

Oil and Gas



OPEC+ cuts push market into deficit in 2HCY23, boosting crude price

Brent crude price has risen to +USD 90/bbl driven by Saudi Arabia and Russia's decision to extend their additional 1.3mmbpd voluntary cuts till end-Dec'23; IEA has said that this is likely to push the market into a substantial deficit in 4QCY23. Global oil inventories fell by a sharp 76mmbbl MoM to a 13-month low in Aug'23. IEA has maintained its CY23 global oil demand growth estimate at 2.2mmbpd; however, it has reiterated likely moderation in demand growth from CY24 to 1.0mmbpd. We believe the strong pricing power of OPEC+ will continue to support Brent crude price at ~USD 80/bbl, which is the fiscal break-even crude price for Saudi Arabia. This is a sweet spot for ONGC/Oil India. We maintain BUY on ONGC (TP INR 205) and Oil India (TP INR 315) given strong 6-8% dividend play and also because CMP is discounting ~USD 55-60/bbl net crude realisation. Separately, IEA has reiterated that refining margins will remain strong in the near term; however, we maintain our near-term cautious view on all OMCs given their marketing segment earnings could come under risk if: a) Brent price sustains above USD 85/bbl; and/or b) OMCs are forced to cut petrol/diesel price in the next few months.

- **IEA maintains CY23 global oil demand growth estimate at 2.2mmbpd; however, it reiterates likely moderation in demand growth from CY24 to 1.0mmbpd:** IEA, in its [Sep'23](#) Oil Market report, has maintained its global oil demand growth estimate for CY23 at 2.2mmbpd (estimated CY23 oil demand at 101.8mmbpd, up ~2.1mmbpd vs. CY19 pre-Covid levels) driven by strong summer air travel, increased oil use in power generation and surging Chinese petchem output. China is likely to account for ~75% of global oil demand growth of ~2.2mmbpd led by rebound in international travel post easing of Covid restrictions and rise in usage as chemical feedstock. IEA has also maintained its global oil demand growth estimate at 1.0mmbpd in CY24 (at 102.8mmbpd) due to abatement of the post-Covid rebound and rise in penetration of electric vehicles, coupled with efficiency measures and macro headwinds after unprecedented monetary tightening. China's oil demand growth is estimated to moderate to 640kbpd in CY24 (vs. 1.6mmbpd in CY23); however, OECD countries' oil demand is expected to begin declining structurally with their oil demand expected to fall by 360kbpd in CY24 (after growing by 90kbpd in CY23). (**Exhibit 1-2**)
- **Global oil inventories fall by a sharp 76mmbbl MoM to a 13-month low in Aug'23:** Global commercial oil inventory fell by a sharp 76mmbbl MoM or 2.5mmbpd in Aug'23. However, by end-Jul'23, OECD's commercial oil inventory rose by ~27mmbbl MoM to 2,814mmbbl; however, deficit to the 5-year average inventory levels remains at ~103mmbbl — **Exhibit 3**.
- **OPEC+ output cut by 2.5mmbpd in CY23TD, but that was offset by 1.9mmbpd rise in non-OPEC+ output led by US and Brazil:** OPEC+ crude oil production rose 0.1mmbpd MoM in Aug'23 as Iran/Nigeria/Iraq increased production MoM; but it still continues to lag its output target by ~2.6mmbpd. Saudi Arabia (at 9.0mmbpd) and Russia's output (at 9.5mmbpd) was steady MoM (**Exhibit 4-6**). OPEC+ output was cut by 2.5mmbpd in CY23TD, led by Saudi Arabia, but that was offset by 1.9mmbpd rise in non-OPEC+ output led by US and Brazil while Iran raised output by 0.6mmbpd. IEA has maintained global oil supply growth estimate at 1.5mmbpd in CY23 (at 101.6mmbpd) with non-OPEC+ supply, led by the US and Brazil, rising by 1.9mmbpd and OPEC+ supply declining by 0.4mmbpd. However, it has raised CY24 global oil supply estimate by 0.2mmbpd to 1.7mmbpd (to 103.3mmbpd).
- **Russia's crude output steady MoM in Aug'23 while exports decline:** Russia's output was largely steady MoM at 9.5mmbpd in Aug'23; however, its oil exports were down 150kbpd MoM at 7.2mmbpd in Aug'23 (and down 570kbpd YoY) with exports to China and India declining to 3.9mmbpd in Aug'23 (from 4.7mmbpd in Apr-May'23) — **Exhibit 5**. Russia's export revenue rose USD 1.8bn MoM to USD 17.1bn in Aug'23 (though still down YoY) due to higher crude price and narrowing discount despite lower volume.
- **Russian crude discount continues to be at USD 4-5/bbl in May-Jul'23 vs. USD 6-10/bbl earlier:** Russia's share of India's crude imports remained strong at ~40% in Jul'23 vs. ~20% in Dec'22 and 1-2% pre-Ukraine invasion. However, discount on Russian crude was ~USD 4-5/bbl in May-Jul'23 vs. USD 6-10/bbl earlier — **Exhibit 19**. Further, press reports earlier highlighted that

Dayanand Mittal

dayanand.mittal@jmfl.com | Tel: (+91 96) 1938 8870

Shivam Gupta

shivam.gupta@jmfl.com | Tel: (91 22) 66303082

JM Financial Research is also available on: Bloomberg - JMFR <GO>, Thomson Publisher & Reuters, S&P Capital IQ, FactSet and Visible Alpha

Please see Appendix I at the end of this report for Important Disclosures and Disclaimers and Research Analyst Certification.

the discount on Russian crude is likely to further narrow to USD 3-3.5/bbl in Aug-Sep'23; the availability of Russian oil in spot markets is likely to decline (this could be as Russia had pledged to cut oil exports by 0.3mmbpd till end-Dec'23 as per the agreement with Saudi, whereby Saudi is cutting output by 1mmbpd to support oil prices).

- **Extension of 1.3mmbpd voluntary cut by Saudi and Russia till end-Dec'23 to push market into substantial deficit in 4QCY23; OPEC+ strong pricing power to support Brent ~USD 80/bbl:** The oil market is likely to be in substantial deficit in 4QCY23 as both Saudi Arabia and Russia have decided to extend their additional 1.3mmbpd voluntary cut (1mmbpd output cut by Saudi, and 0.3mmbpd reduction in oil exports by Russia) for another 3 months till end-Dec'23. This is over and above the earlier agreement whereby OPEC+ extended its output cuts until end-CY24 — **Exhibit 5**. We still believe OPEC+ will continue to use its strong pricing power to support Brent crude price ~USD 75-80/bbl, which is the fiscal break-even crude price needed by Saudi Arabia (**Exhibit 7**). The pricing power of OPEC+ has got strengthened over the past 2-3 years due to:
a) US oil production continuing to be lower at ~12.8mmbpd vs. the pre-Covid peak of 13.1mmbpd as US shale investors have become disciplined in capital investment (**Exhibit 8-9**); and **b)** OPEC+ having shown strong ability to cut output by ~10mmbpd in early CY20 to offset the ~10% decline in global oil demand post Covid; OPEC+ still has enough headroom to cut output by another 4-5mmbpd to offset any macro-related risk to global oil demand growth. Hence, we believe the new normal for Brent crude price may be ~USD 80/bbl (except in the event of a global macro shock). This is a departure from the pre-Covid normal price of around USD 60-65/bbl, which was driven by marginal cost of US shale oil production.
- **ONGC/Oil India key beneficiaries of high crude price:** We maintain BUY on [ONGC](#) (TP INR 205) and [Oil India](#) (TP INR 315) given strong dividend play (of 6-8%) and also because CMP is discounting ~USD 55-60/bbl net crude realisation (**Exhibit 20-21**), while our TP is based on USD 65/bbl net crude realisation, and various changes in windfall tax suggesting the government is fine with ONGC/Oil India making net crude realisation of ~USD 75/bbl. Brent crude price of USD 75-80/bbl is a sweet spot for ONGC/Oil India, as it improves visibility for net crude realisation of USD 75/bbl by eliminating the risk of ad hoc fuel subsidy burden.
- **Despite robust refining margin, optimism on OMCs will be contingent on crude sustaining below ~USD 80/bbl:** IEA has reiterated that refining margins are likely to remain strong as refiners are struggling to meet increased demand, especially for middle distillate, due to unplanned outages, feedstock quality issues, supply chain bottlenecks and low inventories. Further, IEA has highlighted that refiners are struggling to operate at optimum capacity due to insufficient access to medium and heavy sour crude from the Middle East and Russia. IEA expects global refinery runs to rise by 1.7mmbpd to 82.4mmbpd in CY23 and by 1.2mmbpd to 83.6mmbpd in CY24. However, optimism on OMCs will be contingent on crude sustaining below ~USD 80/bbl. At spot Brent price and actual product cracks, OMCs' gross auto-fuel marketing margin declined to negative INR 3.5/ltr (vs. historical margin of +INR 3.5/ltr) and gross auto-fuel integrated margin to +INR 9.8/ltr (vs. historical margin of +INR 11.3/ltr) - **Exhibit 22**. Our calculation suggests OMCs' 2QFY24E EBITDA is likely to decline QoQ to ~INR340bn vs. INR483bn in 1QFY24; but it is still expected to be strong vs. normalised quarterly EBITDA of INR160-170bn; HPCL will see the sharpest decline given its leverage to the marketing business - **Exhibit 24**. Though OMCs' FY24 P/B valuations (~0.8x for HPCL/IOCL and 1.1x for BPCL) appear attractive, we maintain our [near-term cautious view on all OMCs](#) given their marketing segment earnings could come under risk if: **a)** Brent crude price sustains above USD 85/bbl; and/or **b)** OMCs are forced to cut petrol/diesel price in the next few months.

