EPS (adjusted)	2.4	15.2	17.8	18.4
% change Y/Y		524%	17%	4%

Cash flow statement

RsMM, year-end Mar	FY09E	FY10E	FY11E	FY12E
EBIT	12451	75711	85082	84926
Depreciation & amortisation	3412	13650	13806	13962
Change in working capital	(9081)	(26777)	(1647)	0
Taxes	0	719	1837	2912
Others	416	2135	5450	8640
Cash flow from operations	7199	65438	104528	110439
Capex	(22344)	(2000)	(3000)	(3000)
Change in investments	0	0	0	0
Interest	(1882)	(8581)	(8588)	(7634)
Free cash flow	(17028)	54857	92940	99805
Equity raised/ (repaid)	0	0	0	0
Debt raised/ (repaid)	22344	10000	(9787)	(19573)
Dividends paid	0	0	(10282)	(16021)
Beginning cash	5668	10984	74403	143600
Ending cash	10984	74403	143600	201987

Balance sheet

RsMM, year-end Mar	FY09E	FY10E	FY11E	FY12E
Cash and cash equivalents	10,984	74,403	143,600	201,987
Accounts receivable	6,929	40,311	42,146	42,146
Inventories	3,988	23,352	24,033	24,033
Others	3,000	5,000	5,000	5,000
Current assets	24,901	143,065	214,780	273,166
Total Investments	0	0	0	0
Net fixed assets	256,449	244,800	233,994	223,033
Liabilities	8,351	36,320	37,190	37,190
Provisions	0	10,282	16,021	20,755
Total current liabilities	8,351	46,602	53,211	57,945
Total assets	273,000	341,263	395,562	438,254
Total debt	127,014	137,014	127,228	107,654
Other liabilities	0	0	0	0
Total liabilities	127,014	137,014	127,228	107,654
Shareholders' equity	145,985	204,249	268,335	330,600
BVPS	32.4	45.4	59.6	73.5

Ratio analysis

%, year-end Mar	FY09E	FY10E	FY11E	FY12E
EBITDA margin	17%	17%	17%	17%
EBIT margin	13%	14%	15%	15%
Net profit margin	12%	13%	14%	15%
Sales growth	0%	482%	5%	0%
Net profit growth	0%	524%	17%	4%
Interest coverage (x)	NA	NA	6.6	8.8
Net debt to total capital	43%	18%	-4%	-22%
Net debt to equity	79%	31%	-6%	-29%
Sales/assets	34%	159%	143%	129%
Assets/equity	187%	167%	147%	133%
ROE	7.8%	39.1%	33.9%	27.7%
ROCE	4.9%	24.7%	23.1%	20.4%

Source: Company, JPMorgan estimates.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

JPMorgan

Other Companies Recommended in This Report (all prices in this report as of market close on 10 October 2007)
Reliance Petroleum Ltd (RPET.BO/Rs172.85/Not Covered)

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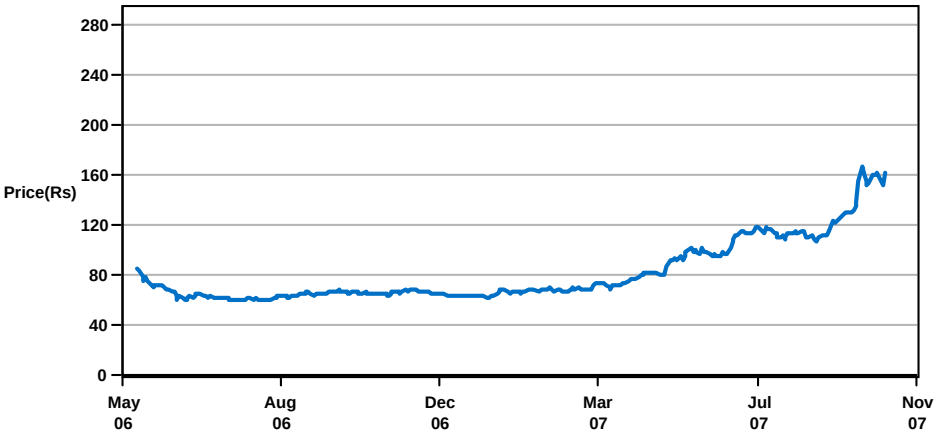
Reliance Industries Ltd (RELI.BO) Price Chart

