Company In-Depth

11 June 2007 | 28 pages

Reliance Industries (RELI.BO)

Upgrade to Buy: Valuing sustained exploration success

Rating change ☑
Target price change ☑
Estimate change ☑

- What's changed? — Our SOTP rises to Rs2,005 mainly on 1) Exploration success leading us to switch to traditional multiples for the E&P business 2) sustained refining cycle leading to core earnings upgrade (17-19% for FY08-09E) and 3) higher contribution from RPL. Upgrade to Buy/Low risk.
- E&P-New valuation approach — Consensus asset-wise NAV method is incapable of capturing exploration successes (recent and prospective) in D6 and other blocks, as reserve data becomes available only with a lag. In an evolving E&P portfolio therefore, valuations need to also focus on the likely robust reserve replacement post-first gas in FY09. We therefore switch to FCF multiple (10x stable state i.e.FY11E) which values E&P at Rs631, 35% premium to NAV.
- Where's the new refining supply? — Growing risks to refinery expansion plans in the Middle East due to cost inflation, which bodes well for RIL's margins in FY08-09E. Besides, RIL's differentials over benchmarks have expanded to US$5-8/bbl over the past five quarters, the primary driver of earnings upgrade.
- Petrochemicals: Stable FY08E, but expect pressure in FY09E — Tightness in naphtha supplies and commissioning of ME projects (ex. Iran) in 2H08-2009 implies increased possibility of cycle downturn beyond 2008. However, stable to improving trends in PX and PVC should partially offset the impact.
- Risks — Significant slowdown in global economy, slower ramp up in gas production, lower than expected gas price realization (US$4.5/mmbtu) and delay in exploratory drilling in non-D6 blocks (due to rig shortage) are key risks.

Buy/Low Risk	1L
from Hold/Low Risk	
Price (08 Jun 07)	Rs1,660.15
Target price	Rs2,005.00
from Rs1,450.00	
Expected share price return	20.8%
Expected dividend yield	0.8%
Expected total return	**21.6%**
Market Cap	Rs2,313,432M
	US$56,946M

Price Performance (RIC: RELI.BO, BB: RIL IN)

See Appendix A-1 for Analyst Certification and important disclosures.

Statistical Abstract

Year to 31 Mar	Net Profit (RsM)	Diluted EPS (Rs)	EPS growth (%)	P/E (x)	P/B (x)	ROE (%)	Yield (%)
2005A	75,717	54.34	43.0	30.6	5.7	20.3	0.5
2006A	90,693	65.10	19.8	25.5	8.1	26.4	0.6
2007E	109,184	78.37	20.4	21.2	6.1	32.9	0.7
2008E	118,564	85.11	8.6	19.5	4.9	27.8	0.8
2009E	129,139	92.70	8.9	17.9	4.0	24.4	0.9

Source: Powered by dataCentral

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Fiscal year end 31-Mar	2005	2006	2007E	2008E	2009E
Valuation Ratios					
P/E adjusted (x)	30.6	25.5	21.2	19.5	17.9
EV/EBITDA adjusted (x)	18.1	16.4	13.4	12.8	11.6
P/BV (x)	5.7	8.1	6.1	4.9	4.0
Dividend yield (%)	0.5	0.6	0.7	0.8	0.9
Per Share Data (Rs)					
EPS adjusted	54.34	65.10	78.37	85.11	92.70
EPS reported	54.34	65.10	78.37	85.11	92.70
BVPS	288.75	205.28	271.28	341.76	417.59
DPS	7.50	10.00	11.00	13.00	15.00
Profit & Loss (RsM)					
Net sales	660,513	812,113	1,063,657	1,041,568	1,016,083
Operating expenses	-571,173	-702,072	-921,523	-890,886	-861,934
EBIT	**89,340**	**110,041**	**142,134**	**150,682**	**154,148**
Net interest expense	-14,687	-8,770	-11,140	-12,320	-12,287
Non-operating/exceptionals	16,034	5,770	1,930	7,115	10,758
Pre-tax profit	**90,687**	**107,041**	**132,924**	**145,477**	**152,619**
Tax	-14,970	-16,347	-23,740	-26,913	-23,480
Extraord./Min.Int./Pref.div.	0	0	0	0	0
Reported net income	**75,717**	**90,693**	**109,184**	**118,564**	**129,139**
Adjusted earnings	75,717	90,693	109,184	118,564	129,139
Adjusted EBITDA	126,575	144,050	182,224	185,877	201,293
Growth Rates (%)					
Sales	27.5	23.0	31.0	-2.1	-2.4
EBIT adjusted	41.0	23.2	29.2	6.0	2.3
EBITDA adjusted	32.1	13.8	26.5	2.0	8.3
EPS adjusted	43.0	19.8	20.4	8.6	8.9
Cash Flow (RsM)					
Operating cash flow	**144,871**	**117,189**	**183,831**	**168,816**	**188,653**
Depreciation/amortization	37,235	34,009	40,090	35,195	47,145
Net working capital	31,919	-7,514	34,557	15,057	12,369
Investing cash flow	**-42,746**	**2,515**	**-133,006**	**-115,000**	**-89,000**
Capital expenditure	-37,669	-126,361	-92,300	-115,000	-89,000
Acquisitions/disposals	-5,035	128,876	-40,706	0	0
Financing cash flow	**-37,120**	**-176,268**	**-27,141**	**20,616**	**-28,349**
Borrowings	6,620	41,174	-9,901	59,207	-764
Dividends paid	-11,917	-15,885	-17,240	-20,374	-23,509
Change in cash	**65,005**	**-56,565**	**23,684**	**74,431**	**71,305**
Balance Sheet (RsM)					
Total assets	**804,198**	**718,893**	**907,012**	**1,055,156**	**1,159,438**
Cash & cash equivalent	70,756	14,192	37,876	112,308	183,612
Accounts receivable	39,278	41,636	61,442	60,136	58,563
Net fixed assets	349,582	441,935	494,145	573,950	615,805
Total liabilities	**401,829**	**432,909**	**529,085**	**579,038**	**577,691**
Accounts payable	123,086	114,387	211,851	204,971	194,522
Total Debt	187,846	218,656	208,755	249,745	244,905
Shareholders' funds	**402,369**	**285,980**	**377,923**	**476,113**	**581,744**
Profitability/Solvency Ratios (%)					
EBITDA margin adjusted	19.2	17.7	17.1	17.8	19.8
ROE adjusted	20.3	26.4	32.9	27.8	24.4
ROIC adjusted	19.3	21.2	23.3	22.0	20.9
Net debt to equity	29.1	71.5	45.2	28.9	10.5
Total debt to capital	31.8	43.3	35.6	34.4	29.6

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Valuation – Viewing E&P in a new light

Our SOTP goes up to Rs2,005 (from Rs1,450 earlier) on account of 1) fresh valuation approach for E&P, 2) earnings upgrade of 17-19% for FY08-09E driven by refining, and 3) Higher contribution from RPL (post our recent upgrade).

Figure 1. RIL – Sum-of-the-parts Valuation

	Rs m	Rs/share	Comments
FY07A EBITDA Actuals	182,224		
FY08E EBITDA forecast	185,877		
FY09E EBITDA forecast	168,360		Excluding contribution from KG basin
EV of Petrochem & Refining (Rs m)	1,151,270	826	@ EV/E of 6.5x mid-FY09E (vs. 6.0x FY08E earlier)
Net Debt (Rs m)	130,235	93	Estimated as on mid-FY08E, net of liquid inv. & ST debt
Key investments			
IPCL	40,401	29	P/E of 8x FY08E due to the announced merger
Reliance Petroleum	337,985	243	P/E of 8x contribution to consolidated profits in FY10E, discounted back
E&P Assets	879,471	631	Based on 10x steady state FCF (80mmscmd in FY11E)
Organised Retail	173,610	125	Rolling forward to Mar-08
Total value of investments & other assets	1,431,468	1,027	
EV of businesses	1,151,270	826	
Net Debt adjusted for key investments	(1,301,233)	(934)	
Value of Treasury stock	340,781	245	At target price
Value for Equity holders (Rs m)	**2,793,284**	**2,005**	
No. of shares (m.)	1,393		Pre-warrants pre-IPCL merger, includes treasury stock

Source: Citigroup Investment Research estimates

The salient points/changes in our sum-of-the-parts valuation:

