



Oil & Gas

GRM surge on IMO may sustain for long

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The global transition to electric vehicles is a potent threat to oil demand growth over the long term, estimated to shrink oil consumption from road transportation at a ~0.5% CAGR over 2018-40. Nonetheless, we expect GRMs to stay resilient as (1) diesel demand is forecast to surge post IMO 2020 (leading to a 0.8mbpd supply deficit), (b) refining capacity additions are likely recalibrated to avoid a surplus (only ~50% of the 8mbpd planned through to 2040 is under execution), and (c) robust petrochemical demand shores up oil offtake.

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IMO 2020 to fuel GRM uplift...: We expect global diesel demand to spike by ~2.7mbpd in 2020 as interim consumption shifts to distillates on rollout of IMO regulations – this translates to a supply deficit of ~0.8mbpd, which will push up GRMs by US\$ 4-6/bbl for Indian refiners (that have ~40% diesel yields). As per industry experts, enforcement of IMO norms is unlikely to be delayed beyond 2020, nor will the terms be diluted. Instead, non-compliance at the local level (across countries) is the primary risk to effective rollout.

...which looks long-term sustainable: Industry estimates of a 2.4mbpd surplus in refining capacities by 2025 look overstated, given that only ~3.8mbpd of the planned additions (totalling ~8mbpd) are in the execution stage against ~5mbpd of incremental oil demand forecast over 2020-25. This leaves scope for recalibration of the balance 50% of expansion plans based on global economic trends and actual electric vehicle (EV) sales. Amid demand volatility, refiners globally are more likely to opt for sustainable GRMs over volumes.

Accelerating EV adoption a threat post 2030: We expect EVs to form ~30% of global passenger vehicle stock by 2040. EVs could attain cost parity with internal combustion cars by 2022/23, when battery costs are estimated to halve to ~US\$ 100/kWh. Our estimates extrapolate a ~25% CAGR in EV stock over 2018-40, based on automaker (OEM) projections of touching ~100mn units in 2025. Led by this paradigm shift, we forecast a 0.5% CAGR decline in oil demand from road transport, muting overall demand growth at ~0.3% CAGR as against global estimates of ~0.6%.

RIL, IOCL best picks to play cyclicals business: RIL's high refining complexity (~21) gives it an edge in IMO norm compliance. While OMCs may lag on GRMs, we prefer Indian Oil (IOCL) and Hindustan Petroleum (HPCL) on improvement in marketing business valuations post BPCL privatization.

KEY RECOMMENDATIONS

Ticker	Price	Target	Rating
RIL IN	1,305	1,500	BUY
IOCL IN	149	265	BUY
BPCL IN	494	535	ADD
HPCL IN	309	400	BUY

Price & Target in Rupees



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Executive summary

Gross refining margins (GRM): Impact analysis

IMO 2020 – GRMs to surge as regulations drive demand shift

- IMO cap on sulphur content of marine bunker fuels from 2020 will shift demand to distillates such as diesel in the interim
- We expect US\$ 4-6/bbl GRM uplift for Indian refiners as diesel supply deficit widens

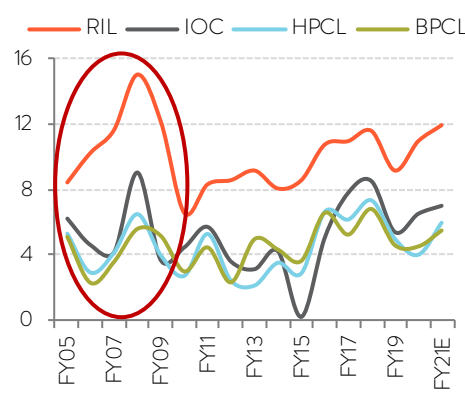
Diesel supply deficit forecast to add US\$ 4-6/bbl to GRMs of India refiners

		Diesel yields in refinery (%)				
(US\$/bbl)		25	30	35	40	45
20	Diesel spread (US\$/bbl)	1.3	1.5	1.8	2.0	2.3
23		2.0	2.4	2.8	3.2	3.6
26		2.8	3.3	3.9	4.4	5.0
29		3.5	4.2	4.9	5.6	6.3
32		4.3	5.1	6.0	6.8	7.7

Source: BOBCAPS Research

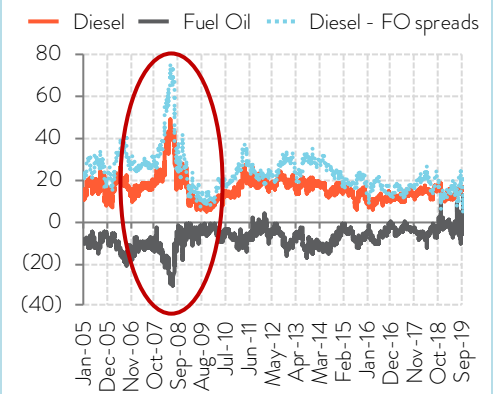
- Case in point:** RIL and IOCL had clocked record GRMs a decade ago in 2007-08 when diesel demand was high and the diesel-FO spread had peaked

GRMs hit record highs in 2007-08...



Source: BOBCAPS Research

...as diesel-FO spreads peaked



Higher GRMs sustainable as risk of refining overcapacity looks exaggerated

- Ample scope for recalibration of refinery expansion plans as economic growth and EV trends turn clearer post 2021

Announced refinery capacity additions to outstrip demand...

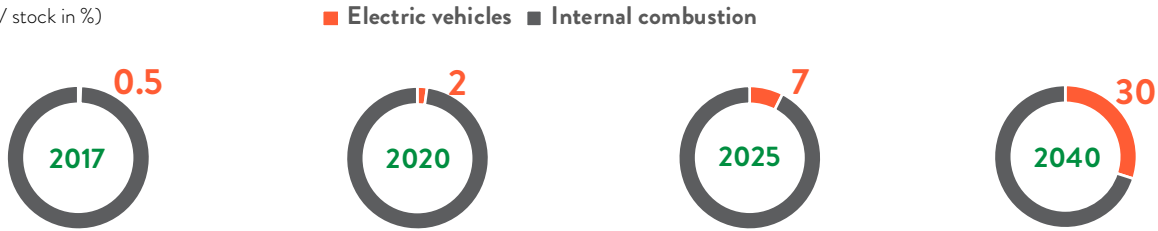
Additions by 2023	8mbpd
Oil demand	5.6mbpd
Excess refining capacities by 2023	2.4mbpd

...but can be curtailed to avoid oversupply

Under execution and set to materialise	3.8mbpd (49%)
Planning stage and can be deferred	4mbpd (51%)

Rise and rise of EVs – a potent threat to oil demand, but post 2030

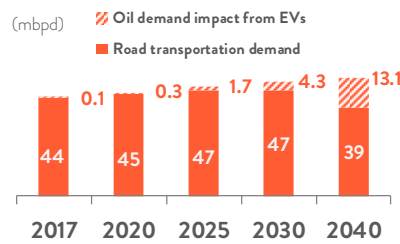
(global EV stock in %)



Source: ICA, BOBCAPS Research

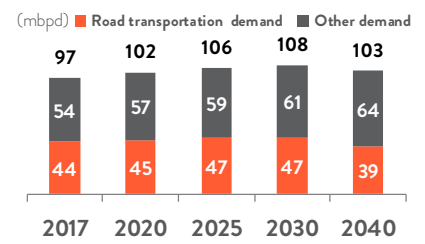
- Expected six-fold rise in EV penetration to 30% of global PV stock by 2040 will displace oil consumption from road transport

Fleet electrification to fuel 0.5% CAGR decline in oil demand, 2017-40



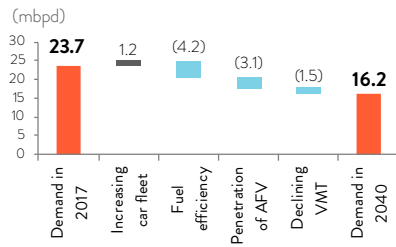
Source: OPEC, BOBCAPS Research

Total oil demand growth to slow to 0.3% CAGR, 2017-40



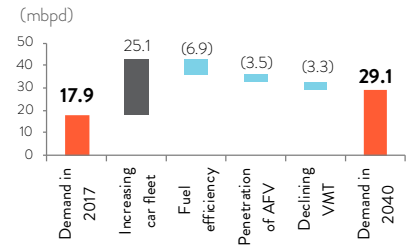
- Developing countries likely to witness a bigger increase in car fleet than OECD nations over 2018-40...
- ...and a larger leap in EV stock as they look to transition away from large imports of oil (especially China and India)

Oil demand in road transportation in OECD, 2017 and 2040



Source: OPEC, BOBCAPS Research | Note: AFV – Alternate Fuel Vehicle, VMT – Vehicle Miles Travelled

Oil demand in road transportation in developing countries, 2017 and 2040



Source: OPEC, BOBCAPS Research

Valuation summary and Peer comparison

BPCL's privatisation: Opens a Pandora's box

- Eradicates threat of backdoor fuel price regulations as a ~20% market share petroleum company moves out of government control
- Marketing business valuations become structural rather than incidental to crude prices
- We upgrade HPCL to BUY and BPCL to ADD as we now ascribe value to their marketing businesses (from nil value earlier)

FIG 1 – VALUATION SUMMARY

Company	CMP (Rs)	Rating	New TP (Rs)	Chg in TP (%)	PE (x)			ROE (%)		
					FY20E	FY21E	FY22E	FY20E	FY21E	FY22E
RIL	1,305	BUY	1,500	0.0	16.0	12.1	9.7	11.8	13.9	15.2
IOCL	149	BUY	265	29.3	7.0	6.4	5.8	17.2	18.1	18.7
BPCL	494	ADD	535	91.1	10.0	9.5	8.9	21.8	20.5	19.5
HPCL	309	BUY	400	100.0	7.1	6.8	5.6	20.6	19.3	21.1

Source: BOBCAPS Research

FIG 2 – PEER COMPARISON

R&M companies (x)	EV/EBITDA		P/BV		P/CF		PE	
	FY21/CY20	FY22/CY21	FY21/CY20	FY22/CY21	FY21/CY20	FY22/CY21	FY21/CY20	FY22/CY21
Sunoco Inc	10.39	10.07	3.88	4.24	6.33	6.20	11.66	11.08
Valero Energy Corp	5.76	6.31	1.56	1.51	5.27	5.44	8.83	9.80
Formosa Petrochemical Corp	11.00	10.32	2.63	2.51	15.02	11.11	17.10	15.87
Thai Oil Pcl	5.40	5.49	1.06	1.00	5.83	5.87	10.13	10.00
Caltex Australia Limited	7.54	7.04	1.94	1.88	7.52	7.03	13.16	12.33
Sk Energy Co Ltd	6.01	5.65	0.77	0.74	4.68	4.40	8.91	8.41
Hindustan Petroleum Corp*	6.02	5.83	1.24	1.14	4.44	4.19	7.09	7.09
Bharat Petroleum Corp *	8.74	8.72	1.97	1.84	6.74	6.59	10.24	10.04
Indian Oil Corporation *	5.79	5.39	1.05	1.00	4.81	4.53	7.20	7.20
Average	7.41	7.20	1.79	1.76	6.74	6.15	10.48	10.20

Source: Bloomberg | Note: *Estimates from Bloomberg consensus

Investment thesis

Companies	Investment thesis
<p>Reliance Industries (RIL)</p> <p>BUY TP: Rs 1,500</p> <p>▲15%</p>	<ul style="list-style-type: none"> RIL's refinery is best equipped to take advantage of IMO regulations given (a) high complexity, (b) flexibility to enhance middle-distillate yields, and (c) start-up of petcoke gasifiers. Management's long-term plan to enhance the oil-to-chemicals conversion ratio to >70% will hedge against the eventuality of EV-led oil demand transition and enhance petrochemicals output. Our assumption of US\$ 12/bbl GRMs in FY21/FY22 assumes diesel-FO spreads of US\$ 40/bbl, conservative given historical high spreads of ~US\$ 75/bbl in phases of strong diesel demand growth. Maintain BUY with a Sep'20 SOTP-based TP of Rs 1,500. We factor in deleveraging initiatives (Saudi Aramco and retail petroleum stake sales) that would yield US\$ 16bn in cash inflow in FY21.
<p>Indian Oil Corp (IOCL)</p> <p>BUY TP: Rs 265</p> <p>▲78%</p>	<ul style="list-style-type: none"> Among OMCs, IOCL's refining segment is best placed to take advantage of IMO regulations considering its high middle-distillate yields. Paradip refinery utilisation has normalised to ~100% and commissioning of the 680ktpa polypropylene facility could enhance GRMs at the refinery. Proposed privatisation of BPCL by the government lowers the risk in IOCL's marketing segment, driving up our Sep'20 SOTP-based TP to Rs 265 (from 205). Maintain BUY.
<p>Bharat Petroleum Corp (BPCL)</p> <p>ADD TP: Rs 535</p> <p>▲8%</p>	<ul style="list-style-type: none"> We see merit in putting a value on BPCL's marketing business (at Rs 186/sh vs. nil earlier), as the proposed privatisation will alleviate any risk of price control from the government. BPCL's critical marketing infrastructure – 15,000 retail outlets, ~6,000 LPG distributors – and ~22% market share in retail product sales offer value (if we strip away the risk of government control on product pricing). Its 10% stake in the Mozambique Area-4 field (~60tcf reserves) could also bolster deal valuations We revise our Sep'20 TP to Rs 535 (from Rs 280) to bake in marketing business value and a higher multiple for the refining business.
<p>Hindustan Petroleum Corp (HPCL)</p> <p>BUY TP: Rs 400</p> <p>▲29%</p>	<ul style="list-style-type: none"> HPCL's GRMs have been underperforming peers (esp. IOCL) and its relatively lower middle-distillate yields (at ~40%) put it at a slight disadvantage compared to peers, from an IMO impact perspective. The marketing business is HPCL's primary driver of earnings (garners highest EBITDA/mt among peers at >Rs 2,000), and we see strong rerating potential given the proposed privatisation of BPCL. We now value HPCL's marketing segment at Rs 173/sh (5x Sep'21E EBITDA) from nil earlier, forming ~45% of valuations. While our earnings estimates remain unchanged, marketing business valuations boost HPCL's Sep'20 SOTP-based TP to Rs 400 (from Rs 200). Change in risk perception for marketing makes HPCL a strong fundamental play.

IMO 2020 – GRMs to surge

New IMO (International Maritime Organization) regulations cap the sulphur content of fuels used in marine bunkers at 0.5% (from 3.5% on weight basis) starting Jan'20 – a move expected to disrupt the fuel demand-supply equation for both oil refiners and the shipping industry. As demand moves to distillates in the interim, we expect diesel consumption to spike by ~2.7mbpd in 2020, translating to a supply deficit of ~0.8mbpd – this in turn will elevate gross refining margins (GRM) by an estimated US\$ 4-6/bbl for Indian refiners at ~40% diesel yields.

Key IMO implications for refiners

- Burgeoning diesel spreads from deficit supply:** Under the new norms, global marine demand could soon switch away from the ~1.8mbpd of high-sulphur fuel oil in use to distillates – which includes diesel. Current global refining capacity can readily supply ~0.7mbpd of diesel, apart from 0.3mbpd that could come from new capacities expected in 2019. This implies a shortfall of ~0.8mbpd from 2020, which could be met by raising utilisation levels or diverting diesel supplies from industrial consumers.

The supply deficit for diesel could inflate its spreads (over crude) to US\$ 25-30/bbl (from ~US\$ 15/bbl currently). Considering that diesel typically forms ~40% of the output for a complex refinery in Asia (~45% for RIL and OMC-owned refineries such as Paradip, Bina and Bhatinda), GRMs at such plants could improve by US\$ 4-6/bbl from 2020.

FIG 3 – INCREMENTAL IMPACT ON GRM

(US\$/bbl)		Diesel yields in refinery (%)				
Diesel spreads (US\$/bbl)		25.0	30.0	35.0	40.0	45.0
		20	1.3	1.5	1.8	2.0
23		2.0	2.4	2.8	3.2	3.6
26		2.8	3.3	3.9	4.4	5.0
29		3.5	4.2	4.9	5.6	6.3
32		4.3	5.1	6.0	6.8	7.7

Source: BOBCAPS Research

- Collapse of HSFO demand:** In the absence of sufficient storage capacity, the displaced high-sulphur fuel oil (HSFO) at ~1.8mbpd could be upgraded to low-sulphur (LSFO) or marine gasoil (MGO), or consumed for power generation. This could lead to a worsening of HSFO spreads, with a potential US\$ 20/bbl contraction. The price difference between a compliant fuel (such as diesel) and HSFO is likely to be ~US\$ 40/bbl in the first year of regulation. This could exact a heavy toll on simple refiners that have high HSFO yields

(especially refineries of OMCs), many of which are not in a position to consider multibillion-dollar investments to upgrade units or add desulphurisation units for HSFO.

- **Inflationary impact:** Elevated demand for MGO could push complex refineries to increase crude throughput to maximise diesel output, in turn ratcheting up prices for crude oil and sweeter crudes in particular (simpler refineries are likely to process sweet grades to minimise the yield of HSFO). This would also drive up fuel costs for freight across the board (both maritime and road) around 2020.

FIG 4 – IMO IMPACT ANALYSIS

(000' bpd)	2017	2018	2019	2020	2021	2022	2023
Marine Gasoil (MGO) (a)	745	756	767	1,736	1,229	905	773
Marine VLSFO	-	-	-	969	1,496	1,849	2,018
MGO blend in VLSFO (b)*	-	-	-	848	1,309	1,618	1,766
HSFO blend in VLSFO (c)*	-	-	-	121	187	231	252
Adjusted MGO demand (a + b)	745	756	767	2,584	2,538	2,523	2,539
Growth (%)	-	-	-	236.9	(1.8)	(0.6)	0.6
Incremental MGO demand	-	-	-	1,817	(46)	(15)	16
Bunker HSFO (d)	3,126	3,180	3,231	1,292	1,292	1,292	1,292
Adjusted Bunker HSFO demand (c+d)	3,126	3,180	3,231	1,413	1,479	1,523	1,544
Growth (%)	2.5	1.7	1.6	(56.3)	4.7	3.0	1.4
Incremental HSFO demand	77	54	51	(1,818)	66	44	21
Total	3,872	3,937	3,997	3,997	4,017	4,047	4,084
Growth	2.49	1.68	1.52	0.00	0.50	0.75	0.91

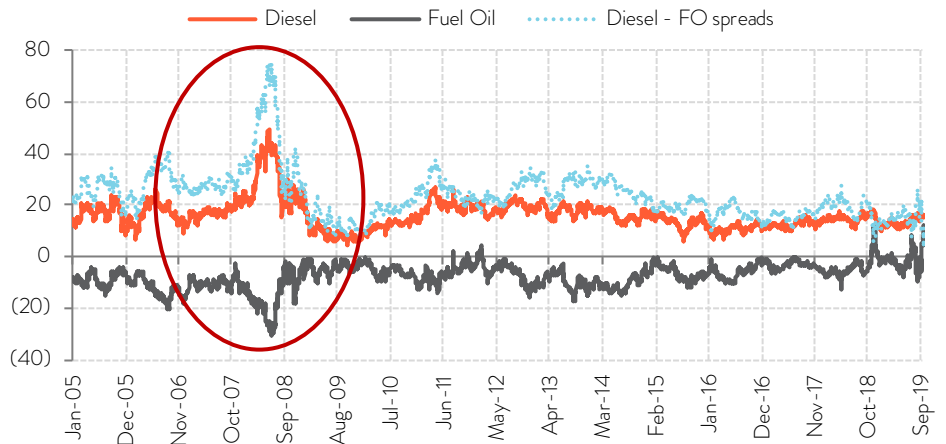
Source: BOBCAPS Research | *Assumes ~87% of MGO, ~13% HSFO blend ratio for VLSFO

- **Diesel-FO spreads could cross historical highs:** The IMO impact on GRMs would be routed through expansion in the diesel-fuel oil spread differential. We note that diesel-FO spreads have historically touched US\$ 75/bbl levels (in May'08), when global oil demand growth had peaked. While the current demand growth scenario looks muted, a higher-than-expected surge in diesel demand post IMO could lead to diesel-FO spreads retracing historical highs.