Source: Reuters and JPMorgan; price data adjusted for stock splits and dividends.
Break in coverage Apr 29, 2004 - May 21, 2004, and Oct 14, 2005 - Oct 11, 2007. This chart shows JPMorgan's continuing coverage of this stock; the current analyst may or may not have covered it over the entire period.
JPMorgan ratings: OW = Overweight, N = Neutral, UW = Underweight.

Reliance Petroleum Ltd (RPET.BO) Price Chart



Source: Reuters and JPMorgan; price data adjusted for stock splits and dividends.
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JPMorgan Equity Research Ratings Distribution, as of September 28, 2007

	Overweight (buy)	**Neutral** (hold)	**Underweight** (sell)
JPM Global Equity Research Coverage	46%	40%	14%
IB clients*	51%	50%	38%
JPMSI Equity Research Coverage	42%	46%	12%
IB clients*	70%	63%	49%

*Percentage of investment banking clients in each rating category.
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Revised September 28, 2007.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

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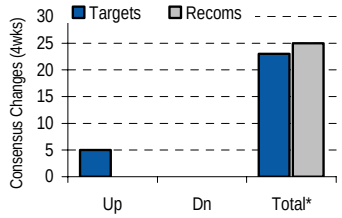
All Data As Of 10-Oct-07

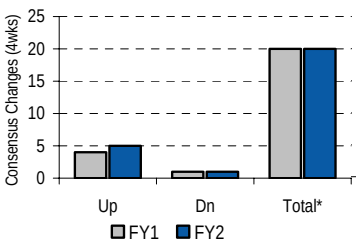
Q-Snapshot: Reliance Industries Ltd.

Quantitative Analysis

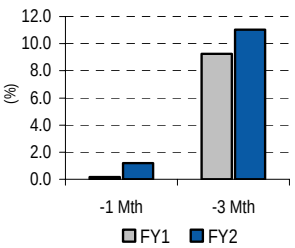
Targets & Recommendations



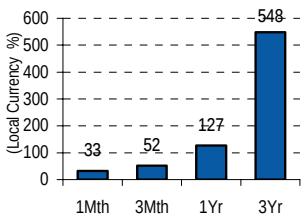
EPS Revisions



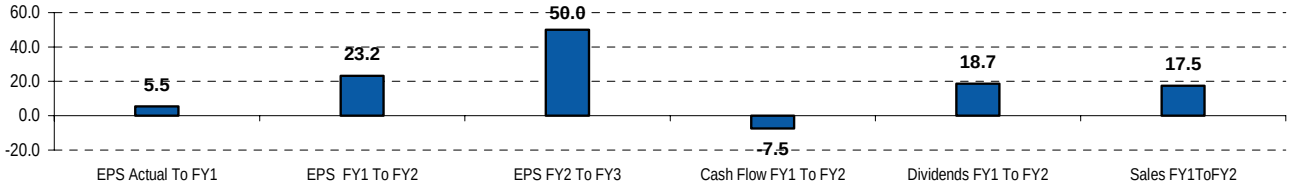
EPS Momentum (%)



Historical Total Return (%)



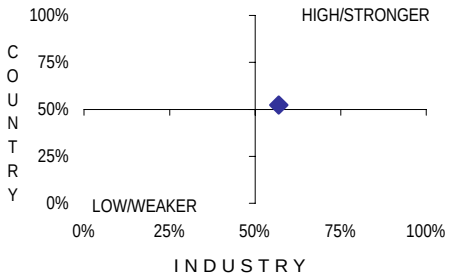
Consensus Growth Outlook (%)



Quant Return Drivers (A Score >50% indicates company ranks 'above average')