Exhibit 5. OPEC+ crude oil production (mmbpd) rose 0.1mmbpd MoM in Aug'23 as Iran/Nigeria/Iraq increased production MoM; but still continues to lag its output target by ~2.6mmbpd

Countries	Jul 2023 Supply	Aug 2023 Supply	May-Dec 2023 Target excluding Saudi's 1mmbpd and Russia's 0.3mmbpd voluntary cut		Aug 2023 production vs target	Sustainable Capacity ¹	Spare Capacity in	
			0.3mmbpd voluntary cut	0.3mmbpd voluntary cut			Aug'23	CY24 Target
OPEC								
Algeria	0.96	0.93	0.96	0.96	0.0	1.0	0.1	1.01
Angola	1.15	1.13	1.46	1.46	-0.3	1.1	0.0	1.28
Congo	0.28	0.27	0.31	0.31	0.0	0.3	0.0	0.28
Equatorial Guinea	0.06	0.07	0.12	0.12	-0.1	0.1	0.0	0.07
Gabon	0.22	0.22	0.17	0.17	0.0	0.2	0.0	0.18
Iraq	4.27	4.32	4.22	4.22	0.1	4.8	0.4	4.43
Kuwait	2.55	2.55	2.55	2.55	0.0	2.8	0.3	2.68
Nigeria	1.10	1.18	1.74	1.74	-0.6	1.3	0.2	1.38
Saudi Arabia	9.08	8.98	9.98	9.98	-1.0	12.3	3.3	10.48
UAE	3.22	3.22	2.88	2.88	0.3	4.2	1.0	3.22
Total OPEC-10	22.89	22.87	24.4	24.4	-1.5	28.0	5.1	24.99
Iran ³	3.04	3.14				3.8		
Libya ³	1.13	1.16				1.2	0.1	
Venezuela ³	0.81	0.79				0.8	0.0	
Total OPEC	27.87	27.96				33.8	5.2	
Azerbaijan	0.50	0.50	0.68	0.68	-0.2	0.5	0.0	0.55
Kazakhstan	1.52	1.46	1.55	1.55	-0.1	1.7	0.2	1.63
Mexico ⁴	1.64	1.67	1.75	1.75	-0.1	1.7	0.0	1.75
Oman	0.80	0.80	0.80	0.80	0.0	0.9	0.1	0.84
Russia	9.48	9.48	9.98	9.98	-0.5	10.0		9.83
Others ⁵	0.82	0.87	1.06	1.06	-0.2	0.9	0.0	0.87
Total Non-OPEC	14.76	14.78	15.8	15.8	-1.0	15.6	0.3	15.5
OPEC+-19 in cut deal⁶	37.7	37.7	40.2	40.2	-2.6	43.6	5.4	40.5
Total OPEC+	42.6	42.7				49.4	5.5	

Source: IEA, Note: Production excludes condensates; 1. Capacity levels can be reached within 90 days and sustained for extended period; 2. Excludes shut in Iranian, Russian crude; 3. Iran, Libya, Venezuela exempt from cuts; 4. Mexico excluded from OPEC+ compliance; only cut in May, June 2020; 5. Bahrain, Brunei, Malaysia, Sudan and South Sudan.

Exhibit 6. OPEC+ supply in Aug'23 was at 42.7 mmbpd vs. 44.8mmbpd in Sep'22 primarily driven by output cuts by Saudi/Russia, partly offset by higher output from Iran/Kazakhstan/Nigeria

Countries	Sep 2022 Supply	Aug 2023 Supply	Sep 2022 Target	Nov 2022 Target	May-Dec 2023 Target excluding Saudi's 1mmbpd and Russia's 0.3mmbpd voluntary cut		CY24 Target	Increase in actual cut in Aug'23 vs Sep'22	Increase in cut target Aug'23 vs Sep'22 (excluding Saudi's 1mmbpd and Russia's 0.3mmbpd voluntary cut)
					0.3mmbpd voluntary cut	0.3mmbpd voluntary cut			
OPEC									
Algeria	1.0	0.9	1.1	1.0	1.0	1.0	1.0	-0.1	-0.1
Angola	1.1	1.1	1.5	1.5	1.5	1.3	1.3	0.0	-0.1
Congo	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.0	0.0
Equatorial Guinea	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
Gabon	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0
Iraq	4.6	4.3	4.7	4.4	4.2	4.4	4.4	-0.2	-0.4
Kuwait	2.8	2.6	2.8	2.7	2.6	2.7	2.7	-0.3	-0.3
Nigeria	1.0	1.2	1.8	1.7	1.7	1.4	1.4	0.2	-0.1
Saudi Arabia	11.0	9.0	11.0	10.5	10.0	10.5	10.5	-2.1	-1.1
UAE	3.5	3.2	3.2	3.0	2.9	3.2	3.2	-0.2	-0.3
Total OPEC-10	25.5	22.9	26.8	25.4	24.4	25.0	25.0	-2.6	-2.4
Iran ³	2.5	3.1							
Libya ³	1.2	1.2							
Venezuela ³	0.7	0.8							
Total OPEC	29.9	28.0							
Azerbaijan	0.5	0.5	0.7	0.7	0.7	0.6	0.6	0.0	0.0
Kazakhstan	1.2	1.5	1.7	1.6	1.6	1.6	1.6	0.3	-0.2
Mexico ⁴	1.6	1.7	1.8	1.8	1.8	1.8	1.8	0.0	0.0
Oman	0.9	0.8	0.9	0.8	0.8	0.8	0.8	-0.1	-0.1
Russia	9.7	9.5	11.0	10.5	10.0	9.9	9.9	-0.3	-1.1
Others ⁵	0.9	0.9	1.1	1.1	1.1	0.7	0.7	0.0	0.0
Total Non-OPEC	14.9	14.8	17.2	16.4	15.8	15.5	15.5	-0.1	-1.4
OPEC+-19 in cut deal⁶	40.4	37.7	44.0	42	40.2	40.5	40.5	-2.8	-3.8
Total OPEC+	44.8	42.7							

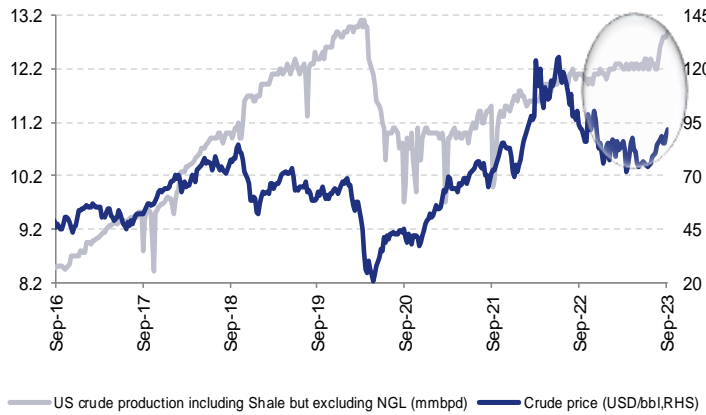
Source: IEA, Note: Production excludes condensates; 1. Capacity levels can be reached within 90 days and sustained for extended period; 2. Excludes shut in Iranian, Russian crude; 3. Iran, Libya, Venezuela exempt from cuts; 4. Mexico excluded from OPEC+ compliance; only cut in May, June 2020; 5. Bahrain, Brunei, Malaysia, Sudan and South Sudan.