Indian refineries being middle-distillate heavy, their GRM movements trace diesel spreads

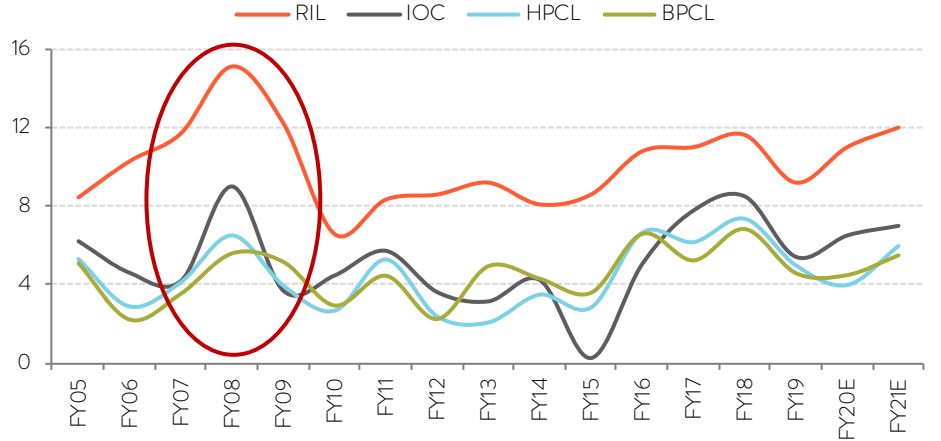
A surge in diesel spreads, as seen in 2007-08, would have a much bigger impact on GRMs for Indian refiners this time around, considering improved complexity

FIG 5 – DIESEL-FO SPREADS



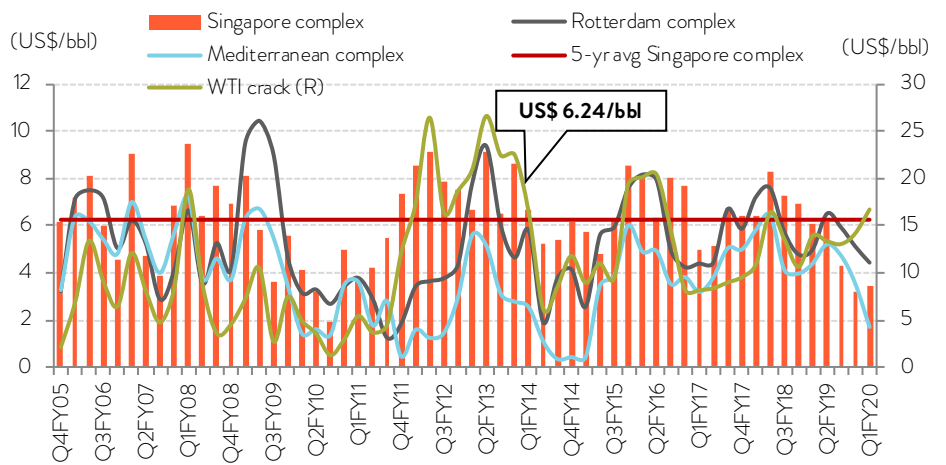
Source: BOBCAPS Research

FIG 6 – GRM DATA



Source: BOBCAPS Research, Company

FIG 7 – GRM TREND



Source: BOBCAPS Research

Risks to IMO impact projections for diesel

Shipping companies could mitigate the IMO impact by (1) continuing their HSFO consumption in combination with an on-board scrubber facility, (2) switching over to an alternate fuel such as LNG or biofuel, and/or (3) settling for non-compliance with norms at the local level. We examine each of these points in detail below.

#1 On-board scrubbers: Economics look favourable...

The installation of scrubbers would allow for the continued use of HSFO. Scrubbers cost ~US\$ 5mn/vessel to install and have a low operating cost. Even if the US\$ 40/bbl spread (i.e. diesel-HSFO price differential) declines to US\$ 30/bbl by 2022, a ship that uses 250bpd (~40tonnes) of HSFO and sails 250 days a year would recoup the scrubber's entire cost over 2-4 years (Fig 18). A heavier, less efficient ship that uses more fuel per day would have an even faster payback period. Such economics make scrubbers seem like an obvious option for most ships, especially heavy bulk carriers and tankers.

FIG 8 – SCRUBBER ECONOMICS

Diesel-HSFO spreads (US\$/bbl)	Annual HSFO consumption (mn bbl)	Yearly savings [from replacing diesel] (US\$ mn)	Payback (years) at US\$ 5mn cost for installation
20	0.06	1.25	4.00
30	0.06	1.88	2.67
40	0.06	2.50	2.00

Source: BOBCAPS Research

...but installation a challenge

- Limited availability:** Currently, ~400 shipping vessels have scrubbers installed, or on order. Their numbers are likely to increase by next year. But even if shippers are suddenly willing to invest heavily in the technology, installation by 2020 could be limited by a lack of shipyard space.

Scrubbers are also increasingly hard to source ahead of the regulations. Alfa Laval, one of the largest manufacturers of scrubbers, declared in October last year that it was sold out into 2020. Consequently, major shippers such as Maersk Line have announced that they favour a switch to 0.5% fuel over investment in scrubbers.

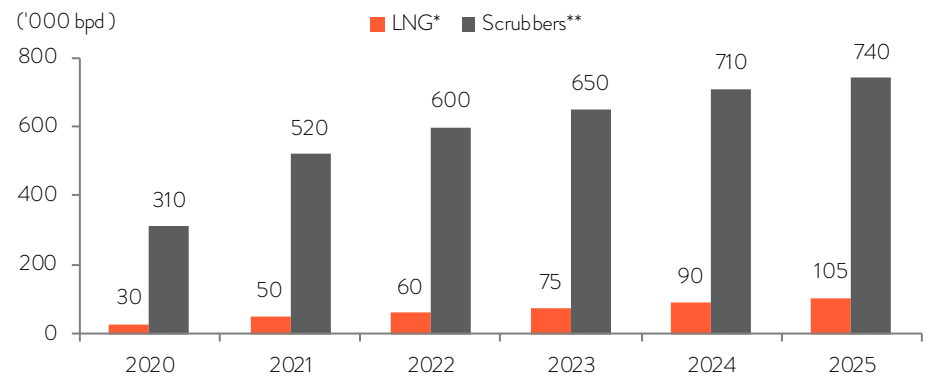
- Loss of revenue during installation:** Scrubber installation takes about six months, leading to revenue loss over this period and hence increasing resistance from shippers (especially small players). This loss of revenue along with installation cost raises the payback period further. Further, smaller ships may not easily be able to handle large scrubbers, and uncertainty prevails over disposal costs for the sludge they create.

- Local regulations could hamper economics:** China and Singapore have indicated a ban on open-loop scrubbers (which dispense reacted sludge into the ocean) from their ports. Other countries may follow suit. Additionally, global regulation of nitrous oxides (NO_x) could change. Many ships do not have the space to install both SO_x and NO_x scrubbers, and could end up paying more to comply.

#2 Shift to a relatively new shipping fuel such as LNG

There are ~100 LNG-fuelled vessels globally and the order book stands at ~100 ships over the next year. Retrofitting a ship to use LNG is costlier than installing a scrubber but has fuel price advantages. Infrastructure limitations and a lack of appropriately equipped ships will keep LNG a niche option for the early part of IMO 2020, with the fuel likely forming less than 2% of global bunker demand, as per IEA estimates.

FIG 9 – BUNKER CONSUMPTION THROUGH SCRUBBERS, LNG



Source: OGI, BOBCAPS Research | *HSFO replaced by LNG use, **HSFO burned using scrubbers

#3 Policy interpretation leaves room for non-compliance

The enforcement of IMO rules by individual countries is governed by domestic laws, most of which are vague by design to leave room for interpretation and vary a great deal in terms of inspection rates and the severity/nature of penalties.

For example, the US fine for illegally using HSFO in emission control areas is US\$ 25,000/day. But in Belgium the penalty is a one-time US\$ 6mn. Other port states pass news of any violation to the ship's flag state and wait for it to levy a fine of its own. The port state can also look the other way, either out of goodwill or for a price. Another example is Fujairah, the Middle East's bunkering hub. Fujairah is incentivised to comply at a much lower rate than other hubs, as most of its bunker traffic sails between low-complying ports, making the use of non-compliant HSFO much easier.

GRMs long-term sustainable as refining surplus risk overstated

Industry estimates of a 2.4mbpd surplus in refining capacities by 2025 appear overstated given that only ~3.8mbpd (or 50%) of planned additions are in the execution stage, against ~5mbpd of cumulative oil demand growth expected over 2020-25. This leaves adequate scope for recalibration of expansion plans based on trends in global economic growth and actual EV sales that threaten the oil demand outlook beyond 2025. Thus, consensus projections of a long-term bear case for GRMs in anticipation of relentless capacity buildup are unwarranted.

Medium-term expansion plans not set in stone

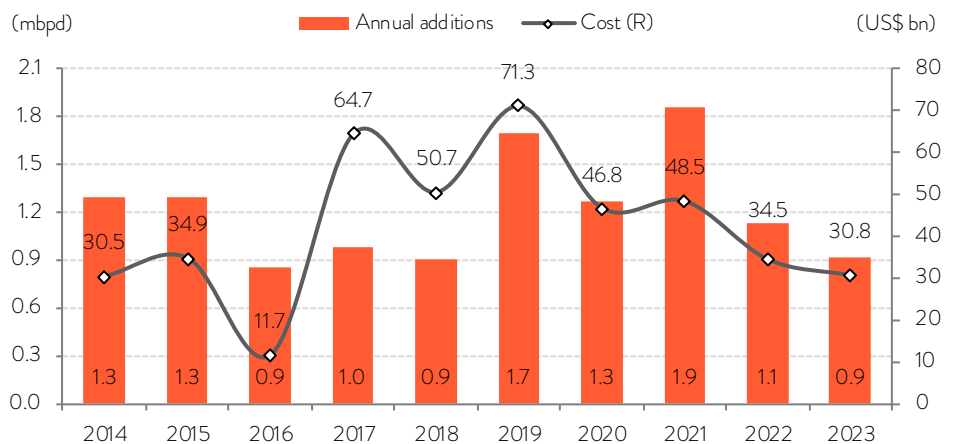
Refining capacity additions are expected to trend higher at ~1.6mbpd p.a. over 2019-21, before reverting to historical 1mbpd levels in 2022 and 2023. Cumulatively, ~8mbpd of additions are projected by 2023, at ~1.2mbpd annually on average. Concurrently, an estimated ~0.7mbpd annual increase in oil demand implies ~2.4mbpd of excess refining capacities by 2023 (predominantly from 2021). These expansion works have a high probability of materialising as some include delayed projects planned well before 2018.

About 3.8mbpd (49%) of the planned capacity additions by 2023 can be considered as 'firm', i.e. currently under construction (1.6mbpd) or nearing the construction stage (2.2mbpd). The remaining 4mbpd (over 50%) comprises projects that are not yet near construction, but which are considered far enough advanced in terms of engineering, and financing arrangements to be accorded a high probability of coming onstream by 2023.

2.4mbpd of excess capacity forecast by 2023...

...but can be pared back to protect GRMs

FIG 10 – DISTILLATION CAPACITY ADDITIONS



Source: WOO, BOBCAPS Research

That said, in the event of a major economic slowdown or a surge in EV sales that leads to much lower than anticipated growth in oil demand, companies have an option to either delay or scrap this ~4mbpd of capacity addition and thus avoid possible erosion in GRMs.

Capacity projections beyond 2025 also stretched

WOO projections of relentless capacity additions beyond 2025 (~8.5mbpd by 2040) seem even more farfetched, and speculative. The demand threat from EVs would become far clearer by 2021, enabling refining companies globally to reassess their expansion plans. Refiners are more likely to emphasise on the sustainability of GRMs (amid demand volatility) rather than volume expansion. We therefore see little merit in building a long-term bearish case for GRMs merely based on perceived oversupply.

FIG 11 – GLOBAL DEMAND GROWTH AND REFINERY DISTILLATION CAPACITY ADDITIONS BY PERIOD IN THE REFERENCE CASE

Period	Global demand growth (%)	Distillation capacity additions starting 2018 (mbpd)			
		Assessed projects*	New units	Total	Annualised
2017 - 2020	4.7	3.9	0.3	4.2	1.4
2020 - 2025	4.0	3.9	1.3	5.2	1.0
2025 - 2030	2.6	0.0	3.7	3.7	0.7
2030 - 2035	1.9	0.0	3.1	3.1	0.6
2035 - 2040	1.2	0.0	1.7	1.7	0.3

Period	Global demand growth (%)	Cumulative distillation capacity additions (mbpd)			
		Assessed projects*	New units	Total	Annualised
2017 - 2020	4.7	3.9	0.3	4.2	1.4
2017 - 2025	8.8	7.8	1.6	9.4	1.2
2017 - 2030	11.4	7.8	5.2	13.0	1.0
2017 - 2035	13.3	7.8	8.3	16.1	0.9
2017 - 2040	14.5	7.8	10	17.8	0.8

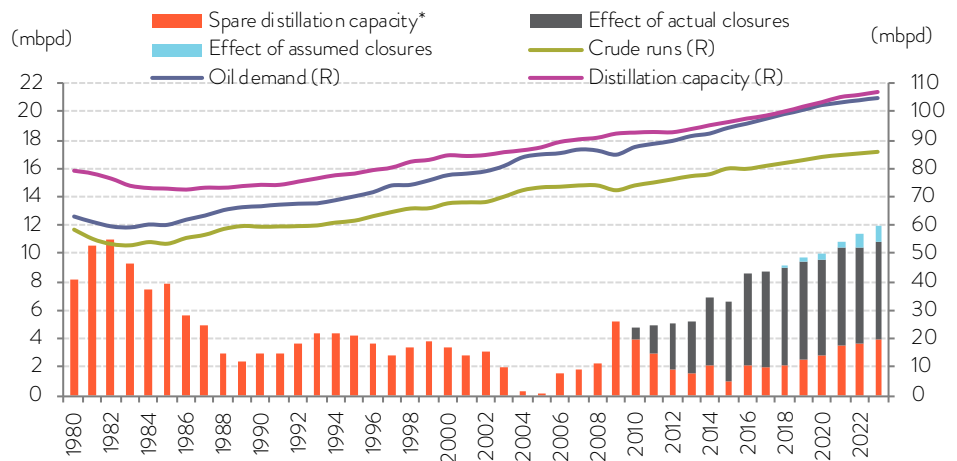
Source: Company, BOBCAPS Research | *Excludes additions from capacity creep. Projects that are well advanced stage of execution

>80% utilisation floor will curb overcapacity

Global refinery utilisation has only twice, in 2004 and 2005, approached ~84% levels, which is correlated to low levels of spare distillation capacity. Consequently, these were the best times for global GRMs. Usually, a utilisation level of >80% leads to an upcycle in margins. We see refining companies globally striving to sustain this floor by cutting down on expansion plans (in a declining oil demand environment).

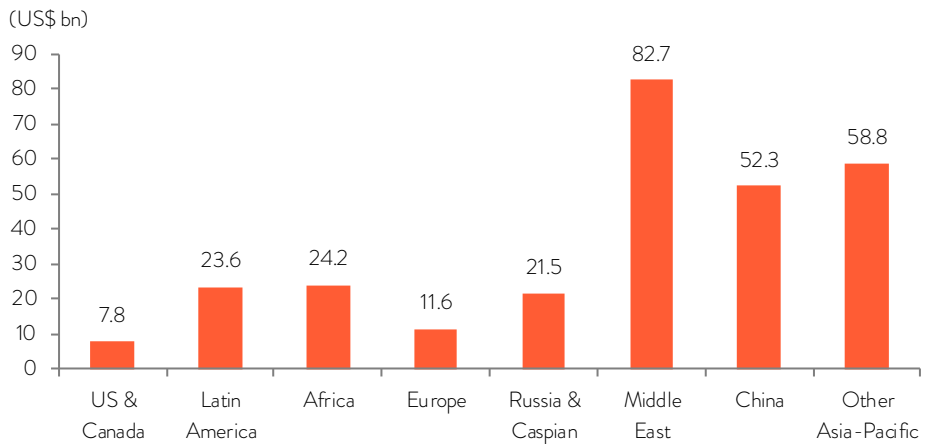
>80% utilisation key to margin upcycle – will curb overcapacity

FIG 12 – OIL DEMAND VS. CRUDE RUNS



Source: BOBCAPS Research | *strategic capacity to meet sudden demand spurts

FIG 13 – COST OF REFINERY PROJECTS



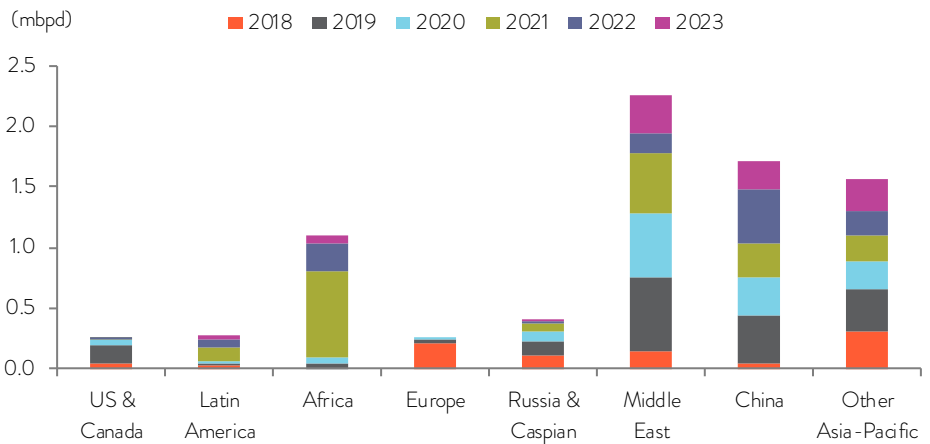
Source: BOBCAPS Research

Asia Pacific, Middle East to lead mid-term capacity additions

High complexity (associated with higher GRM potential) of hydro-cracking projects makes them a priority over coking and FCC projects. This implies hydro-cracking projects in China (70% of planned additions), the Middle East (~25%) and Africa (~30%) would most likely be commissioned, in case of rationalisation of capacity expansion plans. Consequently, a bulk of the investments toward expansion (out of ~US\$ 190bn planned) would be centered around these regions.

Overall, the Asia Pacific region is expected to account for 3.3mmbpd (42%) of new global capacity through 2023. China constitutes ~1.6mmbpd of this. Additions in the Middle East are expected at 2.3mmbpd. In the US and Canada, projected medium-term additions stand at 0.25mmbpd, down from ~0.5mmbpd after the cancellation of condensate splitter projects that were originally conceived largely as a means to circumvent the US crude oil export ban.

FIG 14 – REGIONAL CAPACITY ADDITIONS, 2018-23



Source: WOO BOBCAPS Research

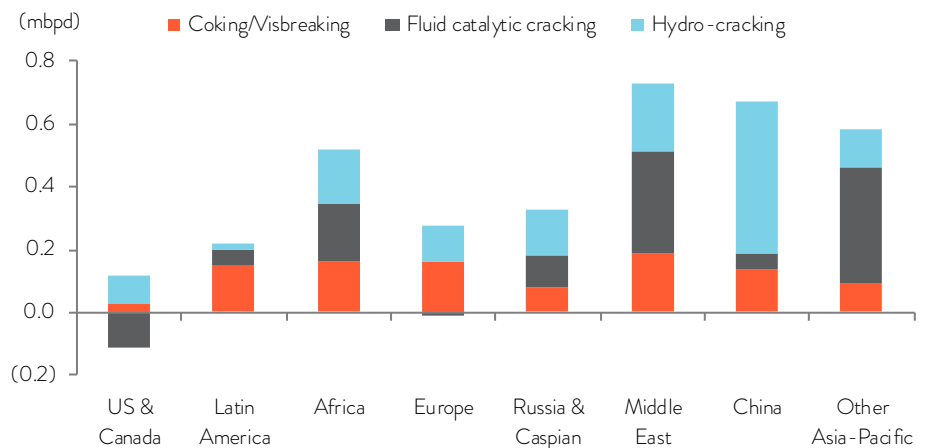
FIG 15 – DISTILLATION CAPACITY ADDITIONS FROM EXISTING PROJECTS BY REGION

(mbpd)	US & Canada	Latin America	Africa	Europe	Russia & Caspian	Middle East	China	Other Asia-Pacific	World
2018	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.3	0.9
2019	0.1	0.0	0.1	0.0	0.1	0.6	0.4	0.3	1.7
2020	0.0	0.0	0.0	0.0	0.1	0.5	0.3	0.2	1.3
2021	0.0	0.1	0.7	0.0	0.0	0.5	0.3	0.2	1.9
2022	0.0	0.1	0.2	0.0	0.0	0.2	0.4	0.2	1.1
2023	0.0	0.0	0.1	0.0	0.0	0.3	0.2	0.3	0.9
2018-2023*	0.2	0.3	1.1	0.2	0.4	2.3	1.7	1.6	7.8

Source: Company, BOBCAPS Research | *Totals may not add up due to round-off

Bulk of investments in adding capacity would be centered around China, Middle East and Africa

FIG 16 – CONVERSION PROJECTS BY REGION, 2018-23



Source: BOBCAPS Research

Global oil demand forecasts at risk

The global transition from combustion engines to electric vehicles is a potent threat to oil demand in the long run, estimated to shrink oil consumption from road transportation (45% demand share) at a ~0.5% CAGR over 2018-40. We project a 4% increase in global passenger vehicle stock over this period, with a bulk of the growth beyond 2025 dominated by EVs. Baking in this trend shift as well as consumption patterns across sectors, we estimate a structurally slower oil demand CAGR of ~0.3% over our forecast period, half that of global estimates of ~0.6%.