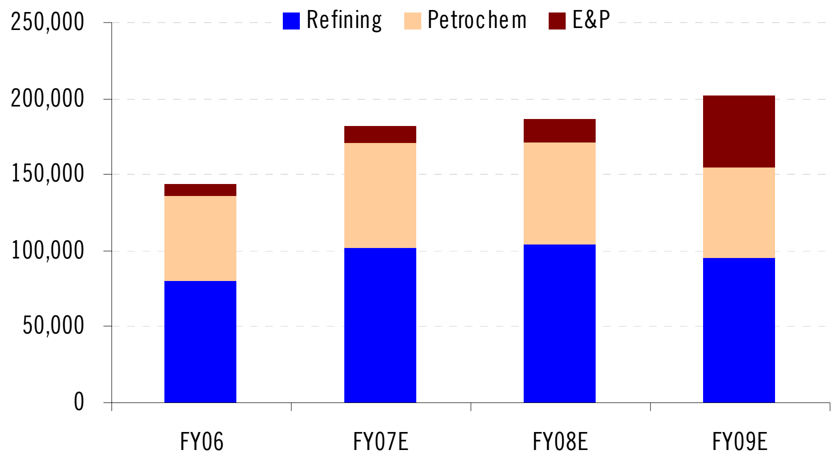
- Core business valuation at EV/EBITDA of 6.5x midpoint of FY08-09E, which captures part of the petrochemical downcycle and based on peer valuations.
- IPCL's contribution is based on its 8x FY08E profit contribution
- We have changed RPL's contribution from a target price based contribution to 8x its profit contribution in FY10, discounted back by a year. Together with our recent earnings upgrade for RPL, the contribution moves up from Rs129/share to Rs243/share. We believe that with RIL's 75% stake and RPL moving closer to commissioning, its contribution to consolidated profits becomes more important from valuation perspective. On current RPL estimates, the EPS contribution to RIL would be a meaningful Rs33.4.
- E&P valuation now based on traditional EV/FCF multiple (discussed in detail later)
- Roll forward of the EV/Sales based retail valuation to Mar-08.

Figure 2. RIL – Earnings Revisions

Year to	Net Profit (Rs Mils.)		EPS (Rs)			Div. Per Share (Rs)	
31-Mar	Old	New	Old	New	% Chg	Old	New
2008E	100,953	118,564	72.47	85.11	17.4%	10.0	13.0
2009E	108,546	129,139	77.92	92.70	19.0%	11.0	15.0

Source: Citigroup Investment Research estimates

Figure 3. RIL – EBITDA Break-up (Rupees in Millions)



Source: Company Reports and Citigroup Investment Research estimates

E&P: Exploration Success = NAV approach incapable

The recent exploratory success in KG-D6 and prospects in D4 (with Niko), D3 and D9 (with Hardy Oil) makes it difficult to apply asset-wise NAV approach primarily due to non-availability of OGIP/reserve data upfront.

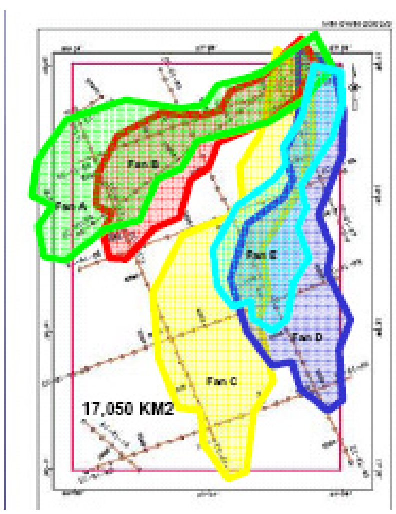
1) There is a timing lag (usually 3-6 months but may be more) between the time a well results in discovery to the time reserve data is assessed and disclosed. (viz. MA fields in the D6 block).

2) Inability to assess the upside potential beyond the initial reserve data that is made available. This was evident in KG D6, where the original-gas-in-place (OGIP) has been moving up but still does not incorporate some of the more recent discoveries. For example, GCA's estimate of 2P + Best OGIP of 23.2tcf include only 11 fields/discoveries and still does not take into account the seven further discoveries made in the block.

3) This issue is going to exacerbate even further if D4 (and D3/D9) were to result in further discoveries. These blocks are presently undergoing seismic with exploratory drilling slated for late 2007 and 2008.

Recent disclosures by partners encouraging for non-D6 blocks

Figure 4. D4's Multiple Fan Structures



Source: Niko Resources

D4 holds good potential: RIL holds 85% interest in the deepwater D4 block (NELPV) off the east coast of India. The block covers 17,000 sq.km and contains multiple vertically stacked D6 type channels. While exploratory drilling is slated only for 2H08 (due to rig shortage and management's present focus on D6 development), the block holds promising prospects. The recent disclosures by Niko (15% interest in D4) confirm the good prospectivity of the block. The 3D seismic area has been doubled to 4,000 sqkm.

D3 & D9 could bring more upside: RIL has 90% interest in two deepwater blocks in the KG basin named KG-DWN-2001/1 (D9) and KG-DWN-2003/1 (D3), with D9 being directly adjacent to the D6 block. Hardy Oil is the 10% partner in both the blocks.

- The D9 block encompasses 11,850 sqkm, with 3,440 sqkm of 3D seismic data acquired. Out of the six identified well locations, the first well is slated to be drilled in 3Q07 with two more wells in 2008. The structural formation indicates the possibility of D9 containing "multiple stacked reservoirs".

- The D3 block encompasses 3,288 sqkm, with 3,300 sqkm of 3D seismic data being acquired and first exploratory well to be drilled in 2H2008. The 3D seismic is expected to be completed in 2Q07 with first well slated for 4Q08.

Figure 5. Drilling programme for D9 & D3

License	Activity	Timing
D9	Drill 1 well	3Q07
D9	Drill 1-2 well	2H08
D3	3D seismic	2Q07
D3	Drill 1 well	4Q08

Source: Hardy Oil

GS-01 block – small but it all adds up: RIL has also discovered gas recently in the 2nd exploration well in the GS-01 block – NELP II (90% interest, 10% Hardy Oil) off the West Coast in Gujarat–Saurashtra basin. This discovery in the shallow water block (water depth of 8-150m) has been notified to DGH and the commerciality is now under evaluation. Though RIL management indicated that the discovery is of small size (<1tcf) at the previous analyst meet, this opens up the possibility of future exploration upsides in GS-01. Further drilling and 3D seismic is expected.

Resource estimates from Hardy too preliminary: The prospective resource figures on the three blocks are internal pre-discovery estimates however, and therefore cannot be taken at face value. It however strengthens the case for reserve replacement post FY09-10E.

Figure 6. Prospective Resources

License	Type	Risk	Gross prospective resource	
			mmboe	tcf
D9	Gas	25.8%-33%	5600	31.1
D3	Gas	20%	695	3.9
GS-01	Oil & Gas	17%	48	0.3

Source: Hardy Oil, Citigroup Investment Research. Note: Risk for prospective resources means the probability of discovering hydrocarbons in sufficient quantity for them to be tested to the surface.

How does one value RIL's evolving E&P portfolio then?

Given the evolving nature of RIL's E&P portfolio and reasonable probability of further exploratory success, it cannot be considered as a compilation of single assets, dominated by D6, anymore. In any case, there is further upside potential to D6 reserves (GCA estimate of 2P + Best at 23.2tcf) due to the new discoveries in the block in the deeper sections. The consensus NAV approach includes some of the prospective resources on a risk-weighted basis, but may still end up underestimating the reserve replacement potential of the non-D6 blocks.

In our opinion, the continued discoveries in D6 and potential discoveries in non-D6 blocks do two things:

1. Increase the life of the D6 reserves on the block level thus providing extended plateau production over a longer period of time. Besides, it increases the development capex, which will be drawn over a longer period of time. This will thus ensure that the Government's take of 85% in D6 reaches later than in the case which assumes just 2P OGIP of 23.2tcf. Our simple average of State take over the life of the field (in our base case model) at 62% therefore could have an upside potential.

2. Discoveries in blocks other than D6 would also establish strong reserve replacement numbers – FY10 and beyond. While NEC-25 would commence production in 2009 (2P + Best OGIP of 3.7tcf), any potential discoveries in D4, D3 & D9 would boost oil & gas production in 2011 and beyond. This will give RIL's E&P business a look of a "going concern" rather than a single asset play, which is what the NAV model assumes.

We therefore are switching to more traditional EV/FCF multiple as a better alternative to view RIL's E&P business. We choose FY11E as the stable state year for applying EV/FCF multiple assuming 80mmscmd of plateau production during the year. Despite the potential for plateau rate to go upto 120mmscmd, demand side constraints (unresolved issues with NTPC/REL and lackluster power sector reforms) indicate a lower production rate.

Our E&P sum-of-parts contribution of Rs631 imputes a 12-month fwd P/E of 10.9x and is at 35% premium to our NAV estimate, which is justified by the exploration potential in D6 and prospects in other blocks. While an EV/FCF multiple runs the risk of overestimation (esp. as govt. share of profit petroleum will only be at 10% levels in FY11E), it is offset by the following factors.

1. Possibility of plateau production going up further to 120mmscmd from D-6
2. FCF does not include oil revenues from MA fields in D6 during F11E
3. Slower ramp-up in the state take of profit petroleum as discussed earlier as progressive increase in scope of development capex keeps pushing back the government share
4. Increased production from NEC-25 from 2009 onwards. The maximum government share of profit petroleum in NEC-25 is 70% as against 85% in D6.
5. Any further discoveries in D4, D3 & D9 will likely boost production in 2011 and beyond. The profit sharing esp. in D4 is much lower i.e. state take increases to a maximum of only 50% as against 85% in D6.