Exhibit 7. Saudi Arabia's fiscal breakeven crude price is ~USD 80/bbl

USD/bbl	Avg 2000-19	2020	2021	2022	2023E	2024E
Algeria	102	90	111	86	112	112
Azerbaijan	52	66	58	64	77	78
Bahrain	83	114	135	134	126	129
Iran	86	547	259	278	352	375
Iraq	76	57	53	66	76	76
Kazakhstan	...	192	184	96	100	84
Kuwait	47	76	62	63	71	66
Libya	72	142	52	85	64	62
Oman	69	86	77	62	72	66
Qatar	45	49	47	45	45	42
Saudi Arabia	80	76	84	86	81	75
Turkmenistan	...	41	32	37	38	40
United Arab Emirates	50	52	53	55	56	55

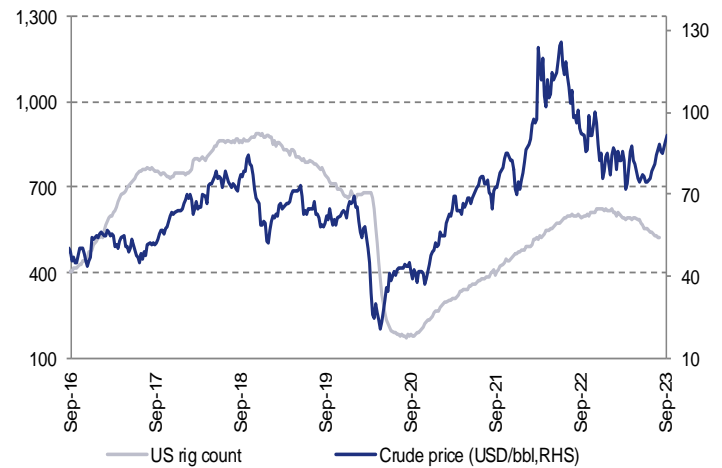
Source: IMF, JM Financial

Exhibit 8. US crude output rose to ~12.9mmbpd with rise in crude prices but is still slightly below pre-Covid peak of ~13mmbpd



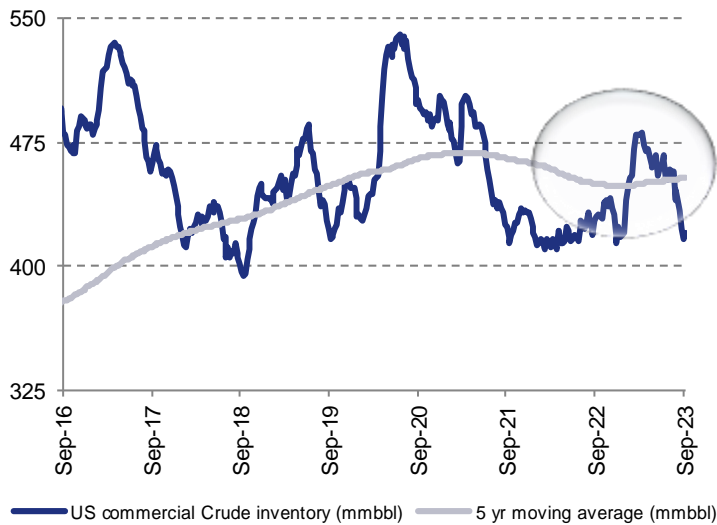
Source: Bloomberg, EIA JM Financial

Exhibit 9. US oil rig count at 513, still down vs.784 rigs in Jun'19



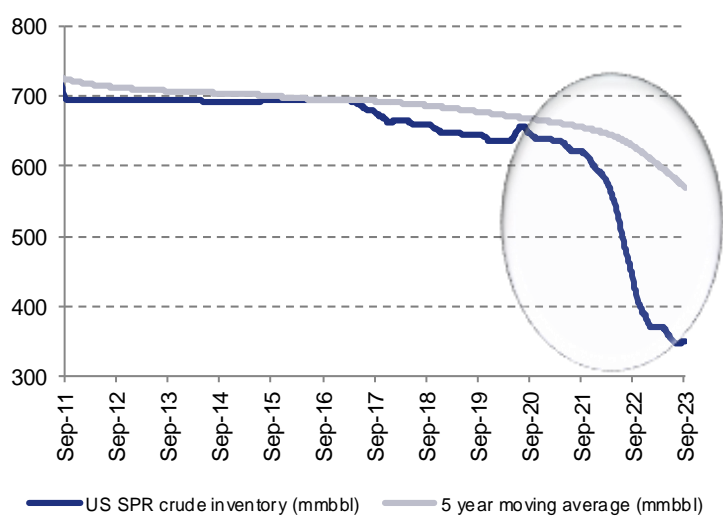
Source: Bloomberg, JM Financial

Exhibit 10. US commercial crude inventory at ~420mmbbl, below its 5-year average



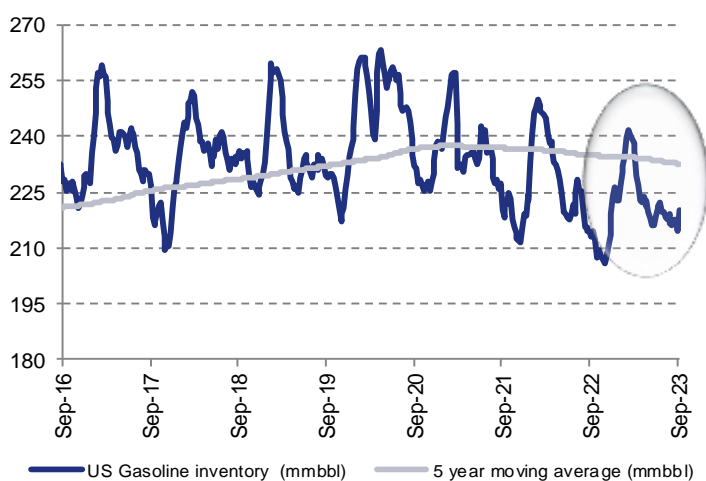
Source: Bloomberg, EIA JM Financial

Exhibit 11. US strategic crude inventory at ~350mmbbl vs. 5 year average of ~570mmbbl



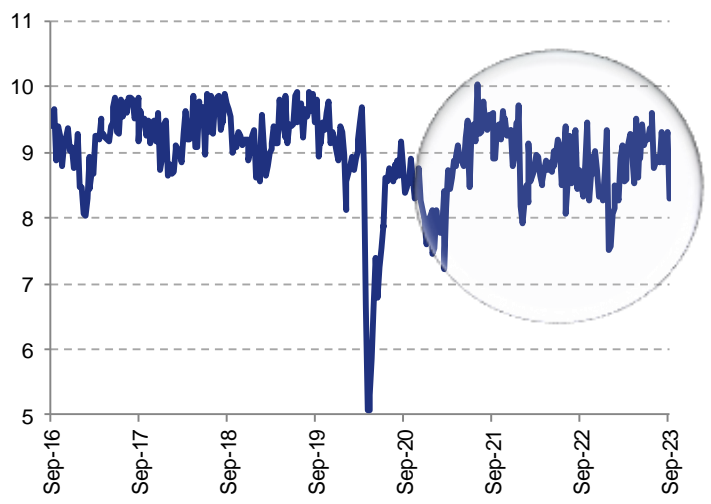
Source: Bloomberg, JM Financial

Exhibit 12. US gasoline inventory is below 5-year average (mmbbl)