India to top demand growth through to 2040

India is projected to clock the fastest average growth in oil demand at 5.8% p.a., as well as the largest additional demand share of 5.8mbpd, over 2017-40. With this, the country will likely pass the 10mbpd mark sometime towards the end of the forecast period, doubling its current consumption levels. But despite the impressive growth, its total demand will still be far below that of China.

India leads oil demand growth over 2017-40, but would continue to lag China in absolute terms

FIG 17 – LONG-TERM OIL DEMAND

Region (mbpd)	2017	2020	2025	2030	2035	2040	Growth 2017-40 (%)
OECD America	25.0	25.7	25.2	23.9	22.5	20.9	(4.1)
OECD Europe	14.3	14.5	13.9	13.1	12.4	11.6	(2.7)
OECD Asia Oceania	8.1	8.0	7.6	7.2	6.7	6.2	(1.9)
OECD	47.3	48.3	46.8	44.2	41.5	38.7	(8.7)
Latin America	5.7	6.0	6.4	6.8	7.1	7.3	1.5
Middle East & Africa	3.8	4.1	4.6	5.1	5.7	6.3	2.5
India	4.5	5.2	6.4	7.6	9.0	10.4	5.8
China	12.3	13.4	14.7	15.8	16.6	17.4	5.1
Other Asia	8.7	9.4	10.3	11.3	12.2	12.9	4.2
OPEC	9.3	9.8	10.7	11.5	12.0	12.3	3.0
Developing countries	44.4	47.9	53.1	58.1	62.6	66.6	22.2
Russia	3.5	3.7	3.9	3.9	3.9	3.9	0.4
Other Eurasia	1.9	2.1	2.2	2.3	2.4	2.5	0.6
Eurasia	5.4	5.8	6.1	6.3	6.4	6.4	1.0
World	97.2	101.9	106.0	108.6	110.5	111.7	14.5

Source: OPEC

Offtake from road transport to slide as EVs proliferate

Oil demand from road transportation constitutes ~45% of global consumption at ~42mbpd (2018). OPEC's World Oil Outlook (WOO) forecasts growth in demand to ~45mbpd by 2040, after absorbing the impact from EVs at 15% penetration levels. Considering current auto trends and the global push for clean energy, we forecast far higher EV penetration at 30% – in turn driving down oil demand from road transport to ~39mbpd levels by 2040 and slowing oil consumption across sectors to a ~0.3% CAGR vs. global estimates of ~0.6%.

FIG 18 – OIL DEMAND VS. EV PENETRATION

Particulars	2018	EV penetration by 2040		
		EV @ 15%	EV @ 30%	EV @ 40%
Global PV stock (@ 4% CAGR until 2040) (mn units)	1,100	2,500	2,500	2,500
Global EV stock (mn units)	5	376	752	1,003
Oil demand impact on EVs (mbpd)	0.1	6.5	12.9	17.2
Net demand from roads in 2040 (mbpd)	42.0	45.4	38.9	34.6

Source: BOBCAPS Research

FIG 19 – OIL DEMAND MILESTONES AT 30% EV PENETRATION

(mbpd)	2017	2020	2025	2030	2035	2040	CAGR (%)
Road transportation sector (EV @ 30%)	43.6	45.3	46.9	46.6	42.8	38.9	(0.5)
- Passenger cars	25.0	26.4	27.0	25.8	21.3	16.8	(1.8)
- Commercial vehicles	18.6	18.9	19.9	20.8	21.5	22.1	0.8
Others	53.6	56.6	58.7	60.9	62.7	63.9	0.8
Total oil demand	97.2	101.9	105.6	107.5	105.5	103.3	0.3

Source: IEA, BOBCAPS Research

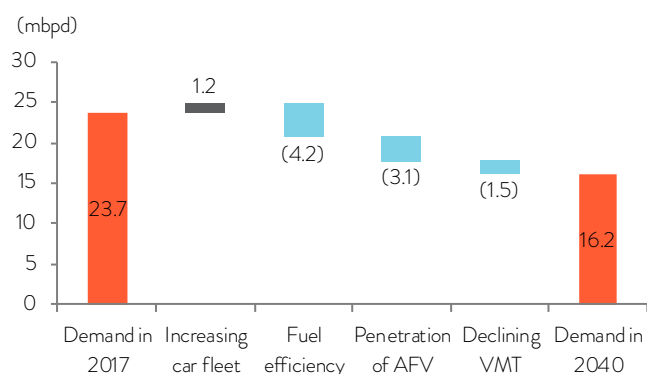
Oil demand in developing countries steered by new car sales

In road transport, a major difference between developing countries and OECD nations is the expected increase in car fleet over 2018-40. In the passenger car segment, developing countries are far from saturated and hence likely to witness a rapid increase in the number of cars. In the commercial vehicle (CV) segment, higher relative GDP growth means greater transport requirements to support economic activity and thus a higher number of CVs compared to the OECD.

Most of the current demand for EVs globally is being boosted through subsidies that aim to bring economics at par with conventional ICEs. But declining battery pack costs (from US\$ 700/kWh in 2017 to ~US\$ 200kWh currently), rising economies of scale (2mn EVs sold globally in 2018, a ~70% increase), and improving charging infrastructure are tilting the economics in favour of electric cars. As these vehicles become more affordable, we expect developing countries to experience a larger leap in EV stock as they look to transition away from large imports of oil (especially China and India).

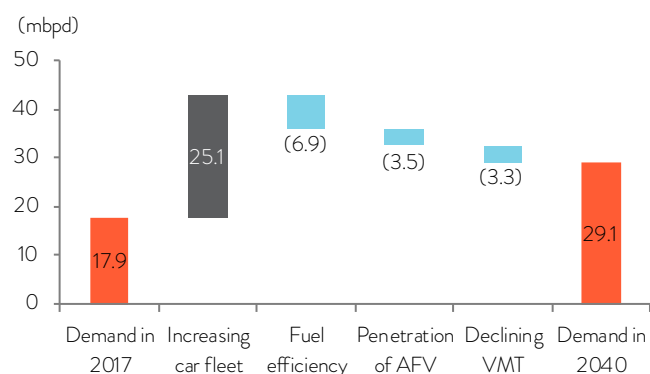
We assume a 4% CAGR in global PV stock to 750mn units over 2018-40. At our estimate of 30% penetration, EVs will rise from 5mn units global PV stock in 2018 to 750mn units over the next two decades (detailed estimates in the next section).

FIG 20 – OIL DEMAND IN ROAD TRANSPORTATION IN OECD, 2017 AND 2040



Source: OPEC, BOBCAPS Research | *AFV – Alternate Fuel Vehicle; VMT – Vehicle Miles Travelled

FIG 21 – OIL DEMAND IN ROAD TRANSPORTATION IN DEVELOPING COUNTRIES, 2017 AND 2040



Source: OPEC, BOBCAPS Research

Oil demand from Petchem segment, being least affected by alternative fuels, leads demand growth

Petchem to log the largest demand rise, aviation the fastest

Despite the anticipated decline in demand from road transport (-0.5% CAGR over 2018-40), we note that overall oil consumption from the transportation segment remains flattish due to stronger aviation offtake (+1.6% CAGR). Growth in the industry segment will be propelled by petrochemicals, where consumption is forecast to increase by 4.5mbpd (+1.4% CAGR) over 2017-40. Oil demand in the rest of industry – primarily iron and steel, glass and cement production, construction and mining – is anticipated to see sustained competition from alternative fuels, mainly natural gas.

FIG 22 – SECTORAL OIL DEMAND

(mnbpd)	2017	2020	2025	2030	2035	2040	CAGR (2017-40) (%)
Road*	43.6	45.3	46.9	46.6	42.8	39.4	(0.5)
Aviation	6.3	6.7	7.5	7.9	8.6	9.0	1.6
Rail & domestic waterways	1.8	1.9	2.0	2.1	2.1	2.1	0.7
Marine bunkers	4.0	4.2	4.6	4.8	4.9	5.1	1.1
Transportation	55.7	58.1	61.0	61.4	58.4	55.6	0.0
Petrochemicals	13.0	13.9	14.8	15.9	16.8	17.5	1.4
Other industry	12.7	13.3	13.3	13.6	13.8	14.0	0.4
Industry	25.7	27.2	28.1	29.4	30.5	31.5	0.9
Residential/Comm./Agric.	10.6	11.1	11.6	12.0	12.2	12.3	0.7
Electricity generation	5.1	5.4	5.0	4.7	4.3	4.0	(1.1)
Other uses	15.6	16.5	16.6	16.7	16.5	16.2	0.2
World	97.0	101.8	105.7	107.5	105.4	103.3	0.3

Source: OPEC, IEA, BOBCAPS Research | *Based on our estimate of 30% EV penetration

About 52% of incremental oil demand growth is driven by light petroleum products

Dominance of light products to continue

As per OPEC, compared to last year's OECD Outlook, the faster expansion of the petrochemicals sector, the anticipated quicker penetration of EVs and less long-term diesel consumption growth in the marine sector post-IMO 2020 have altered the projected composition of oil demand. More than half of the incremental oil demand over 2018-40 is expected to be satisfied by light products, at 7.8mbpd out of global demand growth of 14.5mbpd.

Within light products, demand for ethane/LPG is set to increase by 3.3mbpd – the largest rise amongst all major products. Offtake of middle distillates is expected to rise by 5.5mbpd, almost equally shared between gasoil/diesel (as IMO 2020 kicks in) and jet/kerosene. Heavy products are projected to grow by just 1.2mbpd.

EVs on track to displace oil consumption

Our estimate of ~30% EV penetration in global passenger vehicle stock by 2040 is based on growth in EV inventory at a ~25% CAGR over 2018-40, extrapolated from automakers' (OEM) projections of ~100mn units of stock in 2025. We believe EVs will attain cost parity with internal combustion cars by 2022/23, once battery pack costs reduce to ~US\$ 100/kWh – an inflection point that will herald a paradigm shift in the auto industry and oil demand globally. Already in China, 90% of cars sold in the very small car segment in 2018 were EVs, up from 39% in 2016.

Improving EV economics to accelerate demand

Purchasing a standard medium-size EV is currently 40-50% more expensive than a conventional internal combustion engine (ICE) vehicle of similar size. On the flip side, extremely low running and maintenance costs generate a payback of 7-8 years for EVs. This can shrink further as battery costs (35-40% of manufacturing cost) continue to decline.

Battery prices have come off to US\$ 190/kWh from US\$ 1,000/kWh over the last 10 years. A key breakeven level at current oil prices would be US\$ 80-100/kWh (expected by 2022/23), after which EVs will enter the mainstream (ironically, this coincides with OEM EV sales projections).

Key drivers of battery costs are pack size (for range), production capacity (for economies of scale) and chemical composition

EVs generate range (km) at 5-6x the battery capacity (kwh) per charge. Only a few OEMs (Tesla) have reached 6.4x levels*

As technology advances and car design evolves, range delivery would be a crucial differentiator

*Refer Annexure A for EV range comparison

FIG 23 – EV ECONOMICS

Key assumptions	2019		2025	
Electricity charge (Rs/kWh)	0.086		0.100	
Battery capacity (kWh)	60*		100	
Battery pack cost (US\$/kWh)	190*		40	
Range (km)	354*		683	
USDINR (Rs)	70		81	
Petrol price (Rs/ltr)	75		87	
Cost of ownership (US\$)	ICE Sedan	BEV*	ICE Sedan	BEV*
Capital cost	21,429	32,000	19,500	20,317
Running costs yearly	3,796	2,436	3,275	1,591
Fuel/charging costs	1,653	196	1,325	169
Maintenance	1,071	640	975.00	406
Insurance	1,071	1,600	975	1,016
Total costs	25,224	34,436	22,775	21,908

Source: IEA, BOBCAPS Research | *Battery electric vehicle (BEV) data based on pricing/specifications for Tesla Model 3 sedan (being the most efficient as per industry data)

As per the International Energy Agency (IEA), battery costs of ~US\$ 100/kWh are necessary for EVs with a 200km range to be cost competitive with a conventional ICE vehicle at a fuel price of US\$ 0.8/ltr and 18,000km/year mileage. The cost parity threshold falls to US\$ 50/kWh for EVs with a 400km range, in the same mileage and fuel price conditions.

FIG 24 – EV COST SENSITIVITY – BATTERY COST VS. RANGE

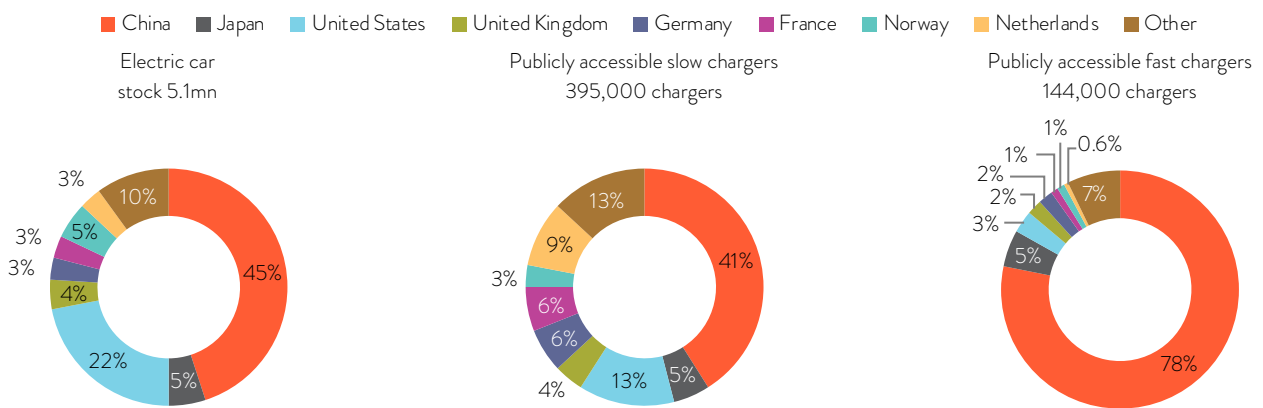
(US\$)		Battery pack cost (US\$/kWh)				
		80	120	160	200	240
Range (km)	400	22,639	25,144	27,649	30,154	32,660
	350	22,012	24,204	26,397	28,589	30,781
	300	21,386	23,265	25,224	27,023	28,902
	250	20,760	22,326	23,891	25,457	27,023
	200	20,134	21,386	22,639	23,891	25,144

Source: BOBCAPS Research

Charging infrastructure needs to pick up pace

Charging infrastructure, however, needs to pick up the pace. Globally, the number of publicly accessible battery chargers stood at ~540,000 in 2018, or ~1 for every 9 EVs – growth here has slowed to 24%/30%/80% YoY in 2018/17/16. China has the largest installed publicly accessible charging infrastructure, accounting for half of the global total. Worldwide, in 2018, around a third of the publicly accessible chargers installed were fast chargers. In China, almost half of the newly installed publicly accessible chargers were fast, whereas in Europe and the United States a large majority were slow chargers.

FIG 25 – GLOBAL PUBLIC CHARGING INFRASTRUCTURE, 2018



Source: IEA, BOBCAPS Research

EV stock set for 25% CAGR over 2018-40

Expect 30% EV penetration by 2040













All large global OEMs including the world's top 3 sellers – Toyota, GM and Volkswagen – have announced significant plans for EVs (Fig 11) that will drastically reshape the auto industry landscape. Harnessing OEM announcements of absolute sales, percentage targets and model rollouts (Fig 12), industry experts peg potential EV stock at 10-15mn units in 2020, rising to a range of 44-95mn units in 2025. We assume a 25.6% CAGR in EV stock to 750mn units over 2017-40, extending upon projections of 100mn units in stock by 2025.





FIG 26 – EV STOCK VS. OIL DEMAND

(mbpd)	2017	2020	2025	2030	2035	2040	CAGR (%)
EV stock @ 30% penetration (mn)	5	20	100	250	518	759	25.6
Oil demand affected by EVs	0.1	0.3	1.7	4.3	8.9	13.1	-
Road transportation sector demand (a + b)	43.6	45.3	46.9	46.6	42.8	39.4	(0.5)
Passenger cars (a)	25.0	26.4	27.0	25.8	21.32	17.3	(1.7)
Commercial vehicles (b)	18.6	18.9	19.9	20.8	21.5	22.1	0.8
Others	53.6	56.6	58.7	60.9	62.7	63.9	0.8
Total global oil demand	97.2	101.9	105.6	107.5	105.5	103.3	0.3

Source: BOBCAPS Research

FIG 27 – ORIGINAL EQUIPMENT MANUFACTURERS' EV PLANS

OEM	Announcements of EV model/sales plans	
	2020-25	2026 onward
	<ul style="list-style-type: none"> 15-25% of group sales and 25 new models by 2025 	
	<ul style="list-style-type: none"> 0.6mn volume sales in 2020 	
	<ul style="list-style-type: none"> 40 new models by 2022 	
	<ul style="list-style-type: none"> 20 new models by 2023 	
		<ul style="list-style-type: none"> 15% of sales in 2030
 	<ul style="list-style-type: none"> 12 new models by 2020 	
	<ul style="list-style-type: none"> 36000 sales in 2020 	
	<ul style="list-style-type: none"> One new model in 2020 	<ul style="list-style-type: none"> 5% of sales by 2030
	<ul style="list-style-type: none"> 0.1mn sales in 2020 10 new models by 2022 25% of group sales in 2025 	
	<ul style="list-style-type: none"> 12 new models by 2022 Renault – 20% sales share by 2022 Infiniti – all models electric by 2021 	
	<ul style="list-style-type: none"> One new model in 2020 35,000 sales in 2021 	<ul style="list-style-type: none"> Sales of 1.5mn in 2030

OEM	Announcements of EV model/sales plans	
	2020-25	2026 onward
	<ul style="list-style-type: none"> ~0.5mn sales in 2019 	<ul style="list-style-type: none"> A new model in 2020
	<ul style="list-style-type: none"> >10 new models by the early 2020s 	<ul style="list-style-type: none"> 1mn BEV and FCEV sales around 2030
	<ul style="list-style-type: none"> 0.4mn sales in 2020, up to 3mn in 2025 25% of group sales in 2025 with 80 new models 	<ul style="list-style-type: none"> 22mn cumulative sales by 2030
	<ul style="list-style-type: none"> 50% of group sales by 2025 	

Source: IEA

China, US and Europe leading the transition

Several governments worldwide have developed policy tools and established targets to foster EV deployment (see Annexure B for recent policy instruments and goals related to the electrification of light- and heavy-duty vehicles). China leads the global policy framework and has the most aggressive targets, followed by Europe, India and other developed countries. For China and India, higher adoption of EVs also offers a way out of overdependency on oil imports

FIG 28 – EV DEPLOYMENT IN SELECT REGIONS (UP TO 2018-19)

Particulars	Policy	Canada	China	EU	India	Japan	US
Regulations (vehicles)	ZEV mandate	✓*	✓	✗	✗	✗	✓*
	Fuel economy standards	✓	✓	✓	✓	✓	✓
Incentives (vehicles)	Fiscal incentives	✓	✓	✓	✓	✗	✓
Targets (vehicles)		✓	✓	✓	✓	✓	✓*
Industrial policies	Subsidy	✓	✓	✗	✗	✓	✗
Regulations (chargers)	Hardware standards**	✓	✓	✓	✓	✓	✓
	Building regulations	✓*	✓*	✓	✓	✗	✓*
Incentives (chargers)	Fiscal incentives	✓	✓	✓	✗	✓	✓*
Targets (chargers)		✓	✓	✓	✓	✓	✓*

Source: IEA | *Indicates implementation only at the state/local level. | **All countries/regions in the table have developed fundamental standards for electric vehicle supply equipment (EVSE). Some (China, EU, India) mandate specific minimum standards, while Canada, Japan and the US do not.

We highlight that the three main global EV markets (China, US and Europe) differ widely in terms of current availability of BEV models. The US has ~16 models (with ~0.36mn units sold in 2018), while Europe has twice as many (~0.38mn sales). China has the highest number, at ~114 models (~1.1mn sales).