Figure 7. E&P – Valuation based on EV/FCF

	FY11E
FCF (Rs m)	106,416
EV/FCF 12-mnth fwd (x)	10.0
EV Mar-10E (Rs bn)	1064
Imputed fwd P/E (x)	10.9
EV Mar-08E (Rs bn)	879
Value per share (Rs)	**631**
NAV per share (Rs)	466
Premium to NAV (%)	35%

Source: Citigroup Investment Research estimates

Please note that we have increased our NAV to Rs466/share (from Rs408 earlier) which primarily reflects higher gas realizations (base of US$4.5/mcf in FY09 going up to US$5.0/mcf over five years) as against US$4.0-4.5/mcf earlier. The development capex assumption also stands at now US$8.0bn (US$7.0bn earlier) to reflect escalation in oil services market. Also, the assumption for development capex is driven by the targeted State take of ~50% on an NPV basis over the life of the project.

Figure 8. Asset-wise NAVs

	Recovery assumed tcf/mmboe	2P+Best OGIP tcf/mmbo	Value US$m	EV/boe US$	Value/share Rs	Remarks
KG-D6						
Dhirubhai-1&3 plus resources	16.2	23.2	9,166	3.5	270	Based on DCF assuming 70% recovery from 2P+Best OGIP of 23.2 tcf
Potential undrilled prospects						
- Oil	480	1600	3,456	7.2	90	@30% recovery of undrilled prospects in Pliocene & Cretaceous, EV/boe at 20% discount to Cairn's US$9.0
- Gas	3.9	39.0	2,106	3.0	55	Based on 10% recovery of 39 tcf of undrilled gas prospects
Sub-total			14,728		415	
Other Blocks						
KG III-6 (Prospects)	150	500	750	5.0	22	@ 30% recovery on 500mmbbl of prospective resource
NEC-25	1.9	3.7	833	2.5	24	@ 50% recovery of 2P OGIP of 3.7 tcf
CBM (3P OGIP)	0.4	3.7	167	2.5	5	@ 10% recovery of 3P OGIP of 3.7 tcf
Total			**16,477**		**466**	

Source: Citigroup Investment Research

Sensitivity to Gas Prices

The NAV and EV/FCF based calculations are however sensitive to gas price assumptions. This is relevant in the current context of price bids invited by RIL (with reported base price discovery o US$4.4/mcf) and the subsequent legal move by RNRL to enforce the High Court Order of “not creating third-party interest” in the gas that was originally allocated to RNRL (28mscmd) and NTPC (12msmcd) at a price of US$2.97/mcf. While this has created uncertainty on the ultimate average price realization, we see RIL’s latest move to invite price bids as means to put pressure on RNRL/NTPC and also secure Government approval for a higher price (citing revenue loss as State take will be lower at the original price). Given 12-18 months for first gas, compromise solution with RNRL/NTPC may not be too far away. We have carried out a sensitivity of RIL’s NAV and EV/FCF-based value based on a gas price realization. As can be seen, the E&P business valuation is sensitive to base gas price – a US$0.5/mcf decline in gas price results in 12-14% decline in E7P valuation.

Figure 9. Sensitivity based on Gas Price of US$4.0/mcf (base case of US$4.5/mcf)

	FY11E
FCF (Rs m)	91,613
EV/FCF 12-mnth fwd (x)	10.0
EV Mar-10E (Rs bn)	916
Imputed fwd P/E (x)	10.8
EV Mar-08E (Rs bn)	757
Value per share (Rs)	**543**
% downside	14%
NAV per share (Rs)	**411**
% downside	12%

Source: Citigroup Investment Research estimates

Refining – Strength to be Maintained

We recently revised our GRM assumptions for RPL (RPET.BO - Rs98.15; 1M) for FY10-12E on the back of delayed capacity expansions (esp. Middle Eastern and North African greenfield expansions), sustained strength in product spreads, and light-heavy crude price differentials. RIL's refining profitability too would benefit from these developments in the global refining supply-demand scenario, and we are consequently upgrading our GRM assumptions (net of marketing margins) to US$11.5/bbl in FY08E (US$9.5/bbl earlier) and US$10.75/bbl in FY09E (US$8.5/bbl earlier).

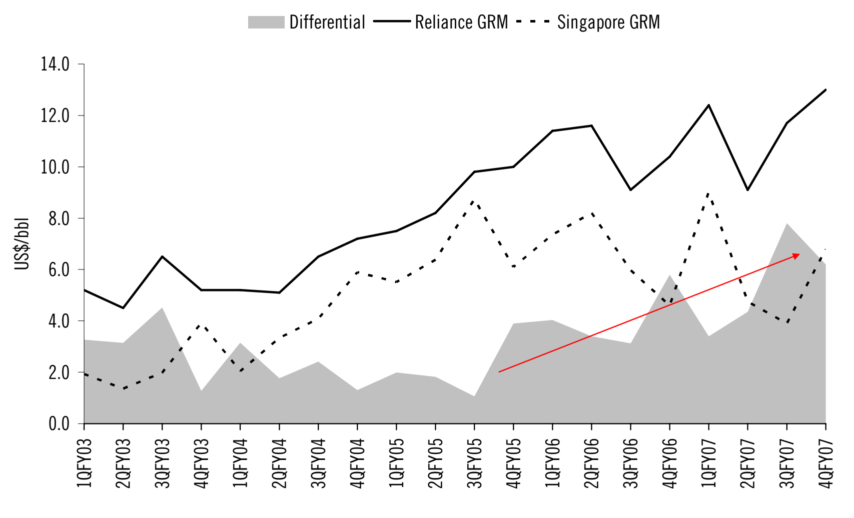
Figure 10. Refining – Key Parameters

	Units	FY06	FY07	FY08E	FY09E
Singapore complex spreads	US$/bbl	6.58	6.10	6.00	5.50
RIL reported GRMs	US$/bbl	10.30	12.40	11.50	10.75
Differentials	US$/bbl	3.72	6.30	5.50	5.25
Crude throughput	MMT	30.6	31.7	33.0	33.0

Source: Company Reports, Reuters, Citigroup Investment Research

The revisions in our GRM assumptions are also well supported by the recent trend of higher GRM differentials vis-à-vis Singapore GRMs compared to historical trends (RIL's reported GRMs exceeded Singapore margins by an average of US$6.3/bbl in FY07). We have conservatively assumed differentials to moderate to the US$5.25-5.5/bbl levels going forward.

Figure 11. RIL – Differential between reported and Singapore GRMs



Source: Reuters, Company Reports, Citigroup Investment Research

We value RIL's refining segment at 6.5x mid-FY09E EV/EBITDA, which is in line with global peer multiples as illustrated in Figure 12 below.