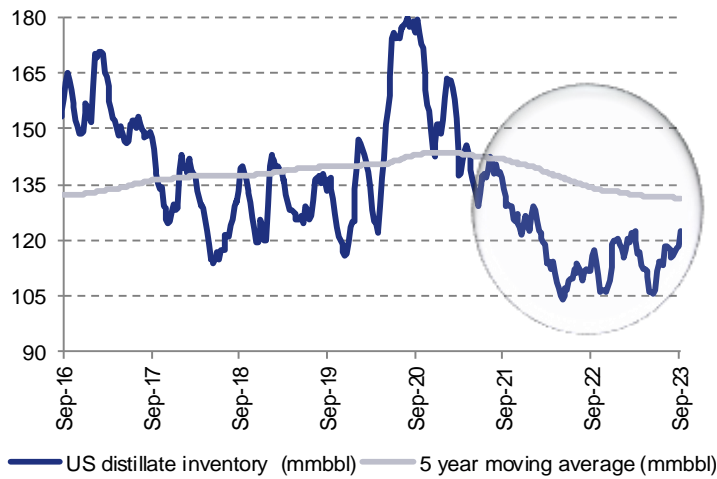
Source: EIA, JM Financial

Exhibit 13. US gasoline demand declined to ~8.8mmbpd in Sep'23



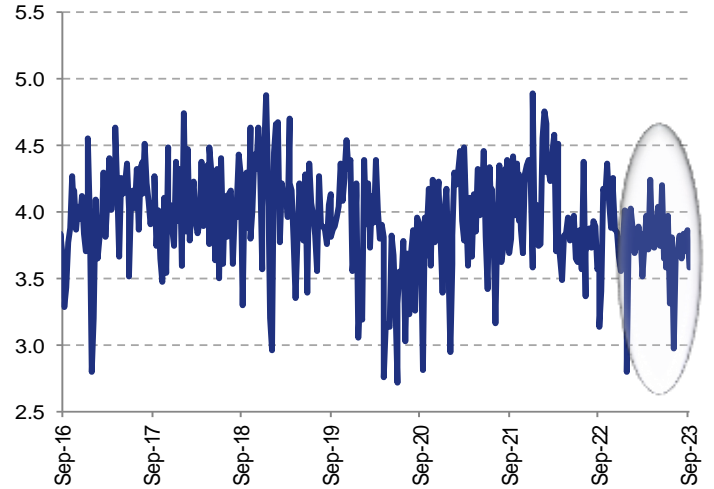
Source: EIA, JM Financial

Exhibit 14. US distillate inventory is below 5-year average (mmbbl)



Source: EIA, JM Financial

Exhibit 15. US distillate demand was at ~3.7mmbpd in Sep'23



Source: EIA, JM Financial

Exhibit 16. US monthly crude and natural gas (including NGL) production trend – significant rise in NGL production while crude output has also seen some growth in last 2-3 months

	NGL Production (mmbpd)	YoY growth (%)	Crude Oil Production (mmbpd)	YoY growth (%)	Dry Natural Gas Production (bcf/d)	Dry Natural Gas Production (mmboepd)	YoY growth (%)	NGL production as % of Dry Natural Gas production
CY10	2.07		5.47		58.39	9.92		20.9%
CY11	2.21	6.8%	5.64	3.1%	62.72	10.66	7.4%	20.8%
CY12	2.41	8.8%	6.50	15.1%	65.66	11.16	4.7%	21.6%
CY13	2.61	8.2%	7.45	14.7%	66.66	11.33	1.5%	23.0%
CY14	3.01	15.6%	8.67	16.4%	70.09	11.91	5.1%	25.3%
CY15	3.34	10.9%	9.43	8.8%	74.15	12.60	5.8%	26.5%
CY16	3.51	5.0%	8.83	-6.4%	72.66	12.35	-2.0%	28.4%
CY17	3.78	7.8%	9.35	5.9%	74.75	12.70	2.9%	29.8%
CY18	4.37	15.5%	10.93	16.9%	83.29	14.15	11.4%	30.9%
CY19	4.82	10.4%	12.31	12.6%	93.03	15.81	11.7%	30.5%
CY20	5.17	7.3%	11.33	-8.0%	91.36	15.52	-1.8%	33.3%
CY21	5.42	4.7%	11.26	-0.6%	94.50	16.06	3.4%	33.7%
CY22	5.93	9.5%	11.91	5.8%	98.09	16.67	3.8%	35.6%
CY23E	6.34	6.9%	12.78	7.3%	102.68	17.45	4.7%	36.3%
CY24E	6.49	2.4%	13.16	2.9%	104.93	17.83	2.2%	36.4%
Jan-22	5.51	5.6%	11.48	3.1%	95.30	16.19	2.5%	34.0%
Feb-22	5.51	29.6%	11.26	13.5%	94.50	16.06	9.8%	34.3%
Mar-22	5.95	15.5%	11.81	4.1%	95.40	16.21	1.7%	36.7%
Apr-22	5.92	8.0%	11.77	4.0%	96.50	16.40	2.0%	36.1%
May-22	5.96	8.4%	11.73	3.0%	97.70	16.60	3.4%	35.9%
Jun-22	6.01	8.9%	11.80	3.8%	98.50	16.74	4.6%	35.9%
Jul-22	6.19	12.5%	11.83	3.9%	98.50	16.74	3.8%	37.0%
Aug-22	6.06	8.2%	11.99	6.3%	99.30	16.87	4.2%	35.9%
Sep-22	6.15	10.4%	12.33	12.9%	100.50	17.08	5.7%	36.0%
Oct-22	6.17	7.9%	12.38	7.1%	100.60	17.09	3.9%	36.1%
Nov-22	6.14	6.4%	12.38	5.1%	101.00	17.16	3.4%	35.8%
Dec-22	5.60	-2.4%	12.14	3.9%	99.30	16.87	1.3%	33.2%
Jan-23	5.85	6.2%	12.57	9.5%	101.80	17.30	6.8%	33.8%
Feb-23	5.96	8.2%	12.53	11.3%	101.80	17.30	7.7%	34.5%
Mar-23	6.21	4.4%	12.77	8.1%	102.70	17.45	7.7%	35.6%
Apr-23	6.37	7.6%	12.65	7.5%	102.40	17.40	6.1%	36.6%
May-23	6.38	7.0%	12.64	7.8%	103.20	17.54	5.6%	36.4%
Jun-23	6.53	8.7%	12.84	8.8%	102.80	17.47	4.4%	37.4%
Jul-23	6.54	5.7%	12.84	8.5%	102.60	17.43	4.2%	37.5%
Aug-23	6.52	7.6%	12.91	7.7%	102.60	17.43	3.3%	37.4%

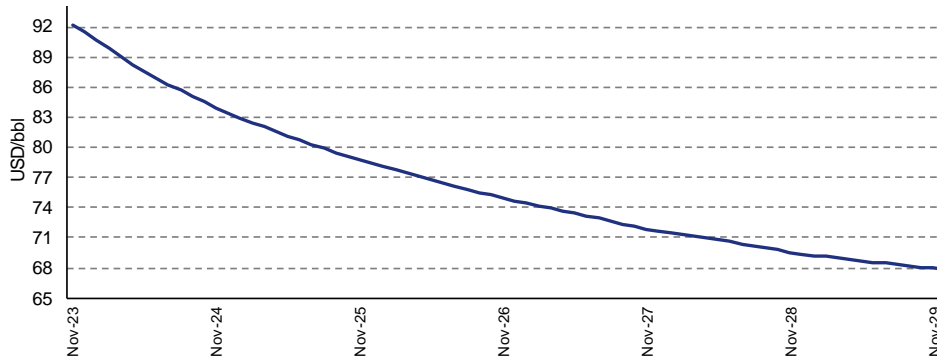
Source: EIA, JM Financial

Exhibit 17. China's refinery throughput and oil & gas export import details (mmt)