Score 0% (worst) to 100% (best)	vs Country Peers	vs (regional) Industry Peers
Valuations: P/E Vs Market (12mth fwd EPS)	19%	21%
Valuations: P/E Vs Sector (12mth fwd EPS)	35%	52%
Valuations: EPS Growth (forecast)	23%	52%
Momentum: 12 Month Price Momentum	86%	65%
Momentum: 1 Month Price Reversion	5%	8%
Quality: Return On Equity (forecast)	41%	62%
Quality: Earnings Risk (Variation in Consensus)	48%	68%
Earnings&Sentiment: Earnings Momentum	60%	74%
Earnings&Sentiment: Change in Recomms	75%	71%
Earnings&Sentiment: Net Revisions Fy2 EPS	80%	78%
COMPOSITE Q-SCORE (0% To 100%)**	**52%**	**57%**

JPMorgan Composite Q-Score



Regional Industry Peers (Closest by Size, Consensus. ADV = Average daily value traded in US$m over the last 3 mths)

Code	Name	Country	USD MCAP	ADV	PE FY1	Q-Score**
500325-IN	**Reliance Industries Ltd.**	**India**	**91,874**	**38.51**	**29.7**	**57%**
6505-TW	Formosa Petrochemical Corp.	Taiwan	28,942	19.27	14.1	59%
PTT-TH	PTT PCL	Thailand	27,984	44.36	11.0	74%
530965-IN	Indian Oil Corp. Ltd.	India	14,555	1.13	9.9	43%
5001-JP	Nippon Oil Corp.	Japan	13,170	70.44	12.1	42%
010950-KR	S-Oil Corp.	South Korea	9,646	27.72	9.9	59%
CTX-AU	Caltex Australia Ltd.	Australia	5,749	15.68	12.8	36%
5012-JP	TonenGeneral Sekiyu K.K.	Japan	5,690	13.55	19.8	15%
TOP-TH	Thai Oil PCL	Thailand	5,337	28.87	10.7	39%
5002-JP	Showa Shell Sekiyu K.K.	Japan	4,681	22.80	14.1	21%
5007-JP	Cosmo Oil Co. Ltd.	Japan	3,717	36.61	11.4	2%

Country Peers (Closest by Size, Consensus. ADV = average daily value traded in US$m over the last 3 mths)

Code	Name	Industry	USD MCAP	ADV	PE FY1	Q-Score**
500325-IN	**Reliance Industries Ltd.**	**Oil Refining/Marketing**	**91,874**	**38.51**	**29.7**	**52%**
500312-IN	Oil & Natural Gas Corp. Ltd.	Oil & Gas Production	53,430	4.95	10.5	71%
532454-IN	Bharti Airtel Ltd.	Major Telecommunications	50,052	4.99	30.6	76%
532555-IN	NTPC Ltd.	Electric Utilities	45,510	6.35	23.3	40%
532868-IN	DLF Ltd.	Real Estate Development	37,414	37.70	24.1	
532712-IN	Reliance Communications Ltd.	Major Telecommunications	36,590	22.43	30.2	53%
500209-IN	Infosys Technologies Ltd.	Information Technology Services	29,659	13.89	25.5	33%
532174-IN	ICICI Bank Ltd.	Regional Banks	29,012	14.30	27.6	27%
500103-IN	Bharat Heavy Electricals Ltd.	Electrical Products	27,760	7.17	34.4	89%
532540-IN	Tata Consultancy Services Ltd.	Information Technology Services	27,203	8.06	21.1	46%
500112-IN	State Bank of India	Regional Banks	25,216	24.01	15.4	31%

Source: Factset, Thomson and JPMorgan Quantitative Research. For an explanation of the Q-Snapshot, please visit http://jpmorgan.hk.acrobat.com/qsnapshot
Q-Snapshots are a product of JPMorgan's Global Quantitative Analysis team and provide quantitative metrics summarized in an overall company 'Q-Score.'
Q-Snapshots are based on consensus data and should not be considered as having a direct relationship with the JPMorgan analysts' recommendation.
* Total number of target prices, recommendations or EPS forecasts that make up consensus. ** The Composite Q-Score is calculated by weighting and combining the 10 Quant return drivers shown. The higher the Q-Score the higher the one month expected return. On a 14 Year back-test the stocks with the highest Q-Scores have been shown (on average) to significantly outperform those stocks with the lowest Q-Scores in this universe.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