Figure 12. Global Refining – Valuation Comparables

Company Name	RIC Code	Rating	Mkt cap (US$m)	Price 7-Jun-07	Target price	P/E (x) CY07E	P/E (x) CY08E	EV/EBITDA (x) CY07E	EV/EBITDA (x) CY08E	P/BV (x) CY07E	P/BV (x) CY08E	Div. Yield (%) CY07E	Div. Yield (%) CY08E	ROCE (%) CY07E	ROCE (%) CY08E
Asia															
CPCL	CHPC.BO	1L	885	240	240	6.1	7.8	5.0	5.4	1.2	1.1	6.5%	5.1%	12.1%	9.8%
PTT	PTT.BK	1M	23,003	270	274	9.8	8.7	6.6	5.9	2.3	1.9	4.3%	4.4%	19.5%	20.4%
Thai Oil	TOP.BK	1M	4,306	70	77	13.1	10.4	11.6	9.1	1.7	1.6	5.0%	5.0%	11.6%	13.9%
Sinopec	0386.HK	3L	18,816	9	8	11.0	10.6	2.3	2.4	2.4	2.0	2.2%	2.3%	15.3%	14.1%
S Sh Pechem	0338.HK	2M	1,566	5	6	13.9	16.1	3.6	3.3	1.8	1.7	2.5%	2.5%	12.4%	9.9%
Formosa Petro	6505.TW	2L	22,824	82	80	12.2	12.2	9.6	8.8	3.2	3.1	7.4%	7.4%	17.9%	18.1%
Asia Avg.						**12.8**	**12.5**	**7.7**	**6.9**	**2.5**	**2.2**	**4.1%**	**3.9%**	**14.9%**	**14.4%**
Japan															
Cosmo Oil Co Ltd	5007.T	3H	3,404	614	385	18.9	18.9	11.0	10.1	1.2	1.2	1.3%	1.3%	2.8%	3.0%
Nippon Oil	5001.T	2H	13,402	1,110	910	26.2	33.1	8.1	8.4	1.3	1.2	1.1%	1.1%	2.7%	2.3%
Npn Min Holdings	5016.T	2H	8,766	1,145	1,100	10.6	11.2	11.5	11.3	1.3	1.2	1.4%	1.4%	9.4%	7.9%
AOC Holdings	5017.T	1H	1,166	1,828	2,760	7.4	19.3	7.0	10.7	1.0	1.0	0.8%	0.8%	8.6%	3.7%
TonenGeneral	5012.T	2M	6,171	1,281	1,170	28.7	29.9	18.5	18.5	3.1	3.0	2.9%	2.9%	3.9%	4.0%
Showa Shell	5002.T	3M	4,791	1,541	1,160	21.4	21.4	11.2	12.2	1.8	1.7	2.3%	2.3%	3.7%	3.4%
Japan Avg.						**18.9**	**22.3**	**11.2**	**11.9**	**1.6**	**1.5**	**1.6%**	**1.6%**	**5.2%**	**4.0%**
US															
Valero	VLO.N	2H	40,768	74	81	7.7	9.4	4.4	5.7	2.5	2.2	0.6%	0.6%	20.8%	15.2%
Tesoro	TSO.N	2H	8,241	60	60	8.2	8.9	4.0	5.0	2.3	1.9	0.6%	0.7%	24.2%	17.4%
Delek US Hldg	DK.N	2S	1,240	24	20	11.4	13.5	6.4	7.0	2.7	2.3	1.4%	0.6%	21.7%	16.7%
Sunoco	SUN.N	1H	9,740	80	90	9.8	10.2	5.1	5.6	3.6	3.0	1.3%	1.4%	18.3%	14.3%
US Avg.						**9.3**	**10.5**	**5.0**	**5.8**	**2.8**	**2.3**	**1.0%**	**0.8%**	**21.3%**	**15.9%**
Canada															
Imperial Oil Ltd	IMO.TO	2M	43,913	50	53	15.2	16.1	7.7	8.0	5.4	4.1	0.7%	0.8%	31.4%	26.6%
Petro-Canada	PCA.TO	2M	25,312	54	60	10.5	10.7	3.8	3.9	2.1	1.8	0.9%	0.9%	22.0%	19.5%
Suncor Energy	SU.TO	1M	40,528	93	116	19.3	15.7	11.1	9.7	3.9	3.1	0.4%	0.4%	12.6%	12.7%
Canada Avg.						**15.0**	**14.1**	**7.5**	**7.2**	**3.8**	**3.0**	**0.7%**	**0.7%**	**22.0%**	**19.6%**
Europe															
ERG	ERG.MI	1H	3,916	19	23	11.1	9.3	5.3	5.2	1.9	1.7	1.8%	2.7%	10.9%	10.4%
Hellenic Petroleum	HEPr.AT	2H	4,647	11	11	13.4	13.2	9.1	8.4	1.4	1.3	3.7%	3.8%	7.9%	8.0%
MOL	MOLB.BU	2M	14,223	24,400	24,000	12.6	12.9	6.9	6.8	1.8	1.6	2.1%	2.3%	16.4%	15.3%
Motor Oil	MORr.AT	1M	3,067	21	26	11.4	10.9	9.0	8.5	5.5	5.3	8.3%	8.7%	19.9%	20.0%
Neste Oil	NES1V.HE	1L	9,612	28	28	12.6	11.5	8.4	7.6	2.9	2.6	4.0%	4.3%	16.8%	15.8%
OMV	OMVV.VI	2H	19,446	48	54	9.2	8.8	4.9	4.5	1.8	1.5	2.3%	3.3%	14.9%	14.9%
Europe Avg.						**11.7**	**11.1**	**7.3**	**6.9**	**2.5**	**2.3**	**3.7%**	**4.2%**	**14.5%**	**14.1%**
EMEA															
Sasol	SOLJ.J	2M	21,923	252	300	9.8	8.7	5.6	5.4	2.4	2.0	3.2%	3.4%	19.6%	18.0%
PKN ORLEN	PKNA.WA	2M	7,904	52	52	10.9	8.3	6.7	5.8	1.1	1.0	2.7%	3.6%	7.2%	8.8%
Tupras	TUPRS.IS	2M	5,716	30	19	12.3	12.3	9.3	8.4	2.7	2.6	6.5%	6.5%	19.8%	21.2%
Petrol Ofisi AS	PTOFS.IS	2H	2,095	7	8	61.7	11.3	5.9	6.8	1.6	1.4	0.0%	0.0%	16.4%	12.3%
Gazpromneft	SIBN.RTS	2M	18,965	4	4	6.5	7.4	4.6	4.8	1.6	1.4	3.2%	2.8%	27.4%	22.0%
Surgutneftegaz	SNGS.RTS	3H	39,477	1	1	11.2	12.5	4.2	4.4	1.6	1.5	2.0%	1.7%	21.4%	16.7%
Tatneft	TATN.RTS	3H	9,695	4	5	8.6	9.6	6.5	7.3	1.1	1.0	4.0%	3.1%	10.5%	8.8%
Lukoil	LKOH.RTS	2L	65,068	77	78	8.7	9.5	6.1	6.3	1.6	1.4	2.9%	2.6%	17.6%	14.3%
TNK-BP Holding	TNBPI.RTS	1S	29,636	2	2	6.5	7.6	3.8	4.2	3.0	2.5	7.7%	6.6%	29.4%	22.9%
EMEA Avg.						**15.1**	**9.7**	**5.8**	**5.9**	**1.9**	**1.6**	**3.6%**	**3.4%**	**18.8%**	**16.1%**
Total Avg.						**14.0**	**13.1**	**7.4**	**7.4**	**2.3**	**2.1**	**2.8%**	**2.8%**	**15.5%**	**13.6%**

Source: Powered by dataCentral. Note: All averages are simple averages.

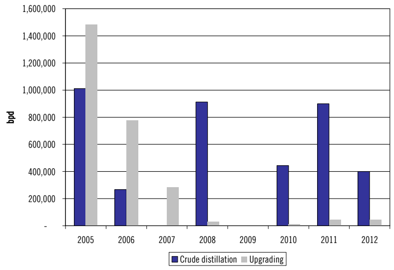
Refining Outlook

Where's the new refining supply?

In recent years, rising throughputs and utilization rates have bumped up against fairly flat capacity (see chart below). With industry profitability rising as a result of this, the expectation has long been that new capacity additions are drawn into the market. Based on announced plans, the anticipation was that most of these capacity adds would come through over the 2009-12 period (i.e. 4-5 years after the upswing in refining profitability).

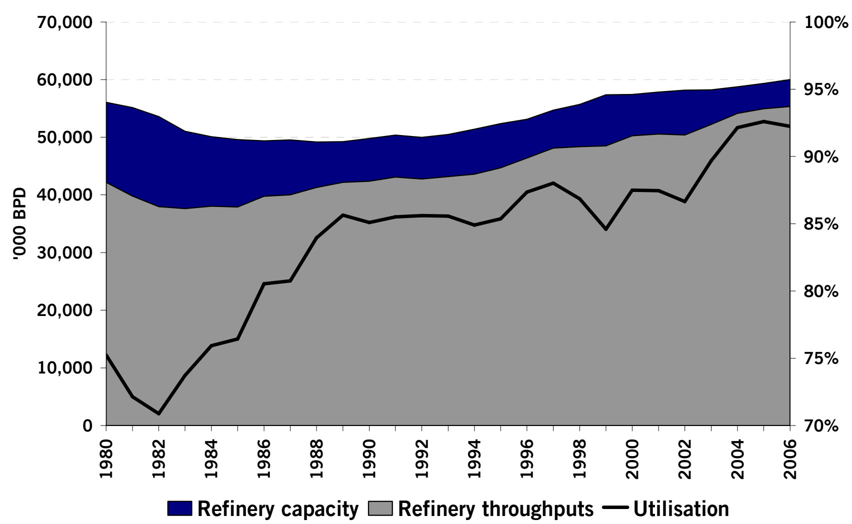
New capacity additions are anticipated from differing sources, but can broadly be divided into three categories: 1) new-build greenfield refining capacity (principally in the Middle East, North Africa, India and China), 2) upgrades to existing capacity, focusing on improving the product slate to enhance the yield of key automotive products – diesel and gasoline, and 3) "alternative" investments in other potential sources of supply – either biofuels or Fischer-Tropsch based technologies – specifically gas-to-liquids (GTL).

Figure 13. Capacity Additions – Global Refining



Source: Citigroup Investment Research

Figure 14. Global Refining Capacity, Throughputs and Utilization Rates



Source: BP Statistical Review, Citigroup Investment Research

Our European Oils Team, however, observes that there is now clear evidence of potential disruptions to this capacity build[1]. The disruptions focus particularly on cost inflation, but they also attest to an increasingly stretched supply chain for new project delivery, which will increase the risk that many such projects will see further delays. We focus-in on three areas of investment in particular – new-build refineries, GTL and European diesel upgrading investments.