China's automotive market is more fragmented in terms of manufacturers than Europe and the US, but houses a larger domestic electric car market. Very small cars in the country have already transitioned almost entirely to EVs – at 90% of the segment's sales in 2018, up from 39% in 2016. After a head start by China, policy action and interest in bus electrification has also spread swiftly across regions such as the EU, US and Canada during 2018 (in India, 7,000 electric buses are to be deployed under the FAME Phase-II scheme).

Annexures

Annexure A: Indian refining capacity

FIG 1 – INDIAN REFINING CAPACITY

(mmtpa)	Refinery	Installed Capacity*	FY16	FY17	FY18	FY19P	
IOCL	Barauni (1964)	6.0	6.5	6.5	5.8	6.7	
	Koyali (1965)	13.7	13.8	14.0	13.8	13.5	
	Haldia (1975)	7.5	7.8	7.7	7.7	8.0	
	Mathura (1982)	8.0	8.9	9.2	9.2	9.7	
	Panipat (1998)	15.0	15.3	15.6	15.7	15.3	
	Guwahati (1962)	1.0	0.9	0.9	1.0	0.9	
	Digboi (1901)	0.65	0.6	0.5	0.7	0.7	
	Bongaigaon(1979)	2.35	2.4	2.5	2.4	2.5	
	Paradip (2016)	15.0	1.8	8.2	12.7	14.6	
	IOCL-TOTAL		69.2	58.0	65.2	69.0	71.8
CPCL	Manali (1969)	10.5	9.1	9.8	10.3	10.3	
	CBR (1993)	1.0	0.5	0.5	0.5	0.4	
	CPCL-TOTAL		11.5	9.6	10.3	10.8	10.7
BPCL	Mumbai (1955)	12.0	13.4	13.5	14.1	14.8	
	Kochi (1966)	15.5	10.7	11.8	14.1	16.1	
BORL	Bina (2011)	7.8	6.4	6.4	6.7	5.7	
NRL	Numaligarh (1999)	3.0	2.5	2.7	2.8	2.9	
	BPCL-TOTAL		38.3	33.0	34.4	37.7	39.4
MRPL	Mangalore (1996)	15.0	15.5	16.0	16.1	16.2	
HPCL	Mumbai (1954)	7.5	8.0	8.5	8.6	8.7	
	Visakh (1957)	8.3	9.2	9.3	9.6	9.8	
HMEL	Bathinda (2012)	11.3	10.7	10.5	8.8	12.5	
	HPCL - TOTAL		27.1	27.9	28.3	27.1	30.9
RIL	Jamnagar (DTA) (1999)	33.0	32.4	32.8	33.2	31.8	
	Jamnagar (SEZ) (2008)	35.2	37.1	37.4	37.3	37.4	
NEL	Vadinar (2006)	20.0	19.1	20.9	20.7	18.9	
ALL INDIA		249.4	232.9	245.4	251.9	257.2	

 Source: Company, BOBCAPS Research | *As on 1st May 2019

Annexure B: EV range analysis

FIG 2 – EV RANGE COMPARABLES

INSIDE EVs		All-Electric Car Comparisons - US												
		Updated 2019-05-06												
Brand	Model	Base Price (MSRP)	Dest. Charge	Tax Credit	Price After Tax Credit	Battery Size (kWh)	EPA EV Range (mi)	0-60 mph (sec)	Top Speed (mph)	Peak Power (kW)	EPA Energy consumption combined	city	highway	Weight (lbs)
Audi	e-tron (2019)	AWD \$ 74,800	\$ 995	\$ 7,500	\$ 68,295	95.0	204	5.5	124	300	455	455	462	5,490
BMW	i3 (2019)	RWD \$ 44,450	\$ 995	\$ 7,500	\$ 37,945	42.2	153	7.2	93	125	298	272	330	2,965
BMW	i3s (2019)	RWD \$ 47,650	\$ 995	\$ 7,500	\$ 41,145	42.2	153	6.8	100	135	298	272	330	3,034
Chevrolet	Bolt EV (2019)	FWD \$ 36,620	\$ 875	\$ 3,750	\$ 33,745	60	238	6.5	90	150	283	263	306	3,580
Fiat	500e (2019)	FWD \$ 32,995	\$ 1,295	\$ 7,500	\$ 26,790	24	84	8.9	85	83	301	279	327	2,980
Honda	Clarity Electric (2019)	FWD lease only		\$ 7,500		25.5	89			120	296	267	327	4,024
Hyundai	IONIQ Electric (2019)	FWD \$ 30,315	\$ 920	\$ 7,500	\$ 23,735	28	124	9.9	102	88	248	225	276	3,164
Hyundai	Kona Electric (2019)	FWD \$ 36,950	\$ 1,045	\$ 7,500	\$ 30,495	64.0	258	7.6	104	150	281	255	312	3,715
Jaguar	I-PACE (2019)	AWD \$ 69,500	\$ 1,025	\$ 7,500	\$ 63,025	90.0	234	4.5	124	294	443	421	468	4,784
Kia	Niro EV (e-Niro) (2019)	FWD \$ 38,500	\$ 995	\$ 7,500	\$ 31,995	64.0	239	7.8	104	150	301	274	330	3,854
Kia	Soul EV (2019)	FWD \$ 33,950	\$ 995	\$ 7,500	\$ 27,445	30	111			81.4	312	272	362	4,321
Kia	Soul EV (e-Soul) (2020)	FWD		\$ 7,500		64	243	7.6		150	296	265	334	4,806
Nissan	LEAF (40 kWh) (2019)	FWD \$ 29,990	\$ 885	\$ 7,500	\$ 23,375	40	150	7.9	90	110	301	272	340	3,433
Nissan	LEAF e+ S (62 kWh) (2019)	FWD \$ 36,550	\$ 895	\$ 7,500	\$ 29,945	62	226			160	312	286	347	3,780
Nissan	LEAF e+ SV/SL (62 kWh) (2019)	FWD \$ 38,510	\$ 895	\$ 7,500	\$ 31,905	62	215			160	324	296	359	3,811
smart	EQ fortwo Coupe (2019)	RWD \$ 23,900	\$ 750	\$ 7,500	\$ 17,150	17.6	58	11.4	81	60	312	272	359	2,363
smart	EQ fortwo Cabrio (2019)	RWD \$ 28,100	\$ 750	\$ 7,500	\$ 21,350	17.6	57	11.7	81	60	330	301	370	
Tesla	Model 3 Standard Range (2019)	RWD \$ 35,000	\$ 1,200	\$ 3,750	\$ 32,450	59.5	220	5.6	130		257	244	272	3,627
Tesla	Model 3 Standard Range Plus (2019)	RWD \$ 39,500	\$ 1,200	\$ 3,750	\$ 36,950	59.5	240	5.3	140		253	241	272	3,627
Tesla	Model 3 Long Range RWD (2019)	RWD \$ 44,500	\$ 1,200	\$ 3,750	\$ 41,950	80.5	325	5.0	140		259	248	274	
Tesla	Model 3 Long Range AWD (2019)	AWD \$ 49,500	\$ 1,200	\$ 3,750	\$ 46,950	80.5	310	4.5	145		291	281	301	4,072
Tesla	Model 3 Performance LR AWD (2019)	AWD \$ 59,500	\$ 1,200	\$ 3,750	\$ 56,950	80.5	310	3.2	162		291	281	301	4,072
Tesla	Model S Standard Range (2019)	AWD \$ 78,000	\$ 1,200	\$ 3,750	\$ 75,450	75	285	4.0	155					4,769
Tesla	Model S Long Range (2019)	AWD \$ 88,000	\$ 1,200	\$ 3,750	\$ 85,450	100	370	3.7	155		304	293	315	4,883
Tesla	Model S Performance (2019)	AWD \$ 99,000	\$ 1,200	\$ 3,750	\$ 96,450	100	345	3.0	163					4,941
Tesla	Model S Performance LM (2019)	AWD \$ 119,000	\$ 1,200	\$ 3,750	\$ 116,450	100	345	2.4	163					4,941
Tesla	Model X Standard Range (2019)	AWD \$ 83,000	\$ 1,200	\$ 3,750	\$ 80,450	75	250	4.6	155					5,307
Tesla	Model X Long Range (2019)	AWD \$ 93,000	\$ 1,200	\$ 3,750	\$ 90,450	100	325	4.4	155					5,421
Tesla	Model X Performance (2019)	AWD \$ 104,000	\$ 1,200	\$ 3,750	\$ 101,450	100	305	3.4	163					5,531
Tesla	Model X Performance LM (2019)	AWD \$ 124,000	\$ 1,200	\$ 3,750	\$ 121,450	100	305	2.7	163					5,531
Volkswagen	e-Golf (2019)	FWD \$ 31,895	\$ 895	\$ 7,500	\$ 25,290	35.8	125	9.6	93	100	283	267	304	3,455

Source: INSIDE EVs

Annexure C: Policy support for EVs

FIG 3 – GLOBAL GOVERNMENT POLICY MEASURES FOR ELECTRIC LIGHT- (LDV) & HEAVY-DUTY (HDV) VEHICLES

Country/Region	Key policy measures and targets	Announced	Source
ASIA			
China (EV30@30** signatory)	<ul style="list-style-type: none"> NEV (neighbourhood electric vehicle) sales share roadmap: 7-10% by 2020, 15-20% by 2025, 40-50% by 2030 5mn EV sales by 2020, of which 0.4mn buses & 0.2mn trucks 	2015-2017	Marklines and Government of China
	<ul style="list-style-type: none"> Tighter LDV fuel economy standard (4ltr/100km by 2025) Improvement in HDV fuel economy by 15% by 2021 (vs. 2015) 	2016-2019	ICCT (2016) and Government of China (2019)
India	<ul style="list-style-type: none"> 30% EV sales in LDVs and 100% in urban buses by 2030 (across modes) 	2018	Government of India (2018)
	<ul style="list-style-type: none"> Public procurement from Energy Efficiency Services (EESL); target of 500,000 vehicles FAME phase-2 includes incentive scheme for electric buses# 	2018	
Japan (EV30@30 signatory)	<ul style="list-style-type: none"> Reduction of 80% of GHG emissions per LDV produced by Japanese automakers by 2050 	2018	Government of Japan (2018)
	<ul style="list-style-type: none"> 19.7% reduction in specific fuel consumption for LDVs by 2020 vs. 2009, and additional 23.8% between 2020 and 2030. Improvement in fuel economy by 13.4% for trucks and 14.3% for buses (vs. 2015) 	2011 and 2019	ECCJ (2011) and Government of Japan (2019a)

Country/Region	Key policy measures and targets	Announced	Source
Korea	<ul style="list-style-type: none"> 430,000 BEVs and 67,000 FCEVs (fuel cell electric vehicles) on the road by 2022 (all LDVs) 	2019	Government of Korea (2019)
	<ul style="list-style-type: none"> Subsidies and rebates on acquisition taxes, reduced toll fees and parking fees (for LDVs) 	2018	Korean Environment Corporation (2019)
EUROPE			
European Union	<ul style="list-style-type: none"> Emission standards for CO₂/km of LDVs/HDVs, requiring 15% reduction between 2021 and 2025, and 37.5% (30% for vans) by 2030 	2019	European Council (2019)
	Revision of the Clean Vehicles Directive on public procurement: <ul style="list-style-type: none"> LDV: Minimum requirements of 17.6%/38.5% in 2025/2030 HDV: 24-45% in 2025 and 33-65% by 2030 	2018	European Parliament (2019)
France (EV30@30 signatory) – LDVs	<ul style="list-style-type: none"> Ban on sales of new cars emitting GHG in 2040 	2017	Government of France (2017)
	<ul style="list-style-type: none"> 5x BEV sales in 2022 compared to 2017 	2018	Government of France (2018)
	<ul style="list-style-type: none"> Fleet of 1mn BEVs and PHEVs (plug-in hybrid electric vehicles) in 2022 	2018	
Netherlands (EV30@30 signatory)	<ul style="list-style-type: none"> 100% ZEV sales in PLDVs (passenger light-duty vehicles) by 2030 100% electric bus purchases by 2025 100% electric bus stock by 2030 	2016-2017	Dutch government (2016-17)
Norway	<ul style="list-style-type: none"> 100% EV sales in PLDVs and LCVs by 2025 100% purchase of urban EV buses by 2025 75% share of long-distance buses and 50% in trucks by 2030 	2016	Government of Norway (2016)
Sweden (EV30@30 signatory)	<ul style="list-style-type: none"> CO₂ reduction from transport by 70% in 2030 vs. 2010 Net zero GHG emissions by 2045 	2017	Government of Sweden (2017)
United Kingdom (EV30@30 signatory)	<ul style="list-style-type: none"> 50-70% EV sales in PLDVs by 2030 	2018	Government of UK (2018)
	<ul style="list-style-type: none"> Ban sales of new ICE cars from 2040 		
	<ul style="list-style-type: none"> 30% improvement in fuel economy of HDVs 		
N. AMERICA			
Canada (EV30@30 signatory)	<ul style="list-style-type: none"> 10% ZEV sales in PLDVs from 2025, 30% from 2030 and 100% from 2040 	2019	Government of Canada (2019)
United States (select states)	<ul style="list-style-type: none"> 3.3mn EVs in 8 states combined by 2025 	2014	ZEV PITF (2014)
	<ul style="list-style-type: none"> Mandate of 22% ZEV (zero-emission vehicle) credit sales in passenger cars and light duty trucks by 2025 in 10 states 	2016	ZEV PITF (2014)
	<ul style="list-style-type: none"> California: 1.5mn ZEVs and 5mn ZEVs by 2030 	2016	State of California (2018, 2016)

Source: IEA | ** The **EV30@30** campaign was launched at the 8th CEM (Clean Energy Ministerial) in Jun'17 with the goal of accelerating EV deployment and a target of at least 30% new EV sales by 2030. The campaign currently totals 11 member countries and 29 supporting companies & organisations. #Phase-II of the **FAME India Scheme** (Faster Adoption and Manufacturing of Electric Vehicles in India), called FAME 2, was announced in Mar'19 to encourage adoption of EVs by way of market creation and demand aggregation. FAME 2 has a subsidy outlay of Rs 100bn spread over FY20-FY22, supporting ~1mn electric two-wheelers, 0.5mn three-wheelers, 55,000 commercial/fleet electric cars and 7,000 electric buses.

Annexure D: Battery metal demand

FIG 4 – BATTERY METAL DEMAND

	Lithium	Cobalt	Nickel	Copper
Known material resources	61.8mt	27mt	300mt (onshore)	2.1gt
Cum. demand from EVs by 2030 in the NPS	0.97mt	1.1mt	5.3	6.4mt
Cum. demand in the EV30@30	1.9mt	2.1mt (50% of global demand was from battery market in 2016)	11mt	12mt (battery only)

Source: IEA



Companies

BUY

TP: Rs 1,500 | ▲ 15%

RELIANCE INDUSTRIES

Oil & Gas

02 October 2019

Cyclicals geared up for IMO, with a plan to tackle EVs threat

Reliance Industries' (RIL) refinery looks best equipped to take advantage of IMO regulations considering its high complexity, flexibility to enhance middle-distillate yields, and start-up of petcoke gasifiers. In the 2019 Annual Report, management tacitly acknowledges EVs as a serious threat to oil demand by charting out long-term plans to enhance RIL's oil-to-chemicals conversion ratio to >70%. This would hedge against any EV-led oil demand transition and also enhance petchem output. Maintain BUY – cyclicals seem well equipped to tackle.

Rohit Ahuja | Harleen Manglani

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Refining – geared up for IMO: RIL's refinery seems well equipped for IMO, considering its improved complexity (21.1 vs. 12 in FY08), and expected start-up of petcoke gasifier plants that provide GRM advantage (of ~US\$ 2/bbl). Over the long term, RIL's oil-to-chemicals programme will be implemented based on market outlook and price triggers for refinery fuel products, with management targeting >70% conversion of crude to competitive chemical building blocks (olefins and aromatics).

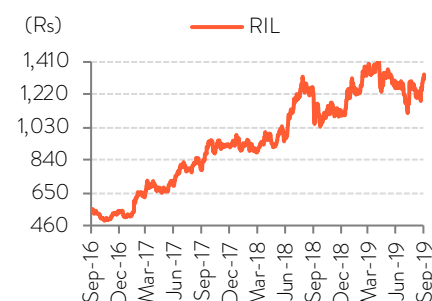
Petrochemicals – long-term capex driver: The petchem segment appears to be the most insulated from the EV threat, as polymers/ polyesters are building blocks of economic activity. RIL's strategy to enhance the oil-to-chemicals ratio would entail fresh petchem capacities of 40-45mmtpa over 10 years (~US\$ 30bn capex), heralding the next capex wave for the company (after RJio). We believe RIL management would ideally play out the GRM upcycle post IMO (that could last 5-7 years), before finalising the transition to chemicals.

Maintain BUY: We maintain Sep'21 SOTP-based TP of Rs 1,500, that factors in deleveraging initiatives, viz. the stake sale to Saudi Aramco, etc. that would yield US\$ 16bn in cash inflow for the company in FY21.

Ticker/Price	RIL IN/Rs 1,305
Market cap	US\$ 108.7bn
Shares o/s	5,927mn
3M ADV	US\$ 163.2mn
52wk high/low	Rs 1,418/Rs 1,016
Promoter/FPI/DII	47%/24%/28%

Source: NSE

STOCK PERFORMANCE



Source: NSE

KEY FINANCIALS

Y/E 31 Mar	FY18A	FY19E	FY20E	FY21E	FY22E
Total revenue (Rs mn)	4,082,650	5,810,200	5,850,491	6,258,502	6,220,154
EBITDA (Rs mn)	641,760	839,180	978,321	1,302,947	1,591,738
Adj. net profit (Rs mn)	352,869	398,370	482,791	641,515	844,017
Adj. EPS (Rs)	59.6	67.2	81.5	108.3	142.4
Adj. EPS growth (%)	17.4	12.8	21.2	32.9	31.6
Adj. ROAE (%)	12.7	11.7	11.8	15.3	18.8
Adj. P/E (x)	21.9	19.4	16.0	12.1	9.2
EV/EBITDA (x)	15.2	11.3	10.6	7.9	6.3

Source: Company, BOBCAPS Research

Refining & Marketing

GRM advantage on high complexity, petcoke gasifiers

RIL's GRMs had peaked at US\$ 14.5/bbl in FY08 when diesel spreads crossed US\$ 30/bbl. History could repeat itself in FY20/FY21 considering the surge in diesel demand expected post IMO 2020 regulations. This time, RIL looks better equipped in terms of (a) enhanced refining capacity (~70mtpa vs. ~33mtpa in FY08), (b) higher complexity (21.1 vs. 12 in FY08), and (c) start-up of petcoke gasifier plants that provide a ready GRM advantage (of ~US\$ 2/bbl).

GRMs can cross record high of US\$ 14.5/bbl post IMO 2020 on quality upgrades and start-up of petcoke gasifiers

We have assumed GRMs at US\$ 12/bbl for FY21/FY22, up from US\$ 8/bbl currently. An above-estimated spike in GRM levels would represent an upside risk to our earnings estimates and fair value. Despite the surge in earnings from RJio and Retail, the refining business is expected to continue contributing 25% to RIL's EBITDA over FY21/FY22.

FIG 1 – VALUATION/EARNINGS SENSITIVITY TO GRMs

GRMs (US\$/bbl) (our estimates at \$12)	Fair value (Rs/share)	Chg in EBITDA (%)		Chg in EPS (%)		Fair value chg (%)
		FY21	FY22	FY21	FY22	
10	1,411	(5.5)	(4.5)	(8.3)	(7.2)	(6.0)
11	1,456	(2.8)	(2.3)	(4.2)	(3.6)	(3.0)
13	1,547	2.8	2.3	4.2	3.6	3.0
14	1,593	5.5	4.5	8.3	7.2	6.1
15	1,638	8.3	6.8	12.5	10.8	9.1
16	1,684	11.0	9.0	16.6	14.5	12.1

Source: BOBCAPS Research | Note: Our assumptions are GRMs of US\$ 12/bbl, consolidated EPS at Rs 108/Rs 135 for FY21/FY22; EBITDA at Rs 1,302bn/Rs 1,592bn for FY21/FY22, Fair value at Rs 1,500

Petcoke gasification – awaiting start-up

As per the annual report, RIL claims all units of the gasification complex have been started safely, including air separation units, material handling systems, gasifier islands, syngas shift and processing facilities, sulfur recovery units, and associated utilities and offsites. The gasification complex is currently in the stabilisation phase, but after over a year's delay from earlier guidance, there is still no clarity on commercial commissioning of the petcoke gasifiers.