	CY19	CY20	CY21	CY22	CY23TD	CY22TD	%YoY	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	%YoY
Refinery Throughput																						
Total Throughput (mmt)	NA	NA	NA	673.9	426.5	385.3	10.7%	53.2	53.7	56.8	58.6	59.6	59.9	58.0	58.0	63.3	61.1	62.0	61.0	63.1		
Total Throughput (mmbpd)	NA	NA	NA	13.5	102.9	93.0	10.6%	12.5	12.6	13.8	13.8	14.5	14.1	13.7	15.1	14.9	14.9	14.6	14.8	14.9		
Exports																						
Diesel	21.4	19.8	17.2	10.9	8.4	2.4	246%	0.4	0.8	1.7	1.1	2.1	2.8	2.4	2.2	1.4	0.6	0.6	0.3	0.9		
Jet Fuel	17.6	10.0	8.6	10.9	8.2	4.8	72.2%	0.5	0.8	1.2	1.2	1.3	1.7	1.4	1.3	1.1	0.8	0.9	1.1	1.5		
Gasoline	16.4	16.0	14.6	12.7	7.4	6.5	14.1%	0.9	1.1	0.7	1.0	1.5	1.9	1.2	1.0	0.8	0.8	1.4	1.0	1.2		
Total oil product exports	66.9	61.9	60.3	53.8	42.5	29.8	42.4%	3.4	4.8	5.6	4.5	6.1	7.7	6.5	6.2	5.5	3.8	4.9	4.5	5.3	5.9	23.2%
Imports																						
Crude (mmt)	505.9	542.4	513.2	508.4	378.8	330.2	14.7%	37.3	40.4	40.2	43.1	46.7	48.1	43.3	40.7	52.3	42.4	51.4	52.1	43.7	52.8	30.9%
Crude (mmbpd)	10.1	10.8	10.3	10.2	13.0	11.37	14.7%	8.8	9.5	9.8	10.2	11.4	11.3	10.2	10.6	12.3	10.3	12.1	12.7	10.3	12.4	30.9%
Total oil product imports	30.6	28.5	27.1	26.3	30.6	15.1	102%	1.6	1.9	2.3	2.5	3.1	3.3	2.4	2.9	3.9	4.4	4.6	4.4	4.5	3.5	86.3%
LNG	60.7	67.3	79.9	63.8	39.5	36.1	9.2%	4.7	4.7	5.9	4.0	6.4	6.6	5.9	5.2	5.4	4.8	6.4	6.0	5.9		
Piped natural gas	36.3	34.5	42.4	45.8	27.6	26.3	5.1%	4.0	4.1	4.3	3.6	3.9	3.7	3.4	3.5	3.5	4.2	4.2	4.4	4.5		

Source: Bloomberg, JM Financial.

Exhibit 18. Brent long-term forward curve stabilising at ~USD 70/bbl



Source: Bloomberg, JM Financial.

Exhibit 19. Russia's share in India's crude imports continued to be strong at +40%; discount on Russian crude at ~USD 5/bbl in Jul'23

Year/Month	India's total crude imports			India's crude imports from Russia			Russia crude proportion and discount		
	Value (USD bn)	Qty (mmbpd)	Average Cost (USD/bbl)	Value (USD bn)	Qty (mmbpd)	Average Cost (USD/bbl)	Russia's share in India's crude imports	Russia crude premium/ (discount) (%)	Russia crude premium/ (discount) (\$/bbl)
Annual									
FY14	143.7	3.81	103.4	0.1	0.00	94.9	0.1%	NM	NM
FY15	116.0	3.78	84.0	0.2	0.00	113.2	0.1%	NM	NM
FY16	65.6	4.06	44.1	0.1	0.00	65.8	0.1%	NM	NM
FY17	70.7	4.33	44.8	0.3	0.01	78.5	0.2%	NM	NM
FY18	87.4	4.39	54.5	1.2	0.06	53.7	1.4%	-2%	-0.8
FY19	114.2	4.56	68.6	1.2	0.04	72.6	1.0%	6%	4.0
FY20	102.7	4.44	63.3	1.7	0.07	66.6	1.6%	5%	3.3
FY21	59.3	3.79	42.8	0.9	0.06	46.5	1.5%	9%	3.7
FY22	122.6	4.43	75.8	2.5	0.09	77.9	2.0%	3%	2.0
FY23	162.1	4.77	93.2	31.3	1.02	83.6	21.5%	-10%	-9.5
Monthly details									
Jul-21	9.6	4.40	70.4	0.1	0.06	73.9	1.5%	5%	3.4
Aug-21	6.8	3.00	72.6	0.1	0.06	76.3	2.1%	5%	3.7
Sep-21	13.6	6.50	69.8	0.4	0.20	75.0	3.1%	8%	5.3
Oct-21	8.9	3.83	75.0	0.2	0.10	70.8	2.6%	-6%	-4.2
Nov-21	10.6	4.48	79.2	0.2	0.07	80.6	1.5%	2%	1.4
Dec-21	12.2	5.11	77.3	0.2	0.10	78.2	1.9%	1%	0.8
Jan-22	8.4	3.40	79.8	0.2	0.06	93.1	1.8%	17%	13.4
Feb-22	12.2	5.16	84.6	NA	NA	NA	NA	NA	NA
Mar-22	16.2	5.39	97.3	0.3	0.09	117.7	1.7%	21%	20.4
Apr-22	14.2	4.47	105.8	0.9	0.27	105.3	6.1%	0%	-0.5
May-22	12.8	3.89	106.1	1.3	0.47	92.9	12.0%	-12%	-13.2
Jun-22	15.4	4.89	105.1	2.4	0.79	100.2	16.1%	-5%	-4.9
Jul-22	14.0	4.09	110.6	2.4	0.77	99.3	18.8%	-10%	-11.3
Aug-22	13.1	4.05	104.7	1.9	0.67	93.8	16.5%	-10%	-10.9
Sep-22	14.0	4.67	100.1	3.1	1.16	90.2	24.7%	-10%	-9.9
Oct-22	12.3	4.28	92.8	2.6	1.00	84.5	23.4%	-9%	-8.3
Nov-22	12.1	4.20	95.8	2.7	1.00	90.3	23.9%	-6%	-5.5
Dec-22	15.2	6.09	80.7	3.1	1.28	78.9	21.0%	-2%	-1.8
Jan-23	12.0	4.85	80.0	3.2	1.40	73.1	28.9%	-9%	-6.9
Feb-23	13.3	6.08	78.3	3.4	1.66	71.9	27.4%	-8%	-6.4
Mar-23	13.6	5.73	76.7	4.0	1.85	70.0	32.3%	-9%	-6.8
Apr-23	12.1	5.31	76.0	4.0	1.95	68.0	36.7%	-11%	-8.0
May-23	12.1	5.24	74.8	4.6	2.12	70.0	40.4%	-6%	-4.8
Jun-23	10.0	4.63	72.1	3.8	1.87	68.0	40.3%	-6%	-4.1
Jul-23	9.0	3.95	73.2	3.4	1.60	67.9	40.5%	-7%	-5.2

Source: CMIE, JM Financial.

Exhibit 20. ONGC valuation sensitivity to net crude realisation and gas price (INR/share)

		FY25 Gas Price (USD/mmbtu)						
		4.6	5.2	5.9	6.5	7.2	7.8	8.5
Net crude realisation (USD/bbl)	50	123	133	143	152	162	171	181
	55	141	151	160	170	179	189	199
	60	159	168	178	187	197	207	216
	65	176	186	195	205	215	224	234
	70	194	203	213	223	232	242	251
	75	212	221	231	240	250	260	269
	80	212	221	231	241	250	260	269

Source: Company, JM Financial.

Exhibit 21. Oil India valuation sensitivity to net crude realisation and gas price

		FY25 Gas Price (USD/mmbtu)						
		4.5	5.2	5.8	6.5	7.1	7.8	8.4
Net crude realisation (USD/bbl)	50	224	235	245	256	267	277	288
	55	244	254	265	276	286	297	307
	60	263	274	285	295	306	316	327
	65	283	294	304	315	326	336	347
	70	303	313	324	335	345	356	366
	75	314	325	335	346	357	367	378
	80	313	324	335	345	356	367	377

Source: Company, JM Financial.

Exhibit 22. OMCs' auto-fuel gross marketing margin declined to negative INR 3.5/tr (vs. historical margin of +INR 3.5/tr) and gross auto-fuel integrated margin to INR 9.8/tr (vs. historical margin of INR 11.3/tr)