[1] Refer to the reported titled 'European Refiners – Stay the Course' dated 10 April 2007. To access the report, click on: https://www.citigroupgeo.com/pdf/SEU05982.pdf

1. Greenfield Middle Eastern/North African refineries

Middle East and North African refinery new builds were initially anticipated to add up to 3.5mmbpd of new refining capacity by 2012, as illustrated in the chart below. That said, little tangible progress was made on any of these projects, first discussed back in 2005. In fact, the latest development in this space was the sharp increase in investment costs associated with the Kuwaiti 600+kbpd Al Zour refinery. From an initial estimate of US$6bn for this project (equivalent to US$10,000/bpd of capacity), the average of nine bids tendered came in at closer to US$15bn (or $25,000/bpd of capacity). The likelihood is that this tender will be cancelled, leading to moves either to upgrade the much older Shuaiba refinery, or to launch a non-lump sum turnkey tender, and instead go for a cost reimbursable option. Either way, a material delay is likely.

With LUKoil also backing out of a planned 200kbpd refinery new build on the Black Sea coast of Turkey in recent weeks, we should question the sort of pricing assumptions needed on refined product sales to justify such investments in new capacity. The implications are obvious, given the "pending" nature of a number of other projects in Saudi Arabia, UAE, Algeria and Egypt (see below).

Figure 15. Middle East and North African Greenfield Supply and Capacity expansion plans

Country	Location	Capacity	Date	Comment
Middle East				
Saudi Arabia	Rabigh	80	2008	Expansion: extra 80kbpd of gasoline and 2.4mmtpa of olefins
	Ras Tanura	525	2010	Seeking international partners
	Yanbu		2012	Upgrade to simple configuration
	Jubail	400		Shortlisting partners - ConocoPhillips, Chevron, ExxonMobil included
	Yanbu	400		Shortlisting partners - ConocoPhillips, Chevron, ExxonMobil included
Kuwait	Al Zour	600	2010	Invitations to bid for 3 EPC packages for early 2006
	Mina al-Ahmadi			Expansions - new crude distillation units
	Mina Abdullah			Expansions - new crude distillation units
UAE	Fujairah	300		Newbuild. Looking to produce high grade gasoline and sulphur
	Ruwais			Expansions
Dubai	Jebel Ali			CCR and hydrotreater
Bahrain	Sitra		2007	Low sulphur diesel project, base oil plant, 40kbpd hydrocracker
Oman	Mina al-Fahal	20	2007	Revamp
		116	2006	Newbuild.
Iraq	Nahrain	140		Newbuild. Bids due
North Africa				
Algeria	Algiers	310	2010	Export refinery jv proposal
	Adrar	20		CNPC to build?
	Skikda			Upgrade to meet Europe 2009 specifications
	Algiers			Upgrade to meet Europe 2009 specifications
	Arzew			Upgrade to meet Europe 2009 specifications
Egypt	Suez	130		
	Port Said / Damietta	350		Feasibility study

Source: Citigroup Investment Research

In view of this, we model below a "state-of the art" newbuild 400kbpd refinery, based on a $25,000/kbpd construction cost. The refinery uses a diet of 100% Arab Heavy crude with zero transportation costs, to produce a yield of 94% light products, 50% being diesel.

On the basis of our current refined product crack estimates – which assume $15/bbl diesel crack, the refinery generates a gross margin of $16.90/bbl. On this basis, and even assuming a five-year tax holiday for a new-build construction, the refinery would generate a 5% IRR. In fact, the diesel crack required to generate an IRR in excess of our nominal 10% hurdle rate would be $26/bbl (current European diesel cracks are $13/bbl).

Figure 16. Summary IRR Statistics for Newbuild Refinery

Investment metric	
Total investment cost	10,000
Diesel crack required for 10% IRR	$26.0
IRR assuming $15 diesel crack	5%

Source: Citigroup Investment Research

Clearly on this basis, it is hard to justify newbuild refineries economically in the current macro environment. A decision to pursue such an investment may not entirely depend on such stringent criteria, with new employment opportunities, and a diversification away from pure exposure to crude exports also valid considerations. The likelihood remains, however, that such low returns on investment may prove a considerable impediment to future investment timing.

2. Gas-to-Liquids

Concurrently with rising concerns over refining capacity, Exxon Mobil recently announced that it would not go ahead with its Palm Qatar GTL project. This removes up to 150kbpd of high quality diesel, lubricants and petrochemical feedstocks from 2012 estimates. Again high costs were cited as the reason for abandoning the project. Initially, in 2004 when the heads of agreement was signed on the project, costs were estimated at US$7bn. The current cost of this project was now seen at $15bn-$20bn however.

A number of projects still exist however, and we include our model for generic GTL capacity, based on modelling RD Shell's Pearly Qatar GTL below (this model was first highlighted in the note of September 2006, "2P for Free"). If we assume a $15.5bn investment cost – in-line with the Exxon cost estimates on a pro-rata basis, and a $15/bbl "crack" – in line with our anticipated diesel crack – the project is forecast to generate a 9% IRR. Again this is not a particularly impressive return on a large-scale deployment of capital, albeit higher than a refinery newbuild, courtesy of the cost-recovery dynamics of the PSC.

Figure 17. Summary of Pearl Qatar Gas-to-Liquids , based on $15/bbl end-product crack

Brent oil price		**$47.50**
Revenue ($m)		4,691
Tot liq prod	- WI	975.mmbbls
Total gas prod	- WI	12,994bcf
Total capex		$15,460m
Capex/bbl total		$4.81/bbl
Capex/bbl entitlement		$11.62/bbl
IRR		9.00%

Source: Citigroup Investment Research

The nature of these project economics, however, implies to us that upwards pressure will be exerted on end-product prices given the marginal cost of new supply. On our estimates, an end-selling price for the GTL product (linked to diesel pricing in the end-market) a crack of in excess of $20/bbl is required to see project returns rise to above a 10% hurdle rate.

3. Upgrading investment – European hydrocracker investment

By far, the most appealing route to add new capacity to refined product markets, in our view, is to continue upgrading investment in the existing supply base. We update our model of a 50kbpd hydrocracker investment in a European refinery below. The new model assumes an investment cost of $1bn – up from the initial estimate of $600m in 2005 – but more in line with the cost inflation reported by Neste Oil in constructing its unit, now due on-stream in April 2007.

If we assume, as with our modelling of a greenfield refinery above, that diesel cracks average $20/bbl over the medium term, the return on such an investment is now seen at 15% – superior to both greenfield investments above – clearly illustrating in our minds that the best way for Europe in particular to address its diesel shortages is for further upgrading capacity expansions.

The story does not, however, end there. In the past two weeks, Hellenic Petroleum has announced a delay of up to a year in its planned hydrocracker investment at its simple Elefsina refinery, due to supply chain delays. In February, Cepsa pushed back the start-up of its hydrocracker investment to the end of 2009, vs an earlier expectation of 2008, due to similar contractor delays. ConocoPhillips has delayed plans to upgrade its Wilhelmshaven refinery from 2007 to 2008 at the earliest due to rising costs. Even in the US, both Sunoco and Tesoro have reviewed their expansion plans due to rising costs.

The supply chain for new capacity appears, on the above evidence, to be stretched to near breaking point. The likelihood appears, in our view, that we can expect further delays and cancellations in coming months. In view of this, the new supply outlook for European capacity adds in particular, looks increasingly skewed towards the 2009-11 period, vs. our previous estimates of new capacity adds from 2008.

Petrochemical Outlook

Integrated cracker/PE producers to be hit

We have made minor modifications to our volume and pricing assumptions for RIL's petrochemical segment, leading to modest adjustments to our FY08E and FY09E EBITDA assumptions for the business by +5% and -2%. We value the petrochemicals business at 6.5x mid-FY09E EV/EBITDA, which captures a part of the downcycle esp. given RIL's exposure to PE/PP where we forecast declining spreads. For more details, please refer to our regional petrochemical note dated June 4, 2007 (https://www.citigroupgeo.com/pdf/SAP06030.pdf)