If GRMs were to sustain at >US\$ 12/bbl levels long term, we could see RIL delaying its oil-to-chemicals plan

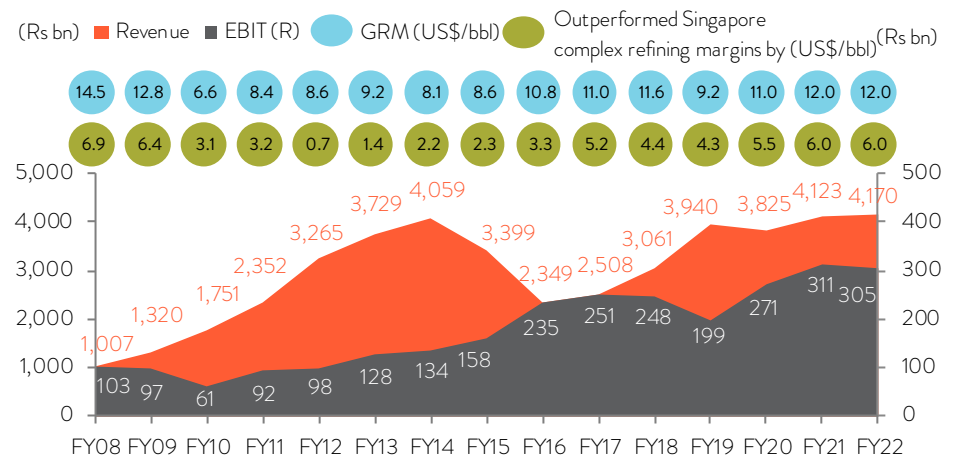
But being the ideal hedge against the EV threat, this plan will invariably be implemented

Refining – long-term focus on raising oil-to-chemicals ratio

Over the long term, RIL’s oil-to-chemicals programme will be implemented based on market outlook and price triggers for refinery fuel products, with management targeting >70% conversion of crude to competitive chemical building blocks (olefins and aromatics). The economics of this programme work if GRMs trend below US\$ 10/bbl and petchem spreads remain close to current levels (EBITDA at ~US\$ 120/mt). However, if GRMs sustain above anticipated post IMO levels of US\$ 12/bbl for the long term, the case for oil-to-chemicals would weaken.

We believe RIL’s management would ideally play out the GRM upcycle post IMO (that could last 5-7 years), before finalising the transition to chemicals. In the initial stage, RIL aims to eliminate all negative GRM product output. Final fuel derisking shall target elimination of gasoline, alkylate and diesel, synchronised to the global evolution of e-mobility and decline in transport fuel demand. The Jamnagar refinery product slate, at the culmination of oil-to-chemical transition, shall comprise only jet fuels and petrochemicals.

FIG 2 – REFINING BUSINESS PERFORMANCE



Source: Company, BOBCAPS Research

Saudi Aramco deal faces many hurdles – may take longer than expected

Saudi Aramco investment

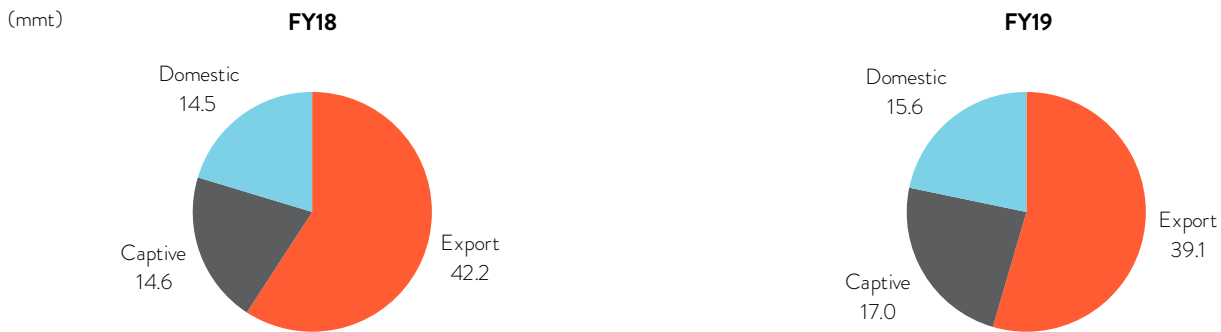
RIL’s announcement of Saudi Aramco’s proposed US\$ 15bn investment toward a 20% stake in the oil-to-chemicals business is being positioned as a major step towards deleveraging. However, this deal has a long way to go considering (a) it is only a non-binding letter of intent (LOI) and hence all parameters (including valuations) are open for negotiation, (b) some terms – including supply of 500kbpd oil to RIL’s Jamnagar refinery – may be difficult to meet in the wake of recent supply disruptions for Aramco, and (c) RIL is yet to transfer its refining and petchem units into a separate subsidiary, process for which could delay the investment inflow.

Market share gains

RIL has ~1,400 petroleum retail outlets covering all the country’s key highways. The company has gained market share in both diesel and gasoline – registering 9.1% YoY growth in retail diesel sales and 21.8% growth in retail gasoline in FY19, compared to 2.6% and 8.1% for industry respectively.

Bulk diesel volumes for the industry grew 5.1% YoY in FY21 in spite of the concerns around growing electrification (in railways). RIL far outpaced the industry, with bulk diesel volumes rising 21.7% YoY and market share increasing to 8.5%. Its non-railway business grew 34% YoY. RIL’s ATF sales increased 9.3% YoY and the company has expanded its Aviation Fuel Station network to 30 in FY19, with plans to add another 10 in the near term.

FIG 3 – REFINERY PRODUCT SALES



Source: BOBCAPS Research, Company

Petrochemicals

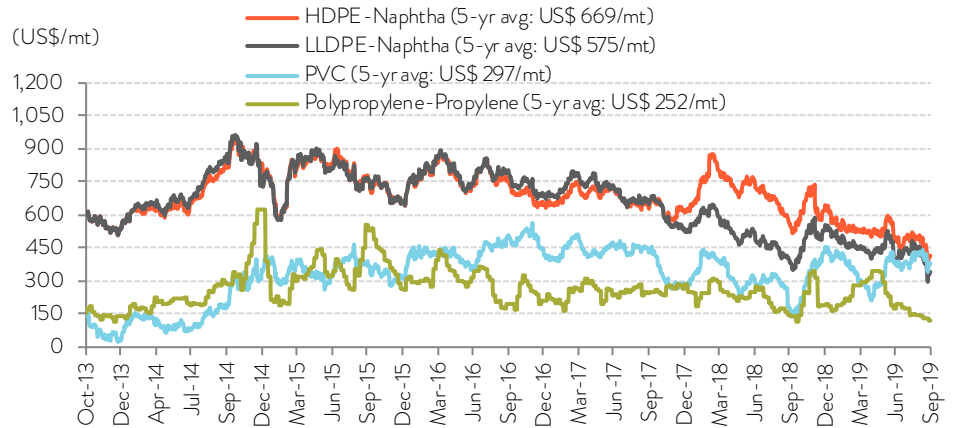
Petchem margins – near-term headwinds

Petchem margins could remain muted near term

RIL’s petchem business earnings have been driven by the commissioning of three key projects: ROGC, PX expansion, and PET/PFY expansion. The next phase of capex would be dependent on the oil-to-chemicals conversion strategy.

The recent decline in polymer spreads has stemmed from the economic slowdown, especially in China. Polymers form ~40% of RIL’s output and hence a decline in deltas here could pressurise overall EBITDA. Commissioning of the ROGC project in FY18 has added ~Rs 20bn/year to RIL’s petchem EBIT.

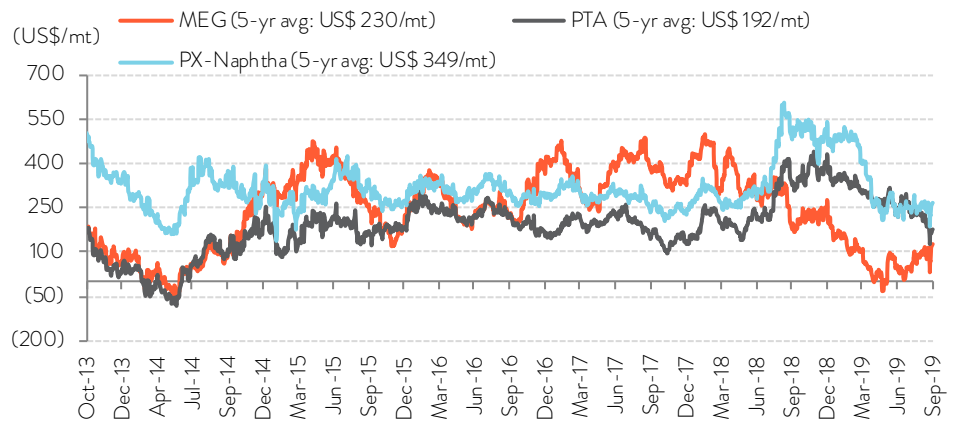
FIG 4 – POLYMER SPREADS



Source: BOBCAPS Research, Bloomberg

Polyester margins are expected to outperform polymers in light of global capacity constraints, especially for PX. RIL’s recent 2mmtpa PX expansion offers additional margin deltas (of ~US\$ 100/mt) on integration with other downstream units.

FIG 5 – POLYESTER INTERMEDIARY SPREADS



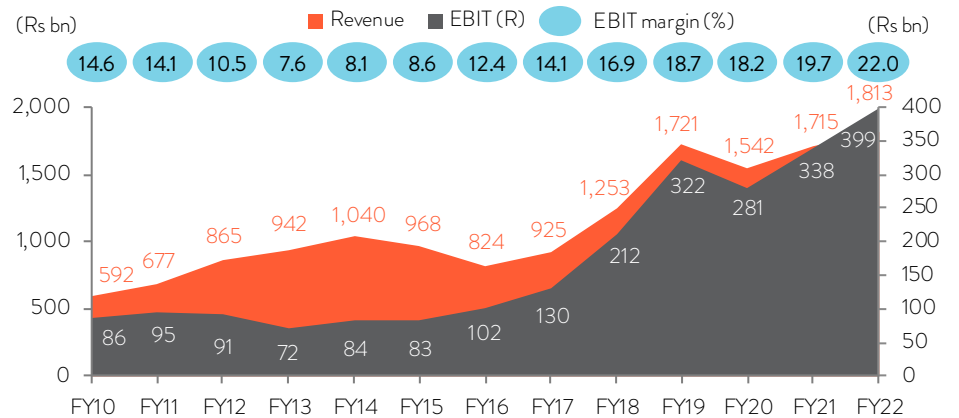
Source: Bloomberg, BOBCAPS Research

RIL PETROCHEMICAL PRODUCTION

Production (mmt)	FY19	FY18
PP	2.9	2.8
PE	2.1	1.4
PVC	0.7	0.7
Ethylene	3.7	2.6
POY	1.1	1.1
PSF	0.7	0.7
PET	1.2	1.1
PX	4.3	3.7
PTA	4.9	4.7
MEG	1.7	1.2
Butadiene	0.2	0.2
PBR	0.1	0.1
SBR	0.1	0.1

Source: Company, BOBCAPS Research

FIG 6 – RIL PETROCHEMICALS PERFORMANCE



Source: Company, BOBCAPS Research

Valuation methodology

RIL is trading at 12x/10x FY21E/FY22E EPS, after rerating from 9-10x levels over the last one year. Cyclical businesses form ~55% of total EBITDA forecast over FY21/FY22 and can rerate after IMO regulation rollout.

Every US\$ 1/bbl improvement in GRMs could drive our fair value up by ~Rs 50/sh (~3% move). Our assumption of US\$ 12/bbl GRMs in FY21/FY22 assumes diesel-FO spreads of US\$ 40/bbl, which is conservative considering that we have seen historical highs of ~US\$ 75/bbl in phases of high diesel demand growth.

Our SOTP valuation for RIL is outlined below:

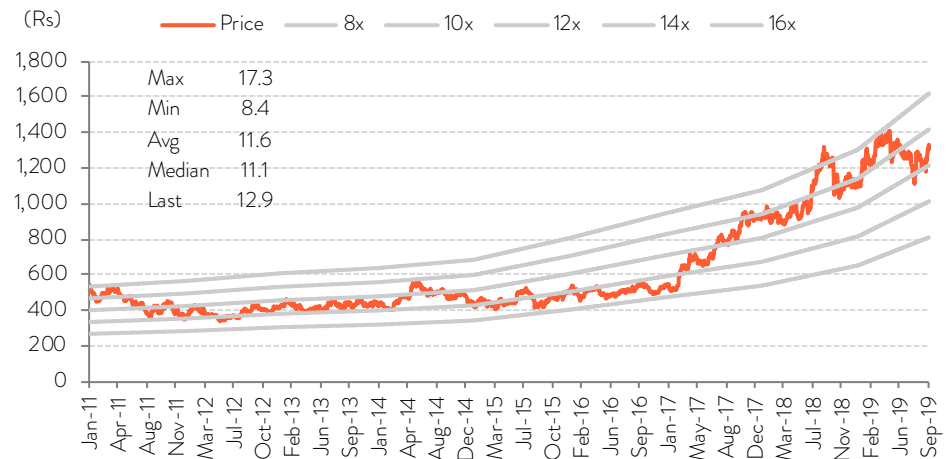
- **Cyclicals:** We value the refining (Rs 410/sh) and petrochemical (Rs 497/sh) businesses at 7x and 8x Sep'21E EBITDA respectively (at par with global peers).
- **RJio:** RJio is valued at Rs 548/sh based on 7x Sep'21E EBITDA of Rs 500bn.
- **Retail:** The retail business is assessed at 17.5x Sep'21E EBITDA.
- **E&P:** We build in the DCF value of the KG-D6 block and development of oil & gas reserves in the R-series block. The PMT field is valued at 7x Sep'21E EV/ EBITDA and the shale business is assessed on residual reserves at US\$ 2/boe.

FIG 7 – SOTP VALUATION SUMMARY

Business	Fair Value		Value/share (Rs)	Comments
	(US\$ bn)	(Rs bn)		
Refining	38	2,430	410	7x Sep'21E EBITDA
Petrochem	46	2,948	497	8x Sep'21E EBITDA
Cyclical business value	83	5,378	908	7.6x Sep'21E EBITDA
E&P business	2	120	20	Includes KG-D6, shale and PMT
Jio	50	3,249	548	6.5x Sep'21E EBITDA
Reliance Retail	44	2,810	474	17.5x Sep'21E EBITDA
Enterprise value	179	11,559	1,951	
Net Debt	41	2,660	449	Consol. net debt incl. current liabilities
Equity value	138	8,898	1,500	~11x FY22E EPS

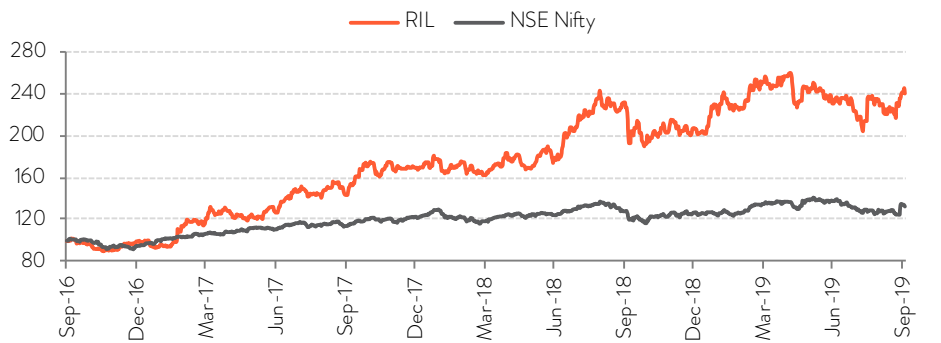
Source: BOBCAPS Research

FIG 8 – ROLLING ONE-YEAR FORWARD P/E BAND



Source: BOBCAPS Research, Company

FIG 9 – RELATIVE STOCK PERFORMANCE



Source: NSE

Key risks

- **Global slowdown:** RIL’s valuations are highly sensitive to GRM and petrochemical crack movements. A slowdown in global economies can affect these spreads and hurt our valuation outlook.
- **Lower operating margins in RJio:** We factor in an aggressive ramp-up in RJio’s subscriber numbers (>500mn) and ARPUs (~Rs 160/mth) by FY22. Operating margins could trend well below our estimates if the pricing war among telecom operators sustains beyond FY19. The telecom business also carries regulatory risks pertaining to tariffs and spectrum usage that could hamper RJio’s earnings outlook.
- **Lower growth in retail business revenues:** RIL has been significantly outperforming estimates on retail business revenue growth. Economic slowdown could affect the outlook on retail revenues and hurt valuations.

FINANCIALS

Income Statement

Y/E 31 Mar (Rs mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Total revenue	4,082,650	5,810,200	5,850,491	6,258,502	6,220,154
EBITDA	641,760	839,180	978,321	1,302,947	1,591,738
Depreciation	(167,060)	(209,340)	(275,192)	(310,474)	(334,045)
EBIT	474,700	629,840	703,129	992,473	1,257,693
Net interest income/(expenses)	(80,520)	(164,950)	(195,252)	(247,195)	(255,595)
Other income/(expenses)	88,620	86,350	138,365	113,112	111,194
Exceptional items	10,870	0	0	0	0
EBT	482,800	551,240	646,242	858,390	1,113,291
Income taxes	(133,460)	(153,900)	(163,451)	(216,876)	(269,274)
Min. int./Inc. from associates	590	1,030	0	0	0
Reported net profit	360,800	398,370	482,791	641,515	844,017
Adjusted net profit	352,869	398,370	482,791	641,515	844,017

Balance Sheet

Y/E 31 Mar (Rs mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Accounts payables	1,068,610	1,083,090	968,357	875,544	878,275
Other current liabilities	1,688,780	1,442,530	1,442,530	1,442,530	1,442,530
Provisions	41,380	41,820	58,421	64,693	72,066
Debt funds	1,816,040	2,719,420	2,719,420	2,519,420	2,519,420
Other liabilities	498,280	687,620	697,095	704,774	706,581
Equity capital	59,220	59,260	59,260	59,260	59,260
Reserves & surplus	2,871,300	3,813,090	4,242,327	4,005,866	4,840,937
Shareholders' fund	2,930,520	3,872,350	4,301,587	4,065,126	4,900,197
Total liabilities and equities	8,079,000	9,929,630	10,280,211	9,774,887	10,631,869
Cash and cash eq.	42,550	75,120	150,384	150,385	241,879
Accounts receivables	175,550	300,890	307,008	292,269	290,740
Inventories	608,370	675,610	618,213	571,782	573,148
Other current assets	514,840	744,760	814,802	776,425	772,865
Investments	828,620	2,354,880	1,954,880	1,954,880	1,954,880
Net fixed assets	3,980,720	3,863,770	4,954,282	4,531,305	5,290,517
CWIP	1,870,220	1,794,630	1,350,671	1,357,871	1,357,871
Intangible assets	58,130	119,970	129,970	139,970	149,970
Total assets	8,079,000	9,929,630	10,280,210	9,774,887	10,631,869

Source: Company, BOBCAPS Research

Cash Flows

Y/E 31 Mar (Rs mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Net income + Depreciation	507,120	605,860	757,983	951,989	1,178,062
Changes in working capital	598,380	(653,830)	(116,894)	13,005	13,828
Other operating cash flows	(70,660)	116,700	(128,890)	(105,433)	(109,387)
Cash flow from operations	1,034,840	68,730	512,199	859,561	1,082,503
Capital expenditures	(812,550)	(14,950)	(930,445)	105,303	(1,093,257)
Change in investments	13,010	(1,331,060)	410,000	10,000	10,000
Other investing cash flows	85,190	(47,010)	138,365	113,112	111,194
Cash flow from investing	(714,350)	(1,393,020)	(382,080)	228,415	(972,063)
Equities issued/Others	570	40	0	0	0
Debt raised/repaid	(240,930)	917,090	0	(200,000)	0
Dividends paid	(39,160)	(42,810)	(54,854)	(58,421)	(64,693)
Other financing cash flows	(28,650)	482,540	0	259,934	45,747
Cash flow from financing	(308,170)	1,356,860	(54,854)	1,513	(18,946)
Changes in cash and cash eq.	12,320	32,570	75,264	1,089,489	91,494
Closing cash and cash eq.	42,550	75,120	150,384	1,239,873	241,879

Per Share

Y/E 31 Mar (Rs)	FY18A	FY19A	FY20E	FY21E	FY22E
Reported EPS	60.9	67.2	81.5	108.3	142.4
Adjusted EPS	59.6	67.2	81.5	108.3	142.4
Dividend per share	6.0	7.7	8.2	9.1	10.1
Book value per share	494.9	653.5	725.9	686.0	826.9

Valuations Ratios

Y/E 31 Mar (x)	FY18A	FY19A	FY20E	FY21E	FY22E
EV/Sales	2.4	1.6	1.8	1.6	1.6
EV/EBITDA	15.2	11.3	10.6	7.9	6.3
Adjusted P/E	21.9	19.4	16.0	12.1	9.2
P/BV	2.6	2.0	1.8	1.9	1.6

DuPont Analysis

Y/E 31 Mar (%)	FY18A	FY19A	FY20E	FY21E	FY22E
Tax burden (Net profit/PBT)	71.5	72.3	74.7	74.7	75.8
Interest burden (PBT/EBIT)	104.0	87.5	91.9	86.5	88.5
EBIT margin (EBIT/Revenue)	11.6	10.8	12.0	15.9	20.2
Asset turnover (Revenue/Avg TA)	53.7	64.5	57.9	62.4	61.0
Leverage (Avg TA/Avg Equity)	2.7	2.6	2.5	2.4	2.3
Adjusted ROAE	12.7	11.7	11.8	15.3	18.8

Source: Company, BOBCAPS Research | Note: TA = Total Assets

Ratio Analysis

Y/E 31 Mar	FY18A	FY19A	FY20E	FY21E	FY22E
YoY growth (%)					
Revenue	33.7	42.3	0.7	7.0	(0.6)
EBITDA	38.9	30.8	16.6	33.2	22.2
Adjusted EPS	17.4	12.8	21.2	32.9	31.6
Profitability & Return ratios (%)					
EBITDA margin	15.7	14.4	16.7	20.8	25.6
EBIT margin	11.6	10.8	12.0	15.9	20.2
Adjusted profit margin	8.6	6.9	8.3	10.3	13.6
Adjusted ROAE	12.7	11.7	11.8	15.3	18.8
ROCE	7.3	7.9	7.6	10.7	13.4
Working capital days (days)					
Receivables	12	15	19	17	17
Inventory	73	58	62	63	61
Payables	97	79	77	68	69
Ratios (x)					
Gross asset turnover	0.9	1.0	0.9	0.9	0.8
Current ratio	0.4	0.6	0.6	0.6	0.7
Net interest coverage ratio	5.9	3.8	3.6	4.0	4.9
Adjusted debt/equity	0.6	0.7	0.6	0.6	0.5

Source: Company, BOBCAPS Research

BUY

TP: Rs 265 | ▲ 78%

INDIAN OIL CORP

Oil & Gas

02 October 2019

GRM outperformance likely to sustain

Among OMCs, we find IOCL's refining segment best placed to take advantage of upcoming IMO regulations considering its high middle-distillate yields. With Paradip refinery stabilising at >95% utilisation and start-up of the PP unit, IOCL looks set to deliver high GRMs. The company plans to sell ~2mmtpa of marine gas oil (MGO) output from H2FY20 that could add to margins post IMO. Further, BPCL's privatisation plan diminishes marketing segment risk, driving our Sep'20 TP for IOCL higher to Rs 265 (from 205). Maintain BUY.