	1QFY22	2QFY22	3QFY22	4QFY22	1QFY23	2QFY23	3QFY23	4QFY23	1QFY24	2QFY24TD	On spot crude price and spot product
OMCs gross marketing margin (GMM, INR/tr)											
Diesel GMM (INR/tr)	4.0	5.9	5.8	-1.3	-12.8	-7.5	-6.5	0.6	9.5	4.0	-4.8
Petrol GMM (INR/tr)	0.2	2.4	2.2	-2.0	-11.0	-3.7	7.2	5.0	7.4	5.1	-0.9
Wt Avg GMM for Diesel & Petrol (INR/tr)	2.7	4.8	4.6	-1.5	-12.2	-6.2	-2.0	2.1	8.8	4.4	-3.5
Historical average GMM (INR/tr)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
OMCs diesel/petrol refining product crack trend (USD/bbl)											
Diesel refining product crack (USD/bbl)	5.3	5.4	11.6	19.5	43.0	35.1	39.6	25.2	13.8	25.6	29.2
Petrol refining product crack (USD/bbl)	9.9	11.8	15.8	17.3	34.9	13.4	9.6	18.5	16.5	19.3	18.3
Historical average diesel/petrol product crack (USD/bbl)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
OMCs diesel/petrol refining product crack trend (INR/tr)											
Diesel refining product crack (INR/tr)	2.5	2.5	5.5	9.2	20.9	17.6	20.5	13.0	7.1	13.3	15.2
Petrol refining product crack (INR/tr)	4.6	5.5	7.4	8.2	17.0	6.7	5.0	9.6	8.5	10.0	9.6
Historical average diesel/petrol product crack (INR/tr)	7.0	7.0	7.1	7.1	7.3	7.5	7.8	7.8	7.8	7.8	7.8
OMCs integrated gross refining and marketing margin (INR/tr) — assuming 1:1 marketing vs refining volume											
Diesel integrated gross margin (INR/tr)	6.4	8.4	11.2	7.9	8.1	10.2	14.0	13.6	16.6	17.3	10.4
Petrol integrated gross margin (INR/tr)	4.8	7.9	9.6	6.2	6.0	3.1	12.1	14.6	16.0	15.1	8.7
Wt Avg integrated gross margin for Diesel & Petrol (IN)	5.9	8.3	10.7	7.4	7.4	7.8	13.4	14.0	16.4	16.6	9.8
Historical average integrated gross margin for Diesel & Petrol	10.5	10.5	10.6	10.6	10.8	11.0	11.3	11.3	11.3	11.3	11.3
HPCL integrated gross refining and marketing margin (INR/tr) — assuming 1.7:1 marketing vs refining volume											
Diesel integrated gross margin (INR/tr)	5.4	7.4	9.0	4.1	-0.5	2.9	5.6	8.3	13.7	11.8	4.1
Petrol integrated gross margin (INR/tr)	2.9	5.7	6.5	2.9	-1.0	0.3	10.1	10.7	12.5	11.0	4.7
Wt Avg integrated gross margin for Diesel & Petrol (IN)	4.6	6.8	8.2	3.7	-0.7	2.0	7.1	9.1	13.3	11.5	4.3
HPCL historical average integrated gross margin for Diesel & I	7.6	7.6	7.7	7.7	7.8	7.9	8.1	8.1	8.1	8.1	8.1
BPCL integrated gross refining and marketing margin (INR/tr) — assuming 1.3:1 marketing vs refining volume											
Diesel integrated gross margin (INR/tr)	5.9	7.8	10.0	5.8	3.3	6.1	9.3	10.6	15.0	14.2	6.9
Petrol integrated gross margin (INR/tr)	3.7	6.7	7.9	4.3	2.0	1.5	11.0	12.4	14.0	12.8	6.5
Wt Avg integrated gross margin for Diesel & Petrol (IN)	5.1	7.4	9.3	5.3	2.9	4.6	9.8	11.2	14.7	13.7	6.8
BPCL historical average integrated gross margin for Diesel & I	8.9	8.9	8.9	9.0	9.1	9.3	9.5	9.5	9.5	9.5	9.5
IOCL integrated gross refining and marketing margin (INR/tr) — assuming 1.2:1 marketing vs refining volume											
Diesel integrated gross margin (INR/tr)	6.0	8.0	10.3	6.4	4.6	7.2	10.6	11.5	15.4	15.1	7.9
Petrol integrated gross margin (INR/tr)	4.0	7.0	8.4	4.9	3.1	1.9	11.3	13.0	14.5	13.5	7.1
Wt Avg integrated gross margin for Diesel & Petrol (IN)	5.4	7.7	9.7	5.9	4.1	5.5	10.8	12.0	15.1	14.5	7.6
IOCL historical average integrated gross margin for Diesel & F	9.3	9.3	9.4	9.4	9.6	9.8	10.0	10.0	10.0	10.0	10.0
India retail auto-fuel price and Brent crude price											
Delhi retail diesel price (INR/ltr)	89.3	89.5	89.5	87.0	93.5	89.6	89.6	89.6	89.6	89.6	89.6
Delhi retail petrol price (INR/ltr)	93.0	101.3	101.8	95.8	101.5	96.7	96.7	96.7	96.7	96.7	96.7
Brent crude price (USD/bbl)	68.6	73.0	79.4	99.5	112.9	99.1	88.3	81.4	78.0	83.9	92.2
INR/USD exchange rate	73.8	74.1	75.0	75.2	77.3	79.8	82.2	82.3	82.2	82.6	83.0

Source: Company, JM Financial Note: *Margin is based on spot Brent price of ~USD 92.2/bbl and current diesel crack of ~USD29/bbl and petrol crack of ~USD18/bbl

Exhibit 23. Spore GRM has strengthened to ~\$9.7/bbl in 2QFY24TD with sharp rise in diesel cracks

	WE 08 Sep	WE 01 Sep	Aug-23	Jul-23	2QFY24TD	1QFY24	4QFY23	3QFY23	2QFY23	FY23
S'pore GRM (USD/bbl)	9.8	13.3	12.6	6.6	9.7	4.0	8.1	6.3	7.1	10.8
Product cracks (USD/bbl)										
Diesel	26.1	30.6	30.1	20.5	25.6	13.9	25.2	39.6	35.1	35.7
Petrol	17.1	23.2	21.3	17.7	19.4	16.5	18.5	9.6	13.4	19.1
Naptha	-17.3	-14.2	-15.2	-17.4	-16.3	-12.8	-4.8	-11.5	-19.4	-12.1
LPG	-30.0	-29.4	-30.9	-33.6	-32.0	-32.7	-27.4	-32.8	-42.6	-36.3
Jet Fuel	26.1	30.6	30.1	20.5	25.6	13.9	25.0	33.9	33.5	32.9
Fuel Oil	-9.0	-4.6	-2.1	-6.1	-4.5	-9.2	-18.2	-24.4	-24.7	-18.4
Crude spreads (USD/bbl)										
Arab heavy-Dubai spread	1.1	1.2	1.0	0.9	1.0	0.7	-1.3	2.2	4.8	2.6
Arab Light-Arab Heavy spread	1.9	2.2	2.2	2.2	2.2	1.8	4.1	3.8	3.2	3.1
Brent-Dubai crude spread	0.4	-0.3	-0.5	-0.4	-0.4	0.4	1.8	3.7	0.8	2.4
Brent (USD/bbl)	91.4	86.6	86.2	80.1	84.0	78.0	83.0	88.3	94.8	94.7

Source: Bloomberg

Exhibit 24. OMCs' 2QFY24E EBITDA to remain strong at ~INR 340bn vs. normalised quarterly EBITDA of INR 160bn-170bn, but lower vs. INR483bn in 1QFY24

	2QFY24E	Sep'23	Aug'23	Jul'23	1QFY24	Normalised quarterly EBITDA
Refining Margin and Product Cracks (US\$/bbl)						
OMCs likely GRM (USD/bbl)	12.8	13.1	15.6	9.6	8.5	6.0
S'pore GRM (USD/bbl)	9.8	10.1	12.6	6.6	4.0	6.0
Product cracks (USD/bbl)						
Diesel	26.1	27.8	30.1	20.5	13.8	15.0
Petrol	19.0	18.0	21.3	17.7	16.5	15.0
Brent (USD/bbl)	85.1	89.0	86.2	80.1	78.2	70.0
OMCs auto-fuel Gross marketing margin (GMM, INR/tr)						
Diesel	3.0	-1.5	1.3	9.3	9.5	3.5
Petrol	4.4	0.6	3.6	9.0	7.4	3.5
Blended	3.5	-0.8	2.1	9.2	8.8	3.5
Computation of OMC quarterly EBITDA						
Refining consolidated quarterly throughput (mmt)						
HPCL	5.4	5.4	5.4	5.4	5.4	5.4
BPCL	10.6	10.6	10.6	10.6	10.4	10.6
IOCL	19.2	19.2	19.2	19.2	18.8	19.2
Marketing quarterly sales volume (mmt)						
HPCL	11.9	11.9	11.9	11.9	11.9	11.9
BPCL	13.3	13.3	13.3	13.3	13.1	13.3
IOCL	22.4	22.4	22.4	22.4	22.4	22.4
Marketing volume/Refining volume (x)						
HPCL	2.2	2.2	2.2	2.2	2.2	2.2
BPCL	1.3	1.3	1.3	1.3	1.3	1.3
IOCL	1.2	1.2	1.2	1.2	1.2	1.2
HPCL quarterly EBITDA (INR Mn)						
Refining	30,236	31,324	39,481	19,904	16,381	10,000
Marketing	26,158	-14,723	12,644	80,554	79,756	22,603
Total	56,395	16,601	52,125	100,457	96,137	32,603
BPCL quarterly EBITDA (INR Mn)						
Refining	96,528	99,662	123,168	66,755	63,271	20,000
Marketing	20,824	-24,866	5,720	81,619	94,784	19,000
Total	117,352	74,796	128,887	148,374	158,056	39,000
IOCL quarterly EBITDA (INR Mn)						
Refining	107,232	111,090	140,019	70,588	52,732	25,000
Marketing	26,651	-50,301	1,212	129,042	141,876	30,000
Other segments	32,000	32,000	32,000	32,000	34,000	32,000
Total	165,883	92,788	173,231	231,630	228,608	87,000
All 3 OMCs quarterly EBITDA (INR Mn)	339,630	184,186	354,244	480,461	482,801	158,603