Figure 18. Regional Petrochemical – Valuation Comparisons

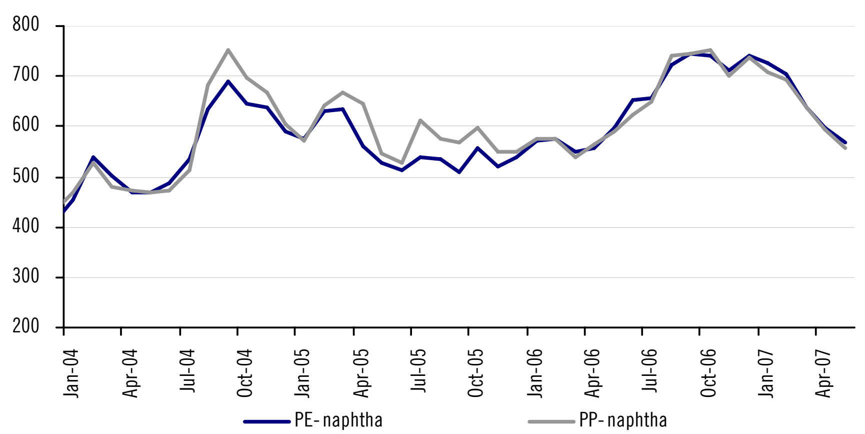
			Mkt cap	Price	Target	P/E (x)		EV/EBITDA (x)		P/BV (x)		Div. Yield (%)		ROCE (%)	
Company Name	RIC Code	Rating	(US$m)	7-Jun-07	price	CY07E	CY08E	CY07E	CY08E	CY07E	CY08E	CY07E	CY08E	CY07E	CY08E
Formosa Plastics	1301.TW	1L	12,194	70	78	10.4	9.8	17.2	16.8	2.0	1.9	7.8%	8.2%	17.9%	18.3%
Formosa Chem Fib	1326.TW	1L	11,710	70	77	9.4	9.2	15.9	14.0	1.8	1.7	8.9%	8.9%	17.4%	17.0%
Nan Ya Plastics	1303.TW	3L	15,028	65	61	9.9	9.9	17.1	19.5	1.9	1.8	8.0%	8.0%	5.7%	4.5%
Formosa Petro	6505.TW	2L	22,824	82	80	12.2	12.2	9.6	8.8	3.2	3.1	7.4%	7.4%	17.9%	18.1%
LG Chem	051910.KS	1L	4,760	68,500	80,000	9.2	7.5	4.1	3.8	1.5	1.3	2.2%	2.6%	13.2%	14.8%
LG Petrochemical	012990.KS	3L	1,877	38,500	33,000	6.4	8.0	4.1	5.2	1.6	1.4	4.5%	3.9%	35.7%	26.0%
Honam Petrochem	011170.KS	3L	3,643	106,000	85,000	8.3	9.5	9.8	12.1	1.2	1.1	0.7%	0.7%	15.4%	11.3%
Aromatics TH	ATC.BK	1M	1,787	61	70	5.4	5.2	5.9	5.3	1.9	1.6	5.8%	5.8%	24.5%	22.7%
Siam Cement	SCC.BK	1L	9,039	248	264	10.9	9.6	8.7	7.6	3.5	3.0	6.0%	6.0%	18.1%	18.5%
PTT Chemical	PTTC.BK	3M	4,186	93	68	9.5	9.7	5.3	6.5	1.4	1.3	5.9%	5.9%	16.9%	12.1%
S Sh Pechem	0338.HK	2M	1,566	5	6	13.9	16.1	3.6	3.3	1.8	1.7	2.5%	2.5%	12.4%	9.9%
China BlueChemical	3983.HK	2L	2,272	4	4	13.0	18.1	-0.7	-0.1	2.3	2.1	3.6%	2.4%	16.4%	10.4%
Avg.						**10.9**	**11.2**	**8.9**	**8.9**	**2.2**	**2.0**	**4.9%**	**4.8%**	**17.5%**	**15.3%**

Source: Powered by dataCentral. Note: All averages are simple averages.

Naphtha Assault

Market has not priced in the margin pressure from the surge in naphtha pricing. Even assuming all Iranian capacity is shut down, we do not expect cracker/PE spreads to remain above 2H06's strong levels, due to the difficulty to pass on the cost hikes.

Figure 19. Asian PE-Naphtha and PP-Naphtha Spreads (US$/tonne)



Source: CMAI, Asian Chemical News, Citigroup Investment Research

The historically strong correlation between oil/naphtha and chemicals products prices has broken down as naphtha prices continue to scale new heights. Over the past few weeks, the chemical price recovery has significantly lagged that of naphtha costs. The only exception is aromatics (PX and benzene) on near-term supply shortage in the US and stronger underlying fundamentals. We see further margin pressure if oil prices continue to strengthen and believe the worst hit will be those using naphtha as an input.

Why is naphtha tight?

The Asian naphtha supply has tightened due to increased demand for it as a feedstock for cracker and reformer expansion in Asia and given the limited capacity additions. This has resulted in a surge in naphtha crack spreads vs. Dubai to over US$10/bbl in end-May vs. US$1/bbl average in 2006. Since January, naphtha price surged 35% yoy to US$710/tonne vs. 24% increase for crude oil.

We estimate the startup of new reformer units (Qingdao Lidong, SK Corp, FCFC) and naphtha crackers (FPCC, Yeochun NCC, Samsung-Total, LG Daesan) over 2006-07 will require incremental naphtha demand of over 10mt. However, the new capacity has significantly lagged with limited refinery expansion, except in India.

Last year, India's naphtha exports rose 43% yoy to 6.4mt and we forecast the shipments could rise another 2-3mt in 2007 following the startup of Essar Oil and IOC (Panipat). This, however, is still insufficient to meet demand growth. Asia imported about 30mt of naphtha from the Middle East in 2006 and we estimate the shortfall to rise another 6-7mt this year.

The near-term supply tightness has worsened further due to lower exports from India on LNG shortage. While we expect exports to normalize in 2H07, supply from Saudi Arabia could decline by 1mt in 2008, due to higher captive demand for Jubail Chevron's new naphtha cracker (300kt, end-2007 startup). Hence, we believe the naphtha supply tightness will only ease from 2H08 with the startup of new condensate splitters in Qatar and SE Asia.

Product Outlook for 2007 and Beyond

What are our favorite products?

We expect aromatics (PX, benzene), oxo-alcohols (n-butanol, 2EH) and phenol/BPA will have the strongest demand-supply balance over 2007-08. The worst also seems to be over for PVC, as the cost advantage of carbide-PVC vs ethylene-PVC should narrow gradually. We remain cautious on PTA and methanol due to an impending glut in China.

Our product ranking in terms of margin outlook (from best to worst) over the next 12 months is as follows:

Figure 20. Our View of Product Profitability in 2007

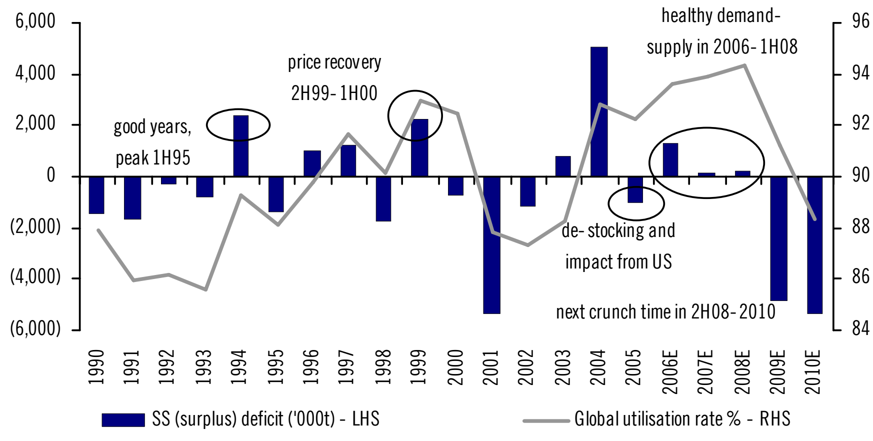
	Product	Near-term trend	Comment	Company
Best	PX	⇧	Tight supply to persist; healthy demand from new PTA plants	ATC, FCFC
	Oxo-alcohols	⇔	Limited capacity addition globally for the next few years	LG Chem, NYP
	Phenol/BPA	⇩	New capacity from NYP could exert some pricing pressure	LG Petro, FCFC, NYP
	Benzene	⇧	US gasoline shortage tightens aromatics supply in summer	ATC, FCFC
	Cracker, PE & PP	⇩	High naphtha costs a major concern	LG Pet, Honam, SCC, SPC
	MEG	⇩	Startup of NYP's new plant could exert pricing pressure	Honam, NYP
	PVC	⇧	Further pricing upside on seasonal peak in summer	FPC, LG Chem
	Acrylates	⇩	Capacity overhang in China led to sharp margin decline	FPC, LG Chem
	Methanol	⇩	New capacity from Middle East and China will drive price down further	China BlueChem
	SM, ABS	⇔	Weak global utilization outlook	LG Chem, FCFC
	PTA	⇧	Margin pressure from high PX costs and rising supply in China	FCFC, KP Chem
	Polyester fibre	⇧	Still oversupply, but new capacity buildups has slowed	NYP, FET, Yizheng
Worst	PS	⇔	Sluggish demand outlook and cost pressure from benzene	FCFC, LG Chem

Source: Citigroup Investment Research estimates

Ethylene – Healthy Balance Until 2008E; Downturn in 2009-10E

We expect the global ethylene demand-supply balance to remain healthy over the next 12 months. We believe, however, that a sharp chemical cycle downturn is still inevitable in 2009-10 due to massive new capacity from the Middle East and China. Our discussions with CMAI and contractors suggest new Middle East projects (ex Iran) remain on track for startup in 2H08-2009 and we expect a lower likelihood of operating problems. This should result in a sharp decline in profitability for ethylene and its derivatives (PE, MEG).