Rohit Ahuja | Harleen Manglani

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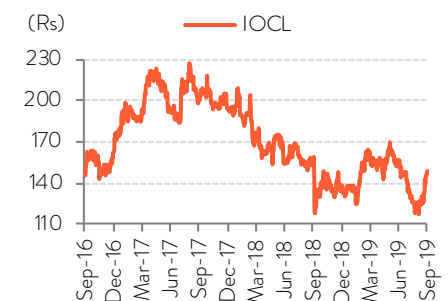
Gearing up for IMO-led GRM uptick: IOCL has one of the highest diesel yields among OMC peers, at ~46%, putting it in an advantageous position in the likely event of a surge in diesel margins post-IMO 2020. But unlike RIL, IOCL's refineries have limited flexibility to process heavy crude oil varieties due to their lower complexity. Hence, its GRMs are not expected to rocket as high as those of RIL, but could still outperform OMC peers on scale-up of Paradip refinery margins.

Ticker/Price	IOCL IN/Rs 149
Market cap	US\$ 20.3bn
Shares o/s	9,712mn
3M ADV	US\$ 31.8mn
52wk high/low	Rs 171/Rs 105
Promoter/FPI/DII	52%/8%/40%

Source: NSE

Paradip stabilising; capex for other refineries to augment complexity: Paradip refinery utilisation has normalised to ~100% now. Complexity of the refinery will rise with recent commissioning of the 680ktpa PP unit and further with addition of the MEG project (Rs 56bn capex) over 2-3 years. IOCL has planned 17mmtpa of brownfield expansion at its Gujarat, Panipat and Barauni refineries over 3-5 years. This would also augment GRMs by improving complexity. Over a longer horizon, management's strategy is to raise distillate yields across its refineries to >85%, which could boost its performance over benchmark Singapore GRMs.

STOCK PERFORMANCE



Marketing business adds value: With BPCL's privatization being approved, we value IOCL's marketing business at 5x Sept'21E EBITDA, at Rs61/sh.

KEY FINANCIALS

Y/E 31 Mar	FY18A	FY19A	FY20E	FY21E	FY22E
Total revenue (Rs mn)	42,14,918	52,81,489	64,13,330	75,52,485	82,54,512
EBITDA (Rs mn)	4,16,275	3,52,227	3,75,443	4,24,061	4,65,420
Adj. net profit (Rs mn)	2,21,911	1,73,837	1,95,119	2,14,158	2,35,770
Adj. EPS (Rs)	23.4	18.9	21.3	23.3	25.7
Adj. EPS growth (%)	11.7	(19.1)	12.2	9.8	10.1
Adj. ROAE (%)	20.6	15.4	17.2	18.1	18.7
Adj. P/E (x)	6.3	7.8	7.0	6.4	5.8
EV/EBITDA (x)	5.0	5.9	6.3	5.3	5.1

Source: Company, BOBCAPS Research

FIG 1 – OMC SALES VOLUME GROWTH VS. INDUSTRY

Petroleum products (mmt)	Q4FY19				FY19			
	IOCL YoY growth (%)	BPCL YoY growth (%)	HPCL YoY growth (%)	Industry YoY growth (%)	IOCL YoY growth (%)	BPCL YoY growth (%)	HPCL YoY growth (%)	Industry FY19 YoY growth (%)
LPG	10.7	14.7	12.5	11.8	6.4	8.3	7.2	6.7
MS	8.2	8.0	8.5	9.4	6.7	6.4	6.8	8.1
HSD	2.3	1.4	2.9	3.5	1.5	1.6	2.1	2.9
SKO	(8.3)	7.1	-	(9.1)	(9.8)	(3.2)	(1.7)	(10.1)
ATF	6.7	2.0	15.0	6.8	7.7	11.2	19.2	9.0
FO/LSHS	(2.6)	-	(11.9)	1.0	(0.8)	-	(2.8)	(3.1)
Others	4.7	8.3	19.6	1.1	8.9	7.0	17.6	6.4
Total	4.4	5.6	6.7	3.4	3.7	4.5	5.2	3.2

Source: BOBCAPS Research, Company

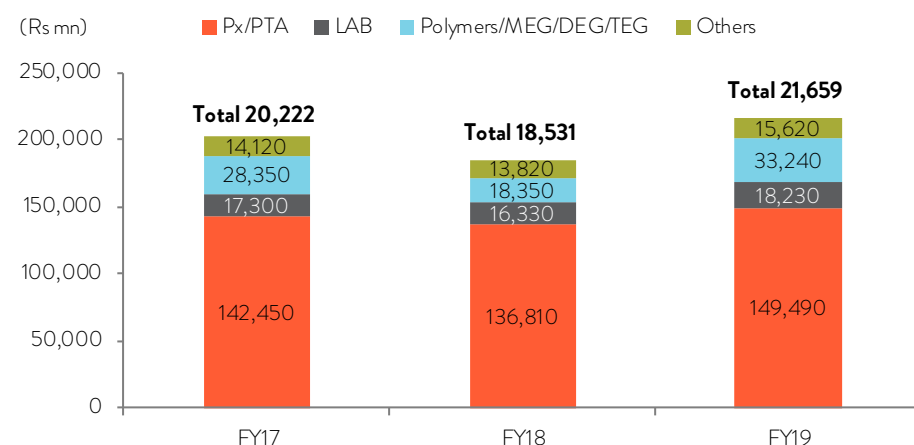
FIG 2 – PETROCHEMICAL CAPACITY

Project	Capacity (mtpa)
Gujarat LAB	120,000
Styrene Butadiene Rubber Plant	120kta
Panipat Px/PTA	553,000
Panipat Naphtha Cracker	1,460,000
Polypropylene Plant – Paradip Refinery	680,000

Source: Company, BOBCAPS Research

IOCL's petrochemical sales depend mostly on polymers

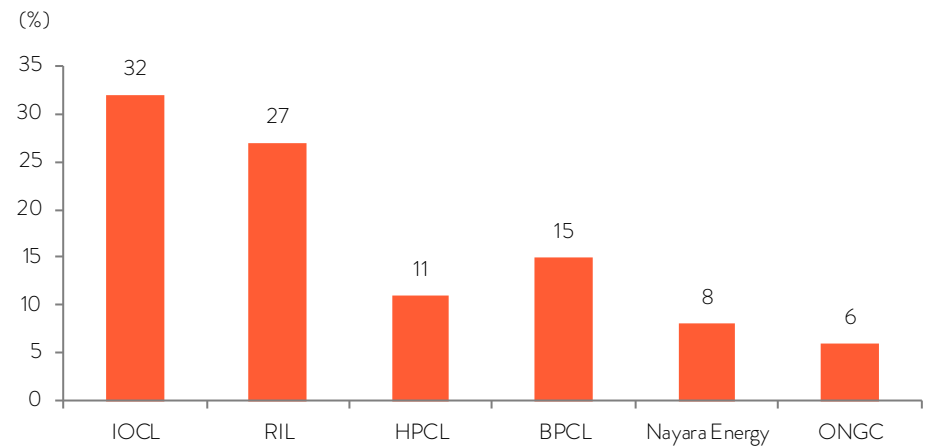
FIG 3 – PETROCHEMICAL PRODUCT SALES



Source: Company, BOBCAPS Research

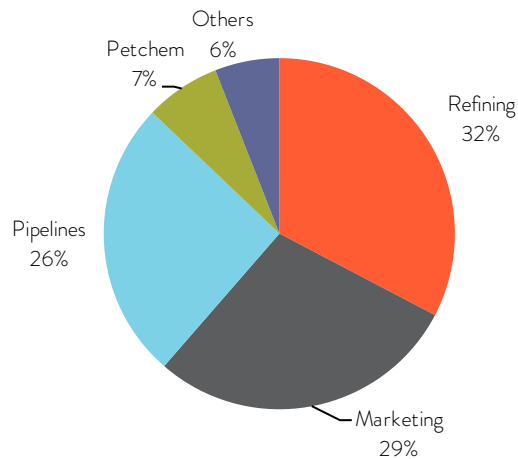
IOCL leads refining capacity in India through 11 refineries spreads across regions

FIG 4 – INDIA REFINING MARKET SHARE



Source: Company, BOBCAPS Research

FIG 5 – FY20 CAPEX OUTLOOK



Source: Company, BOBCAPS Research

Capex across businesses, focused on improving efficiency (refineries) and marketing margins (pipelines)

FIG 6 – CAPEX PIPELINE

Project	Estimated cost (Rs mn)
Ethylene Glycol Project (MEG) – Paradip	56,540
BS-VI Projects	163,380
INDMAX unit at Bongaigaon	25,820
Paradip-Hyderabad Pipeline	33,380
Ennore-Bengaluru-Puducherry-Madurai-Tuticorin R-LNG Pipeline	60,250
Koyali-Ahmednagar-Solapur Pipeline	19,450
Augmentation of Paradip-Haldia-Durgapur LPG Pipeline and its extension up to Patna and Muzaffarpur	30,420
30" crude oil pipeline in H-B section of PHBPL & Conversion of 18" twin pipelines in H-B section from crude to product and gas service	36,960
Total	189,200

Source: Company, BOBCAPS Research

Valuation methodology

Valuations look undemanding, despite giving nil value to marketing business

Diversified earnings give IOCL a big advantage over peers. At 5.4x/5.1x FY21E/ FY22E EPS, valuations look attractive given improving ROE over FY20-FY22E.

BPCL's privatisation plan diminishes marketing segment risk, driving our Sep'20 TP for IOCL higher to Rs 265 (from 205). Our SoTP is based on the following:

- Refining business valued at 7x Sep'21E EBITDA (from 6.5x earlier),
- Marketing business at 5x Sept'21E EBITDA (from nil earlier, akin to our treatment of HPCL and BPCL),
- Petrochemicals business valued at 7.5x Sep'21E EBITDA, and
- Pipeline business valued at 5x Sep'21E EBITDA.

FIG 7 – SOTP VALUATION SUMMARY

	EV (Rs bn)	Value (Rs/sh)	Comments
Refining	1,189	129	7x Sep'21E EBITDA
Marketing	557	61	5x Sep'21E EBITDA
Petrochemicals	577	63	7.5x Sep'21E EBITDA
Pipeline	459	50	5x Sep'21E EBITDA
Total core business EV	2,225	242	-
Less: Net Debt	514	56	-
Equity value of operational segments	1,712	186	-
Add: Total investments	177	21	Listed holdings at 20% discount to CMP and others at investment value
IOCL Equity value	1,863	265	~10x FY22E EPS

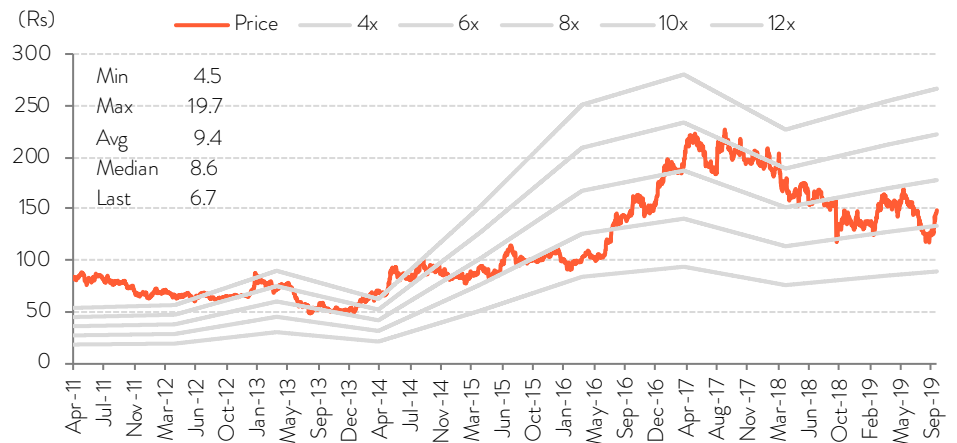
Source: BOBCAPS Research

FIG 8 – KEY ASSUMPTIONS

	FY20E	FY21E	FY22E
Average petchem product spreads (US\$/mt)	700	770	770
Oil (US\$/bbl)	65.0	70.0	75.0
GRMs (US\$/bbl)	6.5	7.0	7.0
Singapore GRMs (US\$/bbl)	5.0	5.5	5.5
Refinery throughput (mmt)	76.8	81.8	86.8
Pipeline throughput (mmt)	100.1	107.3	114.5
Market sales (mmt)	86.9	90.7	94.8
USDINR	72.0	74.0	74.0

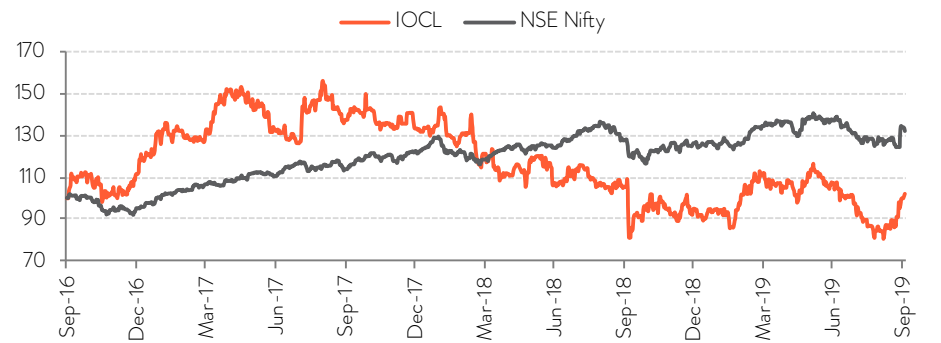
Source: BOBCAPS Research

FIG 9 – ONE-YEAR FORWARD ROLLING P/E BANDS



Source: BOBCAPS Research

FIG 10 – RELATIVE STOCK PERFORMANCE



Source: NSE

Key risks

- IOCL’s earnings are sensitive to GRMs and marketing margins on product sales. These tend to be more volatile for the company considering its high inventory days.
- Further market share losses on fuel product sales could result in below-expected volumes and affect marketing business earnings.
- Adverse pipeline tariff orders or regulations by PNGRB mandating third-party use of IOCL’s pipelines could hurt pipeline business earnings.
- Below-expected petrochemical spreads would hit profitability of the business.

FINANCIALS

Income Statement

Y/E 31 Mar (Rs mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Total revenue	42,14,918	52,81,489	64,13,330	75,52,485	82,54,512
EBITDA	4,16,275	3,52,227	3,75,443	4,24,061	4,65,420
Depreciation	(76,635)	(85,065)	(85,739)	(94,368)	(1,02,422)
EBIT	3,39,640	2,67,162	2,89,705	3,29,693	3,62,998
Net interest income/(expenses)	(38,448)	(48,880)	(66,003)	(82,082)	(90,590)
Other income/(expenses)	34,199	27,143	39,207	40,572	44,503
EBT	3,35,391	2,45,425	2,62,909	2,88,182	3,16,911
Income taxes	(1,18,239)	(86,531)	(66,248)	(72,618)	(79,857)
Min. int./Inc. from associates	4,759	14,942	(1,541)	(1,407)	(1,283)
Reported net profit	2,21,911	1,73,837	1,95,119	2,14,158	2,35,770
Adjusted net profit	2,21,911	1,73,837	1,95,119	2,14,158	2,35,770

Balance Sheet

Y/E 31 Mar (Rs mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Accounts payables	3,65,817	4,11,941	5,20,471	6,16,341	6,73,858
Other current liabilities	5,13,541	5,73,909	6,91,611	8,17,451	8,95,245
Provisions	1,66,721	1,23,860	1,91,008	2,09,699	2,30,910
Debt funds	6,26,750	9,33,278	8,35,785	9,85,906	10,25,451
Other liabilities	1,23,679	1,65,097	1,58,231	1,58,231	1,58,231
Equity capital	94,787	91,810	91,810	91,810	91,810
Reserves & surplus	10,43,951	10,32,882	10,56,985	11,31,219	12,13,281
Shareholders' fund	11,38,738	11,24,692	11,48,795	12,23,030	13,05,092
Total liabilities and equities	29,56,757	33,51,551	35,99,026	40,42,494	43,23,318
Cash and cash eq.	4,963	10,647	26,677	33,278	44,778
Accounts receivables	1,06,965	1,57,977	1,96,564	2,31,200	2,52,357
Inventories	7,05,679	7,71,265	8,96,363	10,63,881	11,67,992
Other current assets	2,59,256	3,64,641	4,19,978	4,95,412	5,42,826
Investments	4,48,061	4,39,277	4,97,616	5,77,616	5,77,616
Net fixed assets	12,80,970	13,73,725	13,34,022	13,77,247	14,37,830
CWIP	1,50,853	2,34,010	2,27,796	2,63,851	2,99,908
Intangible assets	10	10	10	10	10
Total assets	29,56,757	33,51,551	35,99,026	40,42,494	43,23,318

Source: Company, BOBCAPS Research

Cash Flows

Y/E 31 Mar (Rs mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Net income + Depreciation	2,98,546	2,58,901	2,80,858	3,08,526	3,38,192
Changes in working capital	(53,147)	(1,58,351)	74,358	(37,186)	(16,161)
Other operating cash flows	20,593	14,276	(46,074)	(40,572)	(44,503)
Cash flow from operations	2,65,992	1,14,826	3,09,142	2,30,768	2,77,528
Capital expenditures	(1,04,472)	(1,75,911)	45,917	(79,281)	(96,640)
Change in investments	(11,188)	8,784	(58,339)	(80,000)	0
Other investing cash flows	34,199	27,143	39,207	40,572	44,503
Cash flow from investing	(81,461)	(1,39,985)	26,785	(1,18,709)	(52,138)
Equities issued/Others	47,394	(2,977)	0	0	0
Debt raised/repaid	(5,957)	3,06,528	(97,492)	1,50,120	39,546
Dividends paid	(1,36,949)	(1,27,679)	(1,48,388)	(1,62,867)	(1,79,303)
Other financing cash flows	(88,154)	(1,45,030)	(74,017)	(92,711)	(74,133)
Cash flow from financing	(1,83,666)	30,842	(3,19,898)	(1,05,458)	(2,13,890)
Changes in cash and cash eq.	865	5,683	16,030	6,601	11,500
Closing cash and cash eq.	4,963	10,647	26,677	33,278	44,778