Source: Company, JM Financial

Exhibit 25. India's current petrol price is lower by ~INR 4-13/tr vs. previous peak price on 3rd Nov'21 while diesel price is ~ INR 8-12/tr lower vs. peak price on 3rd Nov'21

	Petrol price (INR/tr)			Diesel price (INR/tr)		
	Today's price	3rd Nov'21 (before excise duty cut)	Today's price lower vs 3rd Nov'21 price	Today's price	3rd Nov'21 (before excise duty cut)	Today's price lower vs 3rd Nov'21 price
Delhi	96.72	110.04	-13.3	89.62	98.42	-8.8
Mumbai	106.31	115.85	-9.5	94.27	106.62	-12.4
Kolkata	106.03	110.49	-4.5	92.76	101.56	-8.8
Chennai	102.63	106.66	-4.0	94.46	102.59	-8.1

Source: JM Financial

Exhibit 26. Historical changes in excise duty on diesel/petrol (INR/ltr)

Date	Diesel		Petrol	
	Excise duty	Hike/(cut) in duty	Excise duty	Hike/(cut) in duty
01-May-12	2.0		14.4	
01-Oct-12	3.5	1.5	9.1	-5.3
1-Mar-14	3.6	0.1	9.5	0.4
01-Oct-14	5.1	1.6	11.0	1.5
01-Nov-14	6.1	1.0	13.3	2.3
01-Dec-14	10.3	4.1	17.5	4.1
01-Dec-15	10.7	0.4	19.1	1.6
01-Apr-16	17.3	6.7	21.5	2.4
01-Sep-17	15.3	-2.0	19.5	-2.0
04-Oct-18	13.8	-1.5	18.0	-1.5
06-Jul-19	15.8	2.0	20.0	2.0
14-Mar-20	18.8	3.0	23.0	3.0
06-May-20	31.8	13.0	33.0	10.0
04-Nov-21	21.8	-10.0	28.0	-5.0
22-May-22	15.8	-6.0	20.0	-8.0

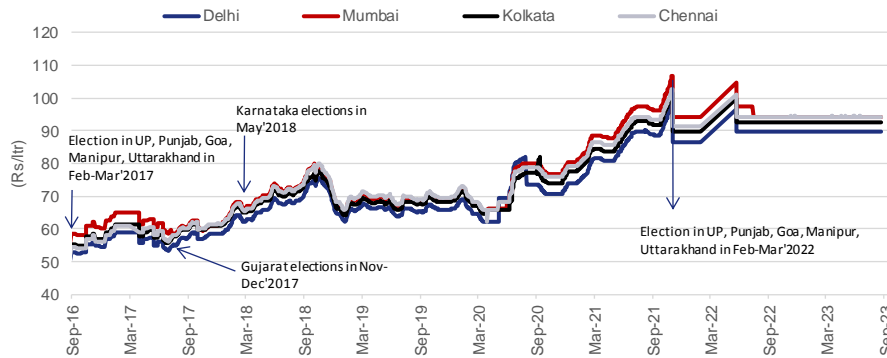
Source: Company, JM Financial

Exhibit 27. India's election schedule

State	Election Month
Mizoram	Dec-23
Chhatisgarh	Jan-24
Madhya Pradesh	Jan-24
Rajasthan	Jan-24
Telangana	Jan-24
General Election	May-24
Andhra Pradesh	Jun-24
Arunachal Pradesh	Jun-24
Odisha	Jun-24
Sikkim	Jun-24
Haryana	Nov-24
Maharashtra	Nov-24

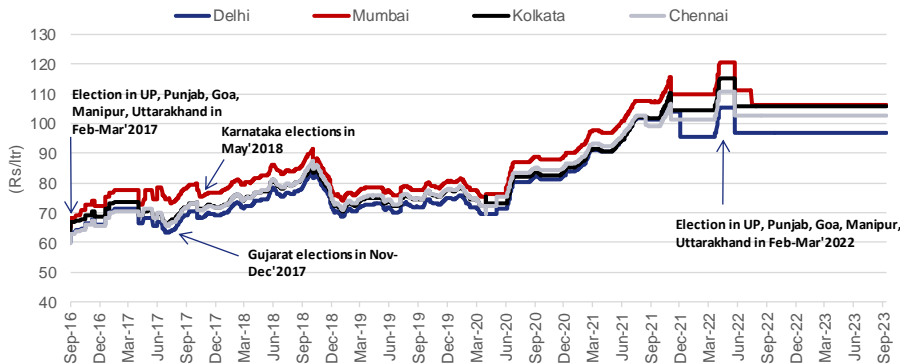
Source: Election commission of India

Exhibit 28. Diesel price history: Pause on price hikes amidst key elections but OMCs usually get back pricing freedom post elections



Source: JM Financial

Exhibit 29. Petrol price history: Pause on price hikes amidst key elections but OMCs usually get back pricing freedom post elections



Source: JM Financial

APPENDIX I

JM Financial Institutional Securities Limited

Corporate Identity Number: U67100MH2017PLC296081

Member of BSE Ltd. and National Stock Exchange of India Ltd.

SEBI Registration Nos.: Stock Broker - INZ000163434, Research Analyst - INH000000610

Registered Office: 7th Floor, Cnergy, Appasaheb Marathe Marg, Prabhadevi, Mumbai 400 025, India.

Board: +9122 6630 3030 | Fax: +91 22 6630 3488 | Email: jmfinancial.research@jmfl.com | www.jmfl.com

Compliance Officer: Mr. Sahil Salastekar | Tel: +91 22 6224 1073 | Email: sahil.salastekar@jmfl.com

Grievance officer: Mr. Sahil Salastekar | Tel: +91 22 6224 1073 | Email: instcompliance@jmfl.com

Investment in securities market are subject to market risks. Read all the related documents carefully before investing.

Definition of ratings	
Rating	Meaning
Buy	Total expected returns of more than 10% for stocks with market capitalisation in excess of INR 200 billion and REITs* and more than 15% for all other stocks, over the next twelve months. Total expected return includes dividend yields.
Hold	Price expected to move in the range of 10% downside to 10% upside from the current market price for stocks with market capitalisation in excess of INR 200 billion and REITs* and in the range of 10% downside to 15% upside from the current market price for all other stocks, over the next twelve months.
Sell	Price expected to move downwards by more than 10% from the current market price over the next twelve months.

* REITs refers to Real Estate Investment Trusts.

Research Analyst(s) Certification

The Research Analyst(s), with respect to each issuer and its securities covered by them in this research report, certify that:

All of the views expressed in this research report accurately reflect his or her or their personal views about all of the issuers and their securities; and

No part of his or her or their compensation was, is, or will be directly or indirectly related to the specific recommendations or views expressed in this research report.

Important Disclosures

This research report has been prepared by JM Financial Institutional Securities Limited (JM Financial Institutional Securities) to provide information about the company(ies) and sector(s), if any, covered in the report and may be distributed by it and/or its associates solely for the purpose of information of the select recipient of this report. This report and/or any part thereof, may not be duplicated in any form and/or reproduced or redistributed without the prior written consent of JM Financial Institutional Securities. This report has been prepared independent of the companies covered herein.

JM Financial Institutional Securities is registered with the Securities and Exchange Board of India (SEBI) as a Research Analyst and a Stock Broker having trading memberships of the BSE Ltd. (BSE) and National Stock Exchange of India Ltd. (NSE). No material disciplinary action has been taken by SEBI against JM Financial Institutional Securities in the past two financial years which may impact the investment decision making of the investor. Registration granted by SEBI and certification from the National Institute of Securities Market (NISM) in no way guarantee performance of JM Financial Institutional Securities or provide any assurance of returns to investors.