Figure 21. Global Ethylene Demand-Supply Balance



Source: CMAI, Asian Chemical News, Company Reports, Citigroup Investment Research estimates

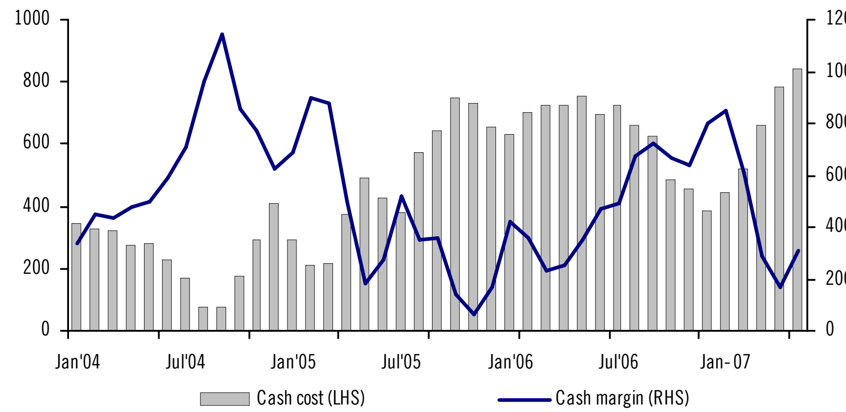
After factoring in startup delays in Iran (cracker #9 JV: end-2007, cracker #10: mid-2008), we forecast global ethylene capacity additions of 5.0mt (4.1%) and 5.1mt (4.1%) over 2007 and 2008, respectively. This is broadly in line with annual demand growth of 5mt pa (4.5%).

We forecast new ethylene capacity will rise to 10mt pa, which will drive global utilization down to 91% and 88% over 2009-10, respectively (2007-08 average: 94%). This would imply an oversupply of 4-5mt pa (3.5%). We expect the next cyclical trough will come in 2010-11. We also believe a startup delay in Iran and tight supply of engineering (EPC) contractors are unlikely to further extend the cycle's peak beyond 2008.

Cracker, PE, and PP – margin pressure from naphtha

Despite a healthy ethylene demand-supply balance, we think the Asian cracker margin will come under increasing pressure. Over the past few months, pricing for propylene and butadiene (two major cracker by-products) was relatively flat, which has significantly lagged that of naphtha. We estimate the cracker margin fell to US$237/tonnne in April-May vs. US$506/tonne in 2006.

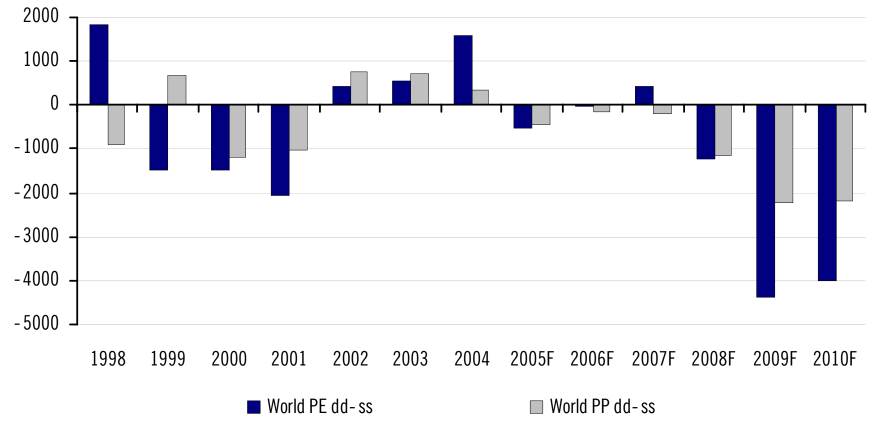
Figure 22. Asia – Crackers Cost Economics (US$/tonne)



Source: CMAI, Asian Chemical News, Citigroup Investment Research

We expect propylene/PP to enjoy better demand-supply dynamics into the next downturn. Middle East producers do not have particular feedstock cost advantage to produce propylene (unlike ethylene), as cracking ethane will give minimal propylene yield. While we see a few new PP plants being built in the Middle East (particularly Saudi Arabia), most plants will be based on PDH-PP (propane dehydrogenation) and the cost economics is not as favourable vs. other production methods (e.g. refinery FCC propylene extraction). On the demand side, PP is more flexible and continues to gain market share. In China, PP demand growth was 10.5% CAGR over 2002-06 vs. 7.4% for PE.

Figure 23. World – PE and PP Demand-Supply Balance ('000 tonnes)



Source: CMAI, Asian Chemical News, Citigroup Investment Research

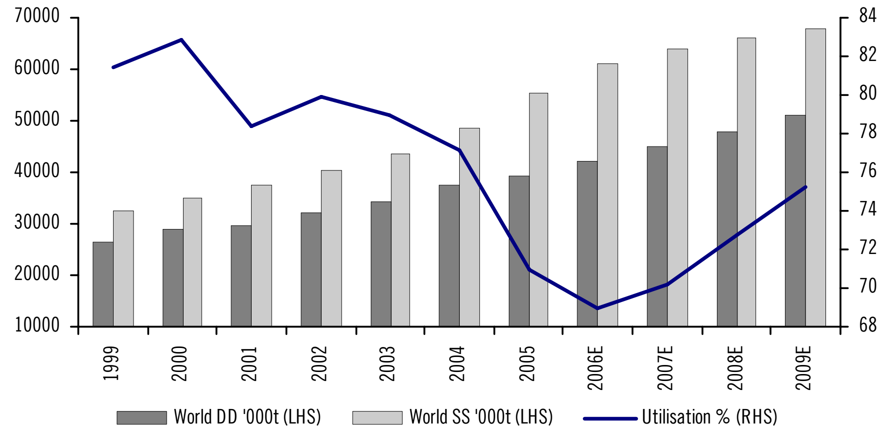
Polyester, PET – pressure of oversupply gradually easing

The Asian polyester industry struggled with paltry margins for the past few years due to intense oversupply. However, we believe the worst is over and demand-supply imbalances should improve gradually reflecting the ongoing capacity rationalization in Korea/Taiwan and a slowdown of new capacity in China. The margin pressure from high feedstock costs should also ease with the massive new PTA plant startups.

In China, the polyester fibre capacity addition has slowed from 3-5mt pa in 2003-05 to 1mt in 2006 and we forecast 1.2mt of new supply to start in 2007. Given the weak profitability outlook, China's largest polyester producer Yizheng has stopped expanding capacity since 2005.

On the demand side, robust growth should persist on strong PRC textile export shipments (up 28% in 2006). We forecast domestic demand to increase 10% pa in 2007-10 (17% CAGR over 2002-06). Hence, the implied incremental demand of 1.5-1.7mt pa should gradually absorb the surplus capacity. Overall, we forecast the global polyester utilization will rebound modestly from 71% in 2005 to 75% in 2009.

Figure 24. World – Polyester Melt Demand-Supply Balance ('000 tonnes)



Source: CMAI, Asian Chemical News, Company Reports, Citigroup Investment Research estimates

Despite this, we do not expect polyester margins to return to previous peak levels due to the sharply lower entry barriers. For example, capex for a new world-scale polyester line was only one-tenth of the original investment costs in 1990s and the construction lead time for new capacity is only 9-12 months. While we see no structural improvement ahead, we expect producers (e.g. Far Eastern Textile) could return to above breakeven as early as this year, after several years of operating losses.

Reliance Industries

Company description

Reliance Industries is a conglomerate with interests in upstream oil & gas (E&P), refining, and petrochemicals. It is building a super-size refinery project through its 75% subsidiary (RPL) and is now undertaking development of a large gas find in KG basin. RIL is foraying into organized retailing and has plans to undertake SEZ projects over the medium to long term.

Investment thesis

We rate RIL Buy/Low Risk with a target price of Rs2,005. We expect regional refining margins to remain robust due to project delays in the Middle East, with RIL enjoying an enhanced premium for its superior complexity. E&P business has delivered positive surprise and looks set to become more meaningful in the next 3-4 years as KG D6 field commences production and new discoveries are brought on stream. Upgrade of reserves in KG basin adds to the value, although the NAV of the gas find depends on development capex and the demand profile from anchor customers. Given the track record of exploratory success and the evolving portfolio (much beyond KG D6), RIL's E&P business needs to be valued as a going concern rather than a combination of assets. We have therefore valued E&P business (Rs631/share) on more traditional EV/FCF multiple rather than the consensus NAV approach. While petrochemicals will likely face pressure in FY09E, this will be offset by diversity of products to some extent. Factors such as diversity of revenues, integration across product chains, and volume growth should help RIL tide over downturns in product cycles.

Valuation

Our target price of Rs2,005 is based on a sum-of-the-parts value: 1) RIL's core petrochem and downstream oil business is valued on an EV/EBITDA of 6.5x mid-FY09E, in line with the regional chemicals and refining peers; 2) Total E&P assets including oil & gas prospects and other blocks are valued at Rs631/share based on 10x steady state (FY11E) FCF; 3) Investment in IPCL and RPL valued at 8x profit contribution to consolidated profits; 4) Organized retail business value is rolled forward to Mar-08E and factored in at Rs125/share, as per Citigroup's Retail Analyst, Princy Singh; and 5) Treasury stock is valued at RIL's target price.