Per Share

Y/E 31 Mar (Rs)	FY18A	FY19A	FY20E	FY21E	FY22E
Reported EPS	23.4	18.9	21.3	23.3	25.7
Adjusted EPS	23.4	18.9	21.3	23.3	25.7
Dividend per share	12.0	11.5	13.8	15.2	16.7
Book value per share	120.1	122.5	125.1	133.2	142.2

Valuations Ratios

Y/E 31 Mar (x)	FY18A	FY19A	FY20E	FY21E	FY22E
EV/Sales	0.5	0.4	0.4	0.3	0.3
EV/EBITDA	5.0	5.9	6.3	5.3	5.1
Adjusted P/E	6.3	7.8	7.0	6.4	5.8
P/BV	1.2	1.2	1.2	1.1	1.0

DuPont Analysis

Y/E 31 Mar (%)	FY18A	FY19A	FY20E	FY21E	FY22E
Tax burden (Net profit/PBT)	66.2	70.8	74.2	74.3	74.4
Interest burden (PBT/EBIT)	98.7	91.9	90.8	87.4	87.3
EBIT margin (EBIT/Revenue)	8.1	5.1	4.5	4.4	4.4
Asset turnover (Revenue/Avg TA)	148.1	167.4	184.5	197.7	197.3
Leverage (Avg TA/Avg Equity)	2.6	2.8	3.1	3.2	3.3
Adjusted ROAE	20.6	15.4	17.2	18.1	18.7

Source: Company, BOBCAPS Research | Note: TA = Total Assets

Ratio Analysis

Y/E 31 Mar	FY18A	FY19A	FY20E	FY21E	FY22E
YoY growth (%)					
Revenue	18.6	25.3	21.4	17.8	9.3
EBITDA	22.5	(15.4)	6.6	12.9	9.8
Adjusted EPS	11.7	(19.1)	12.2	9.8	10.1
Profitability & Return ratios (%)					
EBITDA margin	9.9	6.7	5.9	5.6	5.6
EBIT margin	8.1	5.1	4.5	4.4	4.4
Adjusted profit margin	5.3	3.3	3.0	2.8	2.9
Adjusted ROAE	20.6	15.4	17.2	18.1	18.7
ROCE	12.7	9.0	10.5	11.5	11.8
Working capital days (days)					
Receivables	8	9	10	10	11
Inventory	74	61	54	53	55
Payables	33	29	28	29	30
Ratios (x)					
Gross asset turnover	2.5	3.4	3.7	4.0	4.0
Current ratio	0.7	0.8	0.8	0.8	0.9
Net interest coverage ratio	8.8	5.5	4.4	4.0	4.0
Adjusted debt/equity	0.5	0.8	0.7	0.8	0.8

Source: Company, BOBCAPS Research

ADD

TP: Rs 535 | ▲ 8%

**BHARAT PETROLEUM
CORP**

| Oil & Gas

| 02 October 2019

Divestment-led upsides largely priced in – raise to ADD

Though IMO regulations offer a fundamentally buoyant GRM outlook, at 9.4x FY22E EBITDA, BPCL's valuations seem to have run ahead in anticipation of the government's planned stake sale to a private company. Privatisation will alleviate any risk of price control by the government; hence, we now see merit in putting a value on BPCL's marketing business (at Rs 186/sh vs. nil earlier). Our Sep'20 target climbs to Rs 535 (vs. Rs 280); as upsides are mostly priced in, we move up only a notch from SELL to ADD.

Rohit Ahuja | Harleen Manglani

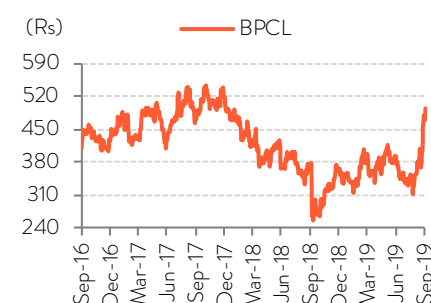
research@bobcaps.in

Divestment scenarios: We see three scenarios for BPCL's divestment by the government: (1) complete exit in favour of a private entity, (2) partial exit to a private entity (with the government retaining a board seat), and (3) complete exit in favour of a PSU entity (such as IOCL). The government can demand the highest multiple only in the first scenario (potentially >9x EBITDA). In the other cases, valuations could oscillate between the recently announced Saudi Aramco-RIL transaction (~7.5x FY21E EBITDA) and the HPCL-ONGC deal (~5.5x FY21E EBITDA).

Ticker/Price	BPCL IN/Rs 494
Market cap	US\$ 13.7bn
Shares o/s	1,967mn
3M ADV	US\$ 46.7mn
52wk high/low	Rs 512/Rs 239
Promoter/FPI/DII	53%/15%/31%

Source: NSE

STOCK PERFORMANCE



Source: NSE

E&P and marketing assets could justify high multiples: BPCL's critical marketing infrastructure – 15,000 retail outlets, ~6,000 LPG distributors – and ~22% market share in retail product sales offer value (if we strip away the risk of government control on product pricing). Similarly, its 10% stake in the Mozambique Area-4 field (~60tcf reserves) could bolster deal valuations.

Upgrade to ADD: The recent run-up in stock price factors in most valuation upsides from a scenario of 100% privatisation. We revise our Sep'20 TP to Rs 535 (from Rs 280) to bake in marketing business valuations and a higher multiple for the refining business.

KEY FINANCIALS

Y/E 31 Mar	FY18A	FY19A	FY20E	FY21E	FY22E
Total revenue (Rs mn)	23,57,698	29,82,256	31,32,627	37,61,885	39,91,968
EBITDA (Rs mn)	1,51,727	1,51,122	1,24,241	1,35,635	1,49,119
Adj. net profit (Rs mn)	97,919	85,278	96,729	1,02,218	1,08,805
Adj. EPS (Rs)	49.8	43.4	49.2	52.0	55.3
Adj. EPS growth (%)	3.0	(12.9)	13.4	5.7	6.4
Adj. ROAE (%)	29.0	21.8	21.8	20.5	19.5
Adj. P/E (x)	9.9	11.4	10.0	9.5	8.9
EV/EBITDA (x)	8.6	8.8	11.2	10.0	9.7

Source: Company, BOBCAPS Research

Valuation methodology

At 8.5x FY22E EPS and 9.4x FY22E EBITDA, BPCL's valuations are trending at a premium to OMC peers HPCL and IOCL, in anticipation of the government's stake divestment. We believe the recent stock run-up factors in most of the valuation expectations from a scenario of 100% privatisation. Baking in marketing business valuations and a higher multiple for the refining business, we revise our Sep'20 target price to Rs 535 (from Rs 280) and upgrade the stock from SELL to ADD.

Our SOTP valuation is arrived at as follows:

- refining businesses valued at 7x Sep'21E EBITDA (raised from 6x),
- marketing business at 5x Sep'21E EBITDA (from nil),
- other investments in listed entities valued at 20% discount to CMP, and
- E&P business valued at an EV/boe of US\$ 1 and US\$ 4/boe for yet-to-be developed reserves in Mozambique and Brazil respectively. Note that execution troubles and low oil prices could extend the delays in production start-up to well beyond 2023.

FIG 1 – VALUATION SUMMARY

Business segments	EV (Rs/bn)	Value (Rs/share)	Comments
Refining			
Standalone	387	197	7x Sep'21E EBITDA
BORL refinery	263	134	7x Sep'21E EBITDA
Numaligarh	213	108	7x Sep'21E EBITDA
Marketing	366	186	5x Sep'21E EBITDA
Total core business	1,229	372	
Less: Net Debt	304	155	Adjusted for consolidation
Equity value of core business	558	284	
Total investments value	88	45	Investments in PLNG, OINL, IGL @ 20% discount to CMP
Total E&P	40	20	Brazil at EV/boe of US\$ 4, Mozambique at EV/boe of US\$ 1
Total equity value for BPCL	1,052	535	At 9.8x FY22E EPS

Source: BOBCAPS Research

FIG 2 – REFINING/MARKETING DEAL COMPARABLES

Year	Acquirer	Target	1Y fwd EV multiple (x)
2019	Saudi Aramco	RIL*	7.5
2018	ONGC	HPCL	5.5
2016	Rosneft	Essar	12.0

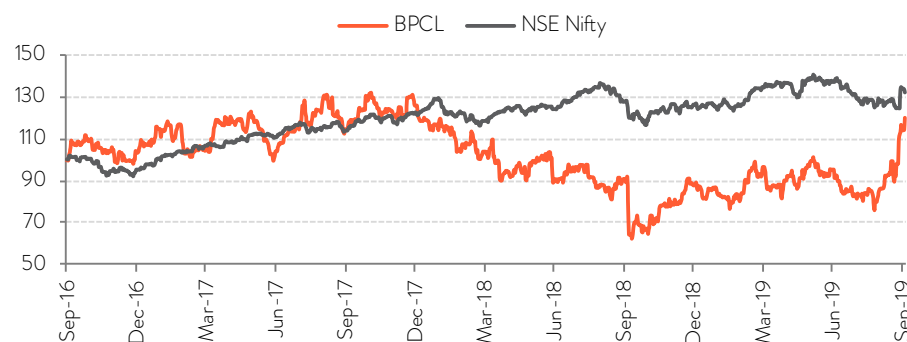
Source: BOBCAPS Research | *Deal at preliminary stage, not yet concluded

FIG 3 – REFINING & MARKETING PEER MULTIPLES

R&M companies (x)	EV/EBITDA		P/BV		P/CF		P/E	
	FY21/CY20	FY22/CY201	FY21/CY20	FY22/CY201	FY21/CY20	FY22/CY201	FY21/CY20	FY22/CY201
Sunoco Inc	10.39	10.07	3.88	4.24	6.33	6.20	11.66	11.08
Valero Energy Corp	5.76	6.31	1.56	1.51	5.27	5.44	8.83	9.80
Formosa Petrochemical Corp	11.00	10.32	2.63	2.51	15.02	11.11	17.10	15.87
Thai Oil Pcl	5.40	5.49	1.06	1.00	5.83	5.87	10.13	10.00
Caltex Australia	7.54	7.04	1.94	1.88	7.52	7.03	13.16	12.33
Sk Energy Co	6.01	5.65	0.77	0.74	4.68	4.40	8.91	8.41
Hindustan Petroleum Corp	6.02	5.83	1.24	1.14	4.44	4.19	7.09	7.09
Bharat Petroleum Corp	8.74	8.72	1.97	1.84	6.74	6.59	10.24	10.04
Indian Oil Corporation	5.79	5.39	1.05	1.00	4.81	4.53	7.20	7.20
Average	7.41	7.20	1.79	1.76	6.74	6.15	10.48	10.20

Source: Bloomberg, BOBCAPS Research

FIG 4 – RELATIVE STOCK PERFORMANCE



Source: NSE

Key risks

- **Global slowdown:** BPCL’s valuations are highly sensitive to GRMs and marketing margins. A slowdown in global economies (and consequently the Indian economy) could lead to below -expected spreads and alter our valuation outlook.
- **Surge in oil prices:** A surge in oil prices (to >US\$ 80/bbl levels) could lead to a change in government regulation on marketing margins for retail sales of petrol and diesel. However, recent privatization could alleviate this risk to a major extent
- **Poor deal valuation:** A below -expected value for the stake sale (of <8x FY22E EBITDA) could hamper our valuation outlook.

FINANCIALS

Income Statement

Y/E 31 Mar (Rs mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Total revenue	23,57,698	29,82,256	31,32,627	37,61,885	39,91,968
EBITDA	1,51,727	1,51,122	1,24,241	1,35,635	1,49,119
Depreciation	(28,850)	(34,178)	(34,541)	(37,619)	(40,695)
EBIT	1,22,877	1,16,945	89,700	98,016	1,08,424
Net interest income/(expenses)	(11,857)	(17,640)	(17,855)	(20,892)	(24,710)
Other income/(expenses)	17,827	20,375	43,797	43,540	44,546
EBT	1,28,846	1,19,680	1,15,642	1,20,664	1,28,260
Income taxes	(43,816)	(43,775)	(29,081)	(30,432)	(32,711)
Min. int./Inc. from associates	12,889	9,373	10,168	11,986	13,256
Reported net profit	97,919	85,278	96,729	1,02,218	1,08,805
Adjusted net profit	97,919	85,278	96,729	1,02,218	1,08,805

Balance Sheet

Y/E 31 Mar (Rs mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Accounts payables	1,32,319	1,73,847	2,06,388	2,48,976	2,65,065
Other current liabilities	2,20,330	2,11,450	2,61,313	2,47,934	2,97,870
Provisions	31,959	35,662	35,662	35,662	35,662
Debt funds	3,79,136	4,29,145	4,89,086	5,19,086	5,29,086
Other liabilities	55,224	67,920	67,914	67,908	67,902
Equity capital	19,669	19,669	19,669	19,669	19,669
Reserves & surplus	3,46,517	3,98,023	4,51,138	5,07,717	5,67,466
Shareholders' fund	3,66,186	4,17,692	4,70,807	5,27,386	5,87,134
Total liabilities and equities	12,04,206	13,56,417	15,51,870	16,67,653	18,03,419
Cash and cash eq.	13,539	6,625	1,01,107	47,545	58,337
Accounts receivables	52,048	69,063	58,186	69,952	74,248
Inventories	2,25,295	2,29,349	2,77,829	3,35,160	3,56,818
Other current assets	76,953	1,24,789	1,24,789	1,24,789	1,24,789
Investments	2,37,246	2,49,069	3,14,455	3,81,691	4,50,778
Net fixed assets	4,55,574	4,93,146	5,33,223	5,70,221	6,04,144
CWIP	98,754	1,41,547	99,452	95,465	91,477
Deferred tax assets, net	4,066	4,537	4,537	4,537	4,537
Other assets	40,732	38,293	38,293	38,293	38,293
Total assets	12,04,206	13,56,417	15,51,870	16,67,653	18,03,419

Source: Company, BOBCAPS Research

Cash Flows

Y/E 31 Mar (Rs mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Net income + Depreciation	1,24,647	1,19,456	1,31,270	1,39,836	1,49,501
Changes in working capital	(24,095)	(30,585)	44,799	(39,887)	40,071
Other operating cash flows	(3,151)	(7,679)	(43,802)	(43,546)	(44,552)
Cash flow from operations	97,401	81,192	1,32,266	56,403	1,45,020
Capital expenditures	(75,770)	(1,14,543)	(32,523)	(70,630)	(70,630)
Change in investments	(23,974)	(11,823)	(65,386)	(67,236)	(69,086)
Other investing cash flows	17,827	20,375	43,797	43,540	44,546
Cash flow from investing	(81,917)	(1,05,991)	(54,112)	(94,326)	(95,170)
Equities issued/Others	6,556	0	0	0	0
Debt raised/repaid	19,672	50,009	59,941	30,000	10,000
Dividends paid	(52,880)	(43,724)	(43,613)	(45,639)	(49,057)
Other financing cash flows	5,862	11,601	0	0	0
Cash flow from financing	(20,790)	17,886	16,328	(15,639)	(39,057)
Changes in cash and cash eq.	(5,307)	(6,913)	94,482	(53,562)	10,792
Closing cash and cash eq.	13,539	6,625	1,01,107	47,545	58,337

Per Share

Y/E 31 Mar (Rs)	FY18A	FY19A	FY20E	FY21E	FY22E
Reported EPS	49.8	43.4	49.2	52.0	55.3
Adjusted EPS	49.8	43.4	49.2	52.0	55.3
Dividend per share	23.2	19.0	19.0	19.8	21.3
Book value per share	186.2	212.4	239.4	268.1	298.5

Valuations Ratios

Y/E 31 Mar (x)	FY18A	FY19A	FY20E	FY21E	FY22E
EV/Sales	0.6	0.4	0.4	0.4	0.4
EV/EBITDA	8.6	8.8	11.2	10.0	9.7
Adjusted P/E	9.9	11.4	10.0	9.5	8.9
P/BV	2.7	2.3	2.1	1.8	1.7

DuPont Analysis

Y/E 31 Mar (%)	FY18A	FY19A	FY20E	FY21E	FY22E
Tax burden (Net profit/PBT)	76.0	71.3	83.6	84.7	84.8
Interest burden (PBT/EBIT)	104.9	102.3	128.9	123.1	118.3
EBIT margin (EBIT/Revenue)	5.2	3.9	2.9	2.6	2.7
Asset turnover (Revenue/Avg TA)	205.5	232.9	215.4	233.7	230.0
Leverage (Avg TA/Avg Equity)	3.4	3.3	3.3	3.2	3.1
Adjusted ROAE	29.0	21.8	21.8	20.5	19.5

Source: Company, BOBCAPS Research | Note: TA = Total Assets

Ratio Analysis

Y/E 31 Mar	FY18A	FY19A	FY20E	FY21E	FY22E
YoY growth (%)					
Revenue	17.2	26.5	5.0	20.1	6.1
EBITDA	10.4	(0.4)	(17.8)	9.2	9.9
Adjusted EPS	3.0	(12.9)	13.4	5.7	6.4
Profitability & Return ratios (%)					
EBITDA margin	6.4	5.1	4.0	3.6	3.7
EBIT margin	5.2	3.9	2.9	2.6	2.7
Adjusted profit margin	4.2	2.9	3.1	2.7	2.7
Adjusted ROAE	29.0	21.8	21.8	20.5	19.5
ROCE	11.2	9.1	7.3	7.2	7.3
Working capital days (days)					
Receivables	8	7	7	6	7
Inventory	39	32	32	32	34
Payables	20	20	23	23	24
Ratios (x)					
Gross asset turnover	3.3	3.7	3.5	3.9	3.9
Current ratio	0.8	0.8	0.9	0.8	0.8
Net interest coverage ratio	10.4	6.6	5.0	4.7	4.4
Adjusted debt/equity	1.0	1.0	0.8	0.9	0.8

Source: Company, BOBCAPS Research

BUY
TP: Rs 400 | ▲ 29%

**HINDUSTAN
PETROLEUM CORP**

Oil & Gas

02 October 2019

Marketing risk perception eases – upgrade to BUY

HPCL, like other OMCs, stands to gain from IMO regulations, but could lag peers on low diesel yields. More importantly, we see strong rerating potential post the proposed privatisation of peer BPCL – a move that will dilute government influence on the retail fuel market and thus alleviates the risk perception on HPCL’s marketing earnings. We now value HPCL’s marketing business at Rs 173/sh from nil earlier and also raise our refining EBITDA multiple to 7x. Our Sep’20 TP rises to Rs 400 (from Rs 200); upgrade to BUY (from SELL).

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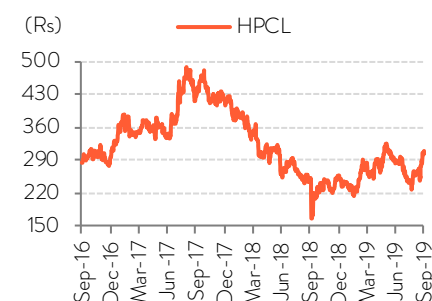
Marketing business overhang lifts: HPCL’s reliance on the marketing business for earnings growth is the highest among OMCs (at >50% of EBITDA). This business has inherently high exposure to political risks. But the risk perception has changed dramatically with the government’s proposed privatisation of BPCL (~25% market share among OMCs), as this move will dilute political intervention in the retail petroleum market and eliminate any possibility of regulation on retail petrol/diesel prices. We thus see merit in ascribing value to HPCL’s marketing business (Rs 173/sh at 5x Sep’21E EBITDA), that now forms ~45% of valuations.

Ticker/Price	HPCL IN/Rs 309
Market cap	US\$ 6.6bn
Shares o/s	1,524mn
3M ADV	US\$ 22.8mn
52wk high/low	Rs 334/Rs 163
Promoter/FPI/DII	51%/19%/30%

Source: NSE

Refining business lags peers but could gain from IMO: HPCL’s GRMs have been underperforming peers (especially IOCL) over the last few quarters. Its relatively lower middle distillate yields (at ~40%) puts it at a slight disadvantage to peers from the perspective of IMO regulation upsides. HPCL’s primary driver of earnings has been its marketing business (that garners the highest EBITDA/mt among peers at >Rs 2,000).

STOCK PERFORMANCE



Upgrade to BUY: While our earnings estimates remain unchanged, the addition of marketing business valuations boosts our Sep’20 SOTP-based TP to Rs 400. The altered risk perception makes HPCL a strong fundamental play.