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RIL Summary of Financials

Profit and Loss statement					Cash flow statement				
Rs in millions, year-end Mar	FY07	FY08E	FY09E	FY10E		FY07	FY08E	FY09E	FY10E
Revenues	1,116,927	1,063,836	1,106,500	1,101,423	EBIT	154489	175368	231418	232527
% change Y/Y	38%	-5%	4%	0%	Depreciation & amortisation	48152	44121	50000	58741
					Change in working capital	1569	22983	29618	21690
EBITDA	202,641	219,488	281,419	291,268	Taxes	(25771)	(34648)	(45303)	(40456)
% change Y/Y	41%	8%	28%	3%	Others	2604	9207	11683	14713
EBITDA Margin (%)	18%	21%	25%	26%	Cash flow from operations	181043	217031	277416	287215
EBIT	154,489	175,368	231,418	232,527	Capex	(82380)	(179610)	(173500)	(187000)
% change Y/Y	40%	14%	32%	0%	Change in investments	(135057)	(40000)	(20000)	0
EBIT Margin (%)	14%	16%	21%	21%	Interest	(11889)	(11334)	(9867)	(9622)
Net financial income	(9,285)	(2,127)	1,816	5,092	Free cash flow	(48283)	(13914)	74049	90593
Earnings before tax	145,205	173,240	233,235	237,619					
% change Y/Y	36%	19%	35%	2%	Equity raised/ (repaid)	2248	169440	36618	0
Tax	(25,771)	(34,648)	(45,303)	(40,456)	Debt raised/ (repaid)	59351	(76573)	(14076)	(4838)
as % of EBT	18%	20%	19%	17%					
Net Income (adjusted)	119,434	138,592	187,931	197,162	Dividends paid	(16425)	(21240)	(30145)	(31032)
% change Y/Y	32%	16%	36%	5%	Beginning cash	21462	18354	76067	142513
Shares Outstanding	1,393.2	1,573.4	1,576.2	1,576.2	Ending cash	18354	76067	142513	197236
EPS (adjusted)	85.7	88.1	119.2	125.1					
% change Y/Y	32%	3%	35%	5%					

Balance sheet					Ratio Analysis				
Rs in millions, year-end Mar	FY07	FY08E	FY09E	FY10E	%, year-end Mar	FY07	FY08E	FY09E	FY10E
Cash and cash equivalents	18,354	76,067	142,513	197,236	EBITDA margin	18%	21%	25%	26%
Accounts receivable	37,324	46,345	48,067	47,699	EBIT margin	14%	16%	21%	21%
Inventories	121,365	123,744	120,429	117,364	Net profit margin	11%	13%	17%	18%
Others	60,276	61,481	62,710	63,964					
Current assets	237,319	307,637	373,719	426,263					
					Sales growth	38%	-5%	4%	0%
Total Investments	211,366	251,366	271,366	271,366	Net profit growth	32%	16%	36%	5%
Net fixed assets	532,517	668,006	791,506	919,765					
Liabilities	168,655	159,338	155,413	152,249					
Provisions	86,949	131,854	165,032	187,707					
Total current liabilities	255,604	291,192	320,445	339,956	Interest coverage (x)	13.0	15.5	23.5	24.2
Total assets	725,598	935,817	1,116,145	1,277,438	Net debt to total capital	36%	13%	4%	-1%
					Net debt to equity	58%	17%	5%	-1%
Total debt	278,007	201,434	187,358	182,520	Sales/assets	154%	114%	99%	86%
Other liabilities	0	0	0	0	Assets/equity	162%	127%	120%	117%
Total liabilities	278,007	201,435	187,359	182,521	ROE	32.6%	23.5%	22.6%	19.5%
Shareholders' equity	447,590	734,383	928,786	1,094,917	ROCE	25.1%	21.1%	22.6%	19.4%
BVPS	321.3	466.8	589.2	694.6					

Source: Company, JP Morgan estimates