Risks

We rate RIL Low Risk, as opposed to the Medium Risk suggested by our quantitative risk-rating system, which tracks 260-day historical share-price volatility. Diversified earnings and significant value contribution from the emerging E&P business and investment in listed subsidiaries have led to qualitative changes in the value constituents of the stock. Risks that could impede the stock from reaching our target price are: RIL's margins are exposed to the global petrochemical and refining cycles; the group could be asked to offer larger discounts on products sold to oil public sector units; delays in the key KG-D6 gas development and RPL refinery project; delays in the drilling programme for the new blocks (D9, D3, D4); and the organized retail business would call for significant investment in non-core areas.

Appendix A-1

Analyst Certification

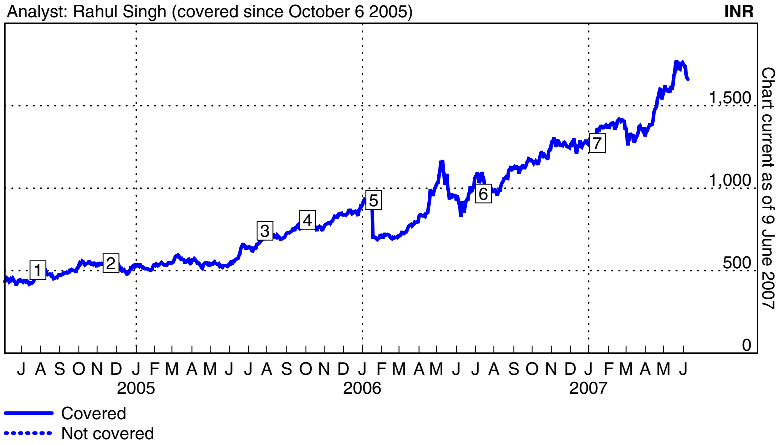
We, Rahul Singh and Saurabh Handa, research analysts and the authors of this report, hereby certify that all of the views expressed in this research report accurately reflect our personal views about any and all of the subject issuer(s) or securities. We also certify that no part of our compensation was, is, or will be directly or indirectly related to the specific recommendation(s) or view(s) in this report.

IMPORTANT DISCLOSURES

Reliance Industries (RELI.BO)

Ratings and Target Price History - Fundamental Research

Analyst: Rahul Singh (covered since October 6 2005)



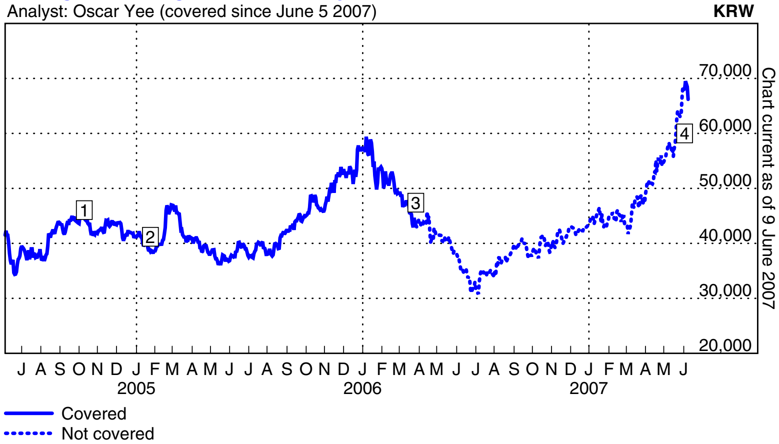
#	Date	Rating	Target Price	Closing Price
1:	28 Jul 04	1L	*473.09	470.50
2:	23 Nov 04	1L	*497.01	528.30
3:	28 Jul 05	1L	*598.65	NA
4:	5 Oct 05	1L	*697.31	801.95
5:	19 Jan 06	1L	*794.00	704.20
6:	14 Jul 06	*2L	*1,150.00	1,065.15
7:	15 Jan 07	2L	*1,450.00	1,364.65

*Indicates change.

LG Chem (051910.KS)

Ratings and Target Price History - Fundamental Research

Analyst: Oscar Yee (covered since June 5 2007)



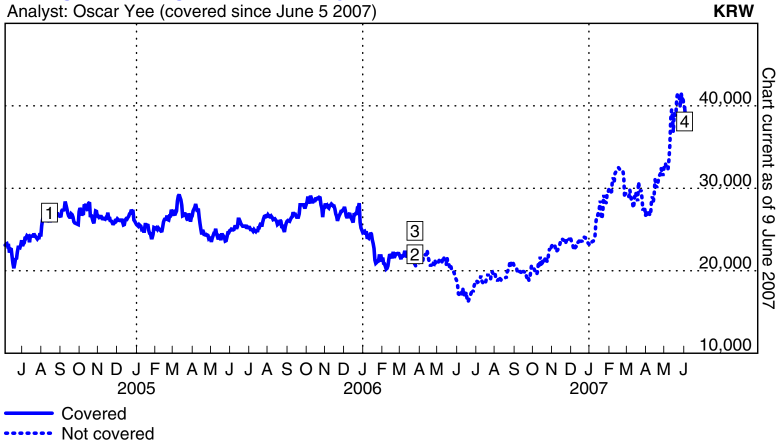
#	Date	Rating	Target Price	Closing Price
1:	11 Oct 04	1M	*60,000.00	46,050.00
2:	25 Jan 05	1M	*52,000.00	38,500.00
3:	28 Mar 06	Coverage suspended		
4:	4 Jun 07	*1L	*80,000.00	68,100.00

*Indicates change.

LG Petrochemical (012990.KS)

Ratings and Target Price History - Fundamental Research

Analyst: Oscar Yee (covered since June 5 2007)



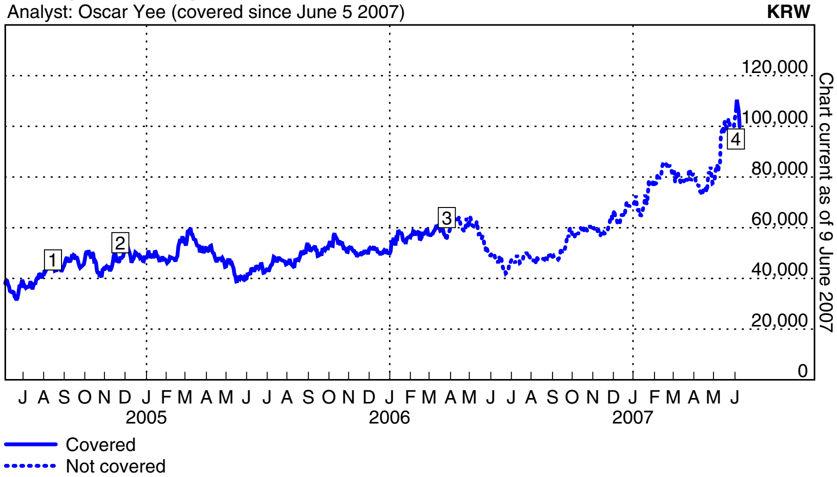
#	Date	Rating	Target Price	Closing Price
1:	16 Aug 04	*2M	*28,500.00	26,050.00
2:	27 Mar 06	*1L	28,500.00	20,800.00
3:	27 Mar 06	Coverage suspended		
4:	4 Jun 07	*3L	*33,000.00	39,800.00

*Indicates change.

Honam Petrochemical (011170.KS)

Ratings and Target Price History - Fundamental Research

Analyst: Oscar Yee (covered since June 5 2007)



#	Date	Rating	Target Price	Closing Price
1:	16 Aug 04	2H	*56,000.00	45,800.00
2:	24 Nov 04	*3H	*48,000.00	48,600.00
3:	28 Mar 06	Coverage suspended		
4:	4 Jun 07	*3L	*85,000.00	106,000.00

*Indicates change.

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% of companies in each rating category that are investment banking clients	42%	50%	42%
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% of companies in each rating category that are investment banking clients	100%	50%	0%
Oil Companies--International -- Europe (11)	45%	45%	9%
% of companies in each rating category that are investment banking clients	80%	60%	100%
Oil Companies--Majors -- Japan (3)	33%	67%	0%
% of companies in each rating category that are investment banking clients	100%	50%	0%
Oil Companies--Majors -- North America (7)	57%	43%	0%
% of companies in each rating category that are investment banking clients	50%	67%	0%
Refiners -- Europe (4)	50%	50%	0%
% of companies in each rating category that are investment banking clients	100%	50%	0%
Refiners -- Japan (4)	25%	25%	50%
% of companies in each rating category that are investment banking clients	0%	100%	50%
Refiners -- North America (4)	75%	25%	0%

% of companies in each rating category that are investment banking clients	67%	100%	0%
South Korea -- Asia Pacific (75)	48%	27%	25%
% of companies in each rating category that are investment banking clients	14%	25%	5%
Taiwan -- Asia Pacific (91)	66%	20%	14%
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