JM Financial Institutional Securities renders stock broking services primarily to institutional investors and provides the research services to its institutional clients/investors. JM Financial Institutional Securities and its associates are part of a multi-service, integrated investment banking, investment management, brokerage and financing group. JM Financial Institutional Securities and/or its associates might have provided or may provide services in respect of managing offerings of securities, corporate finance, investment banking, mergers & acquisitions, broking, financing or any other advisory services to the company(ies) covered herein. JM Financial Institutional Securities and/or its associates might have received during the past twelve months or may receive compensation from the company(ies) mentioned in this report for rendering any of the above services.

JM Financial Institutional Securities and/or its associates, their directors and employees may; (a) from time to time, have a long or short position in, and buy or sell the securities of the company(ies) mentioned herein or (b) be engaged in any other transaction involving such securities and earn brokerage or other compensation or act as a market maker in the financial instruments of the company(ies) covered under this report or (c) act as an advisor or lender/borrower to, or may have any financial interest in, such company(ies) or (d) considering the nature of business/activities that JM Financial Institutional Securities is engaged in, it may have potential conflict of interest at the time of publication of this report on the subject company(ies).

Neither JM Financial Institutional Securities nor its associates or the Research Analyst(s) named in this report or his/her relatives individually own one per cent or more securities of the company(ies) covered under this report, at the relevant date as specified in the SEBI (Research Analysts) Regulations, 2014.

The Research Analyst(s) principally responsible for the preparation of this research report and their immediate relatives are prohibited from buying or selling debt or equity securities, including but not limited to any option, right, warrant, future, long or short position issued by company(ies) covered under this report. The Research Analyst(s) principally responsible for the preparation of this research report or their immediate relatives (as defined under SEBI (Research Analysts) Regulations, 2014); (a) do not have any financial interest in the company(ies) covered under this report or (b) did not receive any compensation from the company(ies) covered under this report, or from any third party, in connection with this report or (c) do not have any other material conflict of interest at the time of publication of this report. Research Analyst(s) are not serving as an officer, director or employee of the company(ies) covered under this report.

While reasonable care has been taken in the preparation of this report, it does not purport to be a complete description of the securities, markets or developments referred to herein, and JM Financial Institutional Securities does not warrant its accuracy or completeness. JM Financial Institutional Securities may not be in any way responsible for any loss or damage that may arise to any person from any inadvertent error in the information contained in this report. This report is provided for information only and is not an investment advice and must not alone be taken as the basis for an investment decision.

This research report is based on the fundamental research/analysis conducted by the Research Analyst(s) named herein. Accordingly, this report has been prepared by studying/focusing on the fundamentals of the company(ies) covered in this report and other macro-economic factors. JM Financial Institutional Securities may have also issued or may issue, research reports and/or recommendations based on the technical/quantitative analysis of the company(ies) covered in this report by studying and using charts of the stock's price movement, trading volume and/or other volatility parameters. As a result, the views/recommendations expressed in such technical research reports could be inconsistent or even contrary to the views contained in this report.

The investment discussed or views expressed or recommendations/opinions given herein may not be suitable for all investors. The user assumes the entire risk of any use made of this information. The information contained herein may be changed without notice and JM Financial Institutional Securities reserves the right to make modifications and alterations to this statement as they may deem fit from time to time.

This report is neither an offer nor solicitation of an offer to buy and/or sell any securities mentioned herein and/or not an official confirmation of any transaction.

This report is not directed or intended for distribution to, or use by any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction, where such distribution, publication, availability or use would be contrary to law, regulation or which would subject JM Financial Institutional Securities and/or its affiliated company(ies) to any registration or licensing requirement within such jurisdiction. The securities described herein may or may not be eligible for sale in all jurisdictions or to a certain category of investors. Persons in whose possession this report may come, are required to inform themselves of and to observe such restrictions.

Additional disclosure only for U.S. persons: JM Financial Institutional Securities has entered into an agreement with JM Financial Securities, Inc. ("JM Financial Securities"), a U.S. registered broker-dealer and member of the Financial Industry Regulatory Authority ("FINRA") in order to conduct certain business in the United States in reliance on the exemption from U.S. broker-dealer registration provided by Rule 15a-6, promulgated under the U.S. Securities Exchange Act of 1934 (the "Exchange Act"), as amended, and as interpreted by the staff of the U.S. Securities and Exchange Commission ("SEC") (together "Rule 15a-6").

This research report is distributed in the United States by JM Financial Securities in compliance with Rule 15a-6, and as a "third party research report" for purposes of FINRA Rule 2241. In compliance with Rule 15a-6(a)(3) this research report is distributed only to "major U.S. institutional investors" as defined in Rule 15a-6 and is not intended for use by any person or entity that is not a major U.S. institutional investor. If you have received a copy of this research report and are not a major U.S. institutional investor, you are instructed not to read, rely on, or reproduce the contents hereof, and to destroy this research or return it to JM Financial Institutional Securities or to JM Financial Securities.

This research report is a product of JM Financial Institutional Securities, which is the employer of the research analyst(s) solely responsible for its content. The research analyst(s) preparing this research report is/are resident outside the United States and are not associated persons or employees of any U.S. registered broker-dealer. Therefore, the analyst(s) are not subject to supervision by a U.S. broker-dealer, or otherwise required to satisfy the regulatory licensing requirements of FINRA and may not be subject to the Rule 2241 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account.

Any U.S. person who is recipient of this report that wishes further information regarding, or to effect any transaction in, any of the securities discussed in this report, must contact, and deal directly through a U.S. registered representative affiliated with a broker-dealer registered with the SEC and a member of FINRA. In the U.S., JM Financial Institutional Securities has an affiliate, JM Financial Securities, Inc. located at Harborside Financial Center, 2500 Plaza 5, 25th Floor, Office No. 2558, Jersey City, NJ 07311. Telephone +1 (201) 633-3610 which is registered with the SEC and is a member of FINRA and SIPC.

Additional disclosure only for U.K. persons: Neither JM Financial Institutional Securities nor any of its affiliates is authorised in the United Kingdom (U.K.) by the Financial Conduct Authority. As a result, this report is for distribution only to persons who (i) have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended, the "Financial Promotion Order"), (ii) are persons falling within Article 49(2)(a) to (d) ("high net worth companies, unincorporated associations etc.") of the Financial Promotion Order, (iii) are outside the United Kingdom, or (iv) are persons to whom an invitation or inducement to engage in investment activity (within the meaning of section 21 of the Financial Services and Markets Act 2000) in connection with the matters to which this report relates may otherwise lawfully be communicated or caused to be communicated (all such persons together being referred to as "relevant persons"). This report is directed only at relevant persons and must not be acted on or relied on by persons who are not relevant persons. Any investment or investment activity to which this report relates is available only to relevant persons and will be engaged in only with relevant persons.

Additional disclosure only for Canadian persons: This report is not, and under no circumstances is to be construed as, an advertisement or a public offering of the securities described herein in Canada or any province or territory thereof. Under no circumstances is this report to be construed as an offer to sell securities or as a solicitation of an offer to buy securities in any jurisdiction of Canada. Any offer or sale of the securities described herein in Canada will be made only under an exemption from the requirements to file a prospectus with the relevant Canadian securities regulators and only by a dealer properly registered under applicable securities laws or, alternatively, pursuant to an exemption from the registration requirement in the relevant province or territory of Canada in which such offer or sale is made. This report is not, and under no circumstances is it to be construed as, a prospectus or an offering memorandum. No securities commission or similar regulatory authority in Canada has reviewed or in any way passed upon these materials, the information contained herein or the merits of the securities described herein and any representation to the contrary is an offence. If you are located in Canada, this report has been made available to you based on your representation that you are an "accredited investor" as such term is defined in National Instrument 45-106 Prospectus Exemptions and a "permitted client" as such term is defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Under no circumstances is the information contained herein to be construed as investment advice in any province or territory of Canada nor should it be construed as being tailored to the needs of the recipient. Canadian recipients are advised that JM Financial Securities, Inc., JM Financial Institutional Securities Limited, their affiliates and authorized agents are not responsible for, nor do they accept, any liability whatsoever for any direct or consequential loss arising from any use of this research report or the information contained herein.