KEY FINANCIALS

Y/E 31 Mar	FY18A	FY19A	FY20E	FY21E	FY22E
Total revenue (Rs mn)	21,86,469	27,42,552	28,02,970	34,04,472	38,19,124
EBITDA (Rs mn)	98,502	1,03,490	74,920	80,938	99,038
Adj. net profit (Rs mn)	72,183	66,900	66,495	69,085	84,219
Adj. EPS (Rs)	47.4	43.9	43.6	45.3	55.3
Adj. EPS growth (%)	(12.4)	(7.3)	(0.6)	3.9	21.9
Adj. ROAE (%)	31.0	23.9	20.6	19.3	21.1
Adj. P/E (x)	6.5	7.1	7.1	6.8	5.6
EV/EBITDA (x)	7.0	6.6	9.7	10.2	8.9

Source: Company, BOBCAPS Research

Valuation methodology

While our earnings estimates remain unchanged, the inclusion of marketing business valuations at Rs 173/sh (vs. nil earlier) boosts HPCL's Sep'20 SOTP-based target price to Rs 400 (from Rs 200). The lower risk perception for marketing makes HPCL a strong fundamental play – upgrade from SELL to BUY.

Our SOTP valuation for the company is as follows:

- refining business for the standalone refinery and Bhatinda refinery valued at 7x Sep'21E EBITDA respectively (from 6.5x earlier), and
- marketing business at 5x Sep'21E EBITDA (from nil earlier).

FIG 1 – SOTP VALUATION SUMMARY

	EV (Rs bn)	Value (Rs/sh)	Comments
Refining Business	302	198	7x Sep'21E EBITDA
Marketing & others	263	173	5x Sep'21E EBITDA
Bhatinda refinery	182	120	7x Sep'21E EBITDA
Total core business	747	490	-
Less: Net debt	159	105	Adjusted for Bhatinda stake
Equity value of core businesses	588	386	-
MRPL stake	11	7	20% discount to CMP
OINL stake	5	5	20% discount to CMP
HPCL's equity value (Rs)	605	400	~9x FY22E EPS

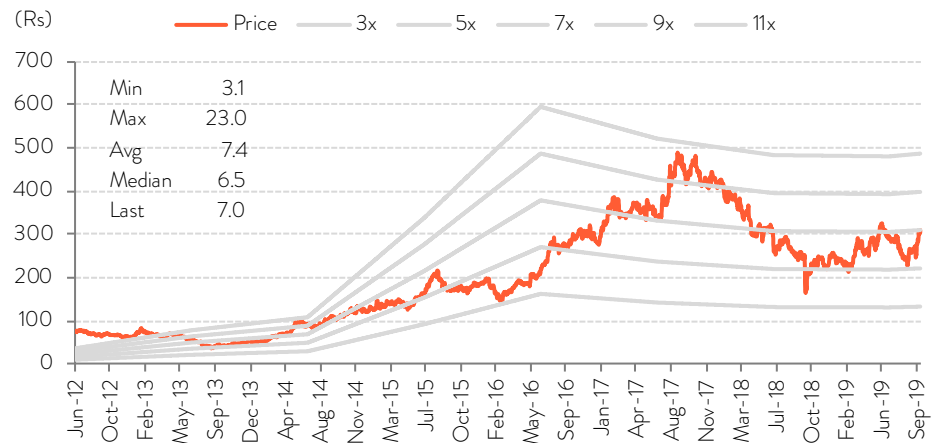
Source: BOBCAPS Research

FIG 2 – KEY ASSUMPTIONS

Particulars	FY20E	FY21E	FY22E
USD/INR (Rs)	72.0	74.0	74.0
Crude price (US\$/bbl)	65.0	70.0	70.0
Mumbai & Vizag refineries			
GRM (US\$/bbl)	5.0	6.0	6.0
Crude throughput (mmt)	20.3	24.4	24.4
HMEL (Bhatinda)			
GRM (US\$/bbl)	14.0	14.0	14.0
Crude throughput (mmt)	12.5	12.5	12.5
Total market sales (mmt)	40.0	42.7	45.2

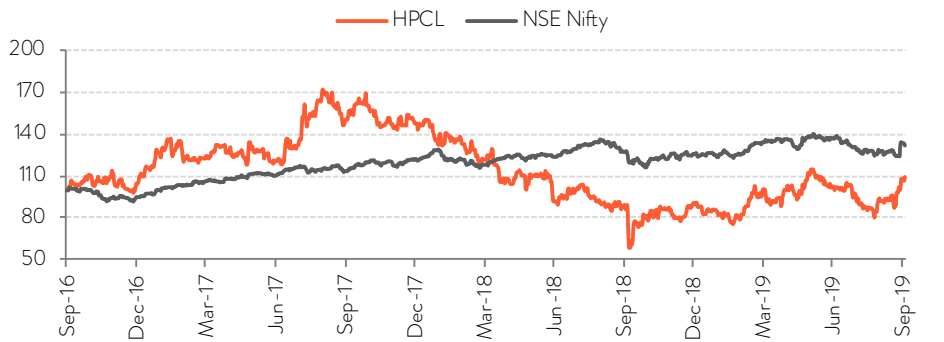
Source: BOBCAPS Research

FIG 3 – ONE-YEAR FORWARD ROLLING P/E BANDS



Source: BOBCAPS Research

FIG 4 – RELATIVE STOCK PERFORMANCE



Source: NSE

Key risks

- **Global slowdown:** HPCL’s valuations are highly sensitive to GRMs and marketing margins. A slowdown in global economies (and consequently the Indian economy) could lead to below -expected spreads and alter our valuation outlook.
- **Surge in oil prices:** A surge in oil prices (to >US\$ 80/bbl levels) could lead to a change in government regulation on marketing margins for retail sales of petrol and diesel.

FINANCIALS

Income Statement

Y/E 31 Mar (Rs mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Total revenue	21,86,469	27,42,552	28,02,970	34,04,472	38,19,124
EBITDA	98,502	1,03,490	74,920	80,938	99,038
Depreciation	(28,344)	(30,853)	(23,832)	(25,065)	(26,298)
EBIT	70,158	72,637	51,089	55,873	72,741
Net interest income/(expenses)	(6,179)	(7,856)	(13,727)	(21,783)	(29,883)
Other income/(expenses)	23,906	26,315	31,846	39,163	51,515
EBT	87,885	91,095	69,207	73,254	94,372
Income taxes	(28,919)	(33,486)	(17,912)	(19,791)	(25,775)
Min. int./Inc. from associates	(13,216)	(9,291)	(15,199)	(15,622)	(15,622)
Reported net profit	72,183	66,900	66,495	69,085	84,219
Adjusted net profit	72,183	66,900	66,495	69,085	84,219

Balance Sheet

Y/E 31 Mar (Rs mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Accounts payables	1,58,459	1,90,534	1,72,271	2,15,102	2,41,806
Other current liabilities	46,701	45,261	61,017	74,336	83,205
Provisions	24,496	23,951	23,951	23,951	23,951
Debt funds	2,19,520	2,60,365	3,85,974	4,44,193	5,12,411
Other liabilities	1,92,218	2,50,108	2,53,804	2,57,888	2,63,207
Equity capital	15,242	15,242	15,242	15,242	15,242
Reserves & surplus	2,40,082	2,88,765	3,24,943	3,61,928	4,06,914
Shareholders' fund	2,55,324	3,04,007	3,40,185	3,77,170	4,22,156
Total liabilities and equities	8,96,718	10,74,226	12,37,202	13,92,639	15,46,736
Cash and cash eq.	13,052	2,185	29,228	29,964	44,235
Accounts receivables	55,870	56,674	60,028	72,513	81,601
Inventories	1,86,122	2,04,436	3,23,870	3,87,183	4,35,251
Other current assets	85,762	1,33,591	1,33,591	1,33,591	1,33,591
Investments	1,28,820	1,42,975	1,72,975	2,02,975	2,37,974
Net fixed assets	3,87,035	4,39,011	4,42,579	4,44,914	4,46,017
CWIP	39,890	95,187	74,765	1,21,332	1,67,900
Intangible assets	167	167	167	167	167
Total assets	8,96,718	10,74,226	12,37,202	13,92,639	15,46,736

Source: Company, BOBCAPS Research

Cash Flows

Y/E 31 Mar (Rs mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Net income + Depreciation	99,866	97,549	90,326	94,149	1,10,517
Changes in working capital	19,558	21,035	(1,21,599)	(15,565)	(16,264)
Other operating cash flows	(23,906)	(26,315)	(31,846)	(39,163)	(51,515)
Cash flow from operations	95,519	92,269	(63,118)	39,422	42,739
Capital expenditures	(67,298)	(1,38,126)	(6,977)	(73,968)	(73,968)
Change in investments	(12,179)	(13,311)	(3,000)	(3,000)	(3,000)
Other investing cash flows	24,999	25,471	4,846	12,163	19,515
Cash flow from investing	(54,478)	(1,25,966)	(5,132)	(64,805)	(57,453)
Equities issued/Others	5,079	0	0	0	0
Debt raised/repaid	(1,781)	40,845	1,25,609	58,219	68,219
Dividends paid	(30,317)	(28,355)	(30,317)	(32,100)	(39,233)
Other financing cash flows	(2,336)	10,340	0	0	0
Cash flow from financing	(29,354)	22,830	95,293	26,119	28,985
Changes in cash and cash eq.	11,687	(10,867)	27,043	736	14,271
Closing cash and cash eq.	13,051	2,185	29,228	29,964	44,235

Per Share

Y/E 31 Mar (Rs)	FY18A	FY19A	FY20E	FY21E	FY22E
Reported EPS	47.4	43.9	43.6	45.3	55.3
Adjusted EPS	47.4	43.9	43.6	45.3	55.3
Dividend per share	17.0	15.9	17.0	18.0	22.0
Book value per share	167.5	199.5	223.2	247.5	277.0

Valuations Ratios

Y/E 31 Mar (x)	FY18A	FY19A	FY20E	FY21E	FY22E
EV/Sales	0.3	0.2	0.3	0.2	0.2
EV/EBITDA	7.0	6.6	9.7	10.2	8.9
Adjusted P/E	6.5	7.1	7.1	6.8	5.6
P/BV	1.8	1.6	1.4	1.3	1.1

DuPont Analysis

Y/E 31 Mar (%)	FY18A	FY19A	FY20E	FY21E	FY22E
Tax burden (Net profit/PBT)	82.1	73.4	96.1	94.3	89.2
Interest burden (PBT/EBIT)	125.3	125.4	135.5	131.1	129.7
EBIT margin (EBIT/Revenue)	3.2	2.6	1.8	1.6	1.9
Asset turnover (Revenue/Avg TA)	257.2	278.3	242.5	258.9	259.9
Leverage (Avg TA/Avg Equity)	3.6	3.5	3.6	3.7	3.7
Adjusted ROAE	31.0	23.9	20.6	19.3	21.1

Source: Company, BOBCAPS Research | Note: TA = Total Assets

Ratio Analysis

Y/E 31 Mar	FY18A	FY19A	FY20E	FY21E	FY22E
YoY growth (%)					
Revenue	16.9	25.4	2.2	21.5	12.2
EBITDA	(6.1)	5.1	(27.6)	8.0	22.4
Adjusted EPS	(12.4)	(7.3)	(0.6)	3.9	21.9
Profitability & Return ratios (%)					
EBITDA margin	4.5	3.8	2.7	2.4	2.6
EBIT margin	3.2	2.6	1.8	1.6	1.9
Adjusted profit margin	3.3	2.4	2.4	2.0	2.2
Adjusted ROAE	31.0	23.9	20.6	19.3	21.1
ROCE	10.4	8.8	5.9	5.3	6.0
Working capital days (days)					
Receivables	8	7	8	7	7
Inventory	132	105	139	140	139
Payables	25	24	24	21	22
Ratios (x)					
Gross asset turnover	3.3	3.8	3.6	4.2	4.5
Current ratio	1.0	1.0	1.0	1.0	1.0
Net interest coverage ratio	11.4	9.2	3.7	2.6	2.4
Adjusted debt/equity	0.8	0.8	1.0	1.1	1.1

Source: Company, BOBCAPS Research

Disclaimer

Recommendations and Absolute returns (%) over 12 months

BUY – Expected return >+15%

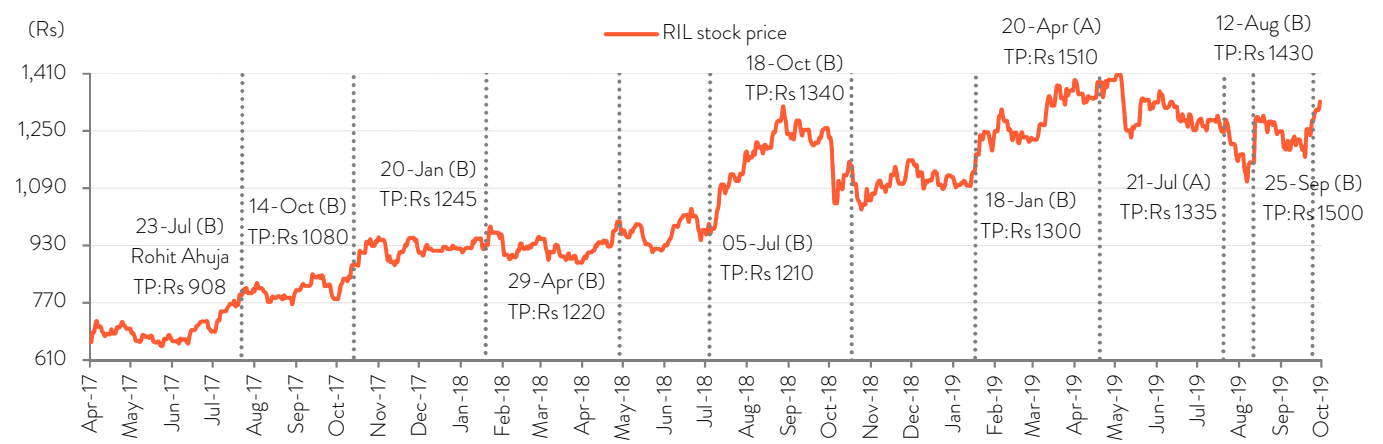
ADD – Expected return from >+5% to +15%

REDUCE – Expected return from -5% to +5%

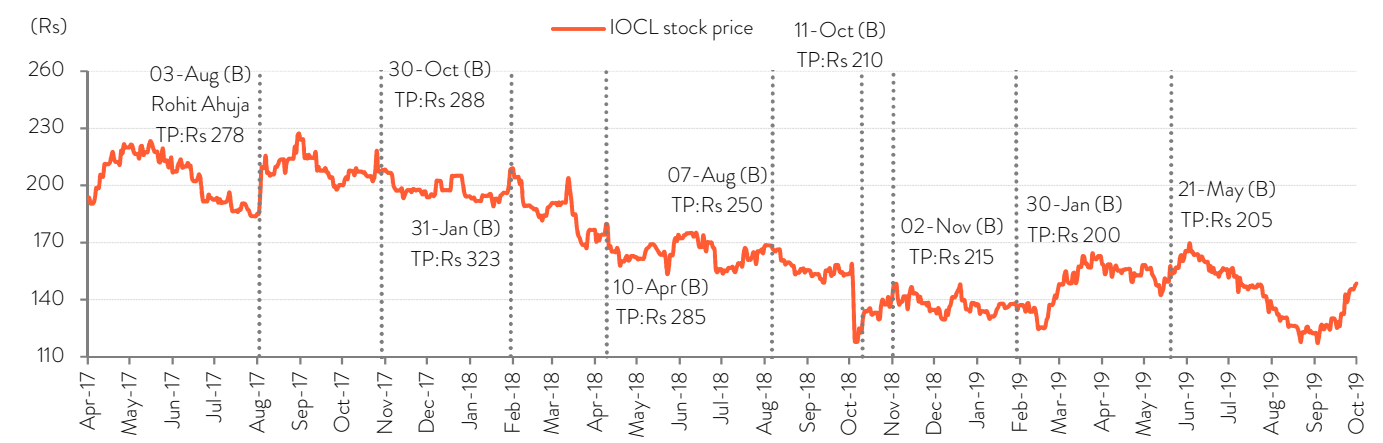
SELL – Expected return <-5%

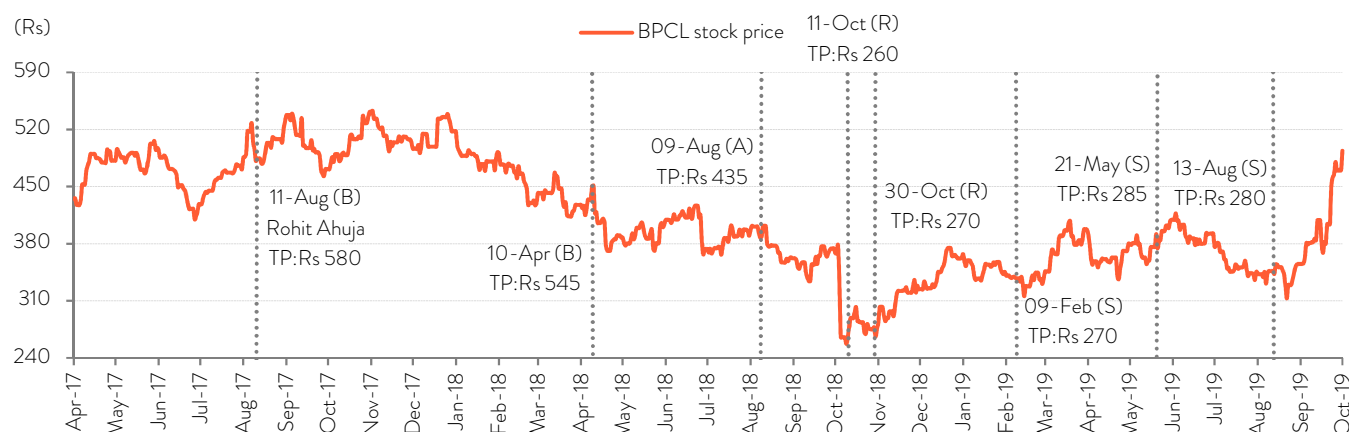
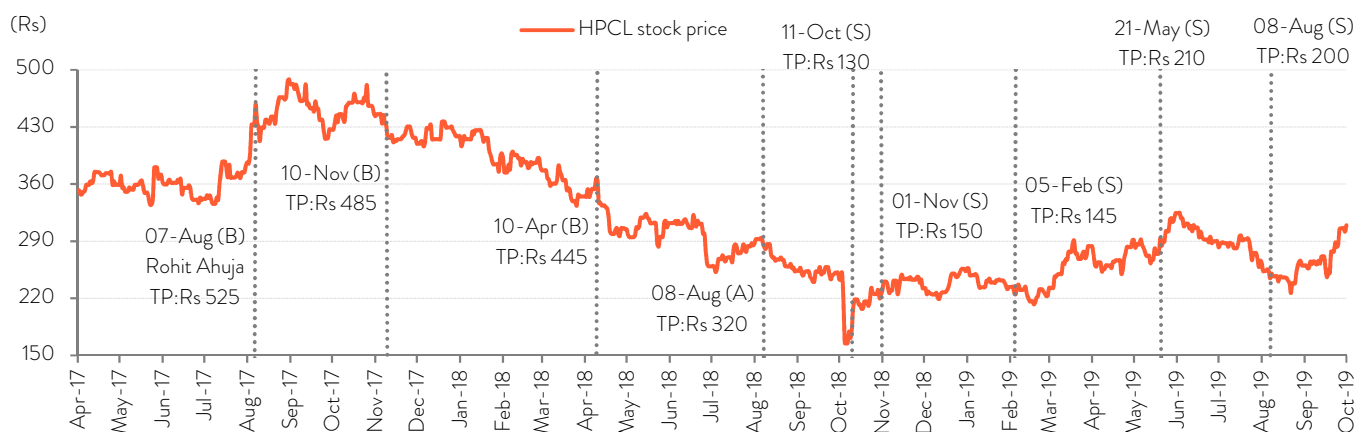
Note: Recommendation structure changed with effect from 1 January 2018 (Hold rating discontinued and replaced by Add / Reduce)

HISTORICAL RATINGS AND TARGET PRICE: RELIANCE INDUSTRIES (RIL IN)



HISTORICAL RATINGS AND TARGET PRICE: INDIAN OIL CORP (IOCL IN)



HISTORICAL RATINGS AND TARGET PRICE: BHARAT PETROLEUM CORP (BPCL IN)

HISTORICAL RATINGS AND TARGET PRICE: HINDUSTAN PETROLEUM CORP (HPCL IN)


B – Buy, A – Add, R – Reduce, S – Sell

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