Refineries

Dec 18

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National Fuel Consumption – Product Wise

Industry - Product Wise Consumption mln MT				
	FY15	FY16	FY17	FY18
White oil				
MOGAS	4.75	5.80	6.74	7.50
HSD	7.42	7.75	8.49	9.04
JP1	0.63	0.69	0.74	0.75
JP8	0.06	0.08	0.09	0.17
SKO	0.17	0.14	0.12	0.11
LDO	0.04	0.02	0.02	0.02
Total	13.07	14.49	16.21	17.61
YoY Change	-	10.8%	11.8%	8.7%
	FY15	FY16	FY17	FY18
Black Oil				
FO	9.26	9.00	9.61	7.39
Lubes	0.12	0.09	0.14	0.15
Total	9.38	9.09	9.75	7.54
YoY Change	-	(3.1)%	7.2%	(22.6)%

Source: PACRA Data Bank

- Pakistan consumed a total of ~18mln metric tons (MT) of petroleum products (POL) in FY18 (FY17: ~16 mln MT), an increase by ~9%. This increase in mainly seen due to increase in the consumption of MOGAS and HSD due to solid growth in transport sector.
- There are total of ~15 Oil marketing companies registered in Pakistan.

Demand and Supply | POL Products

Demand & Supply - POL Products | mln MTs					
	FY15	FY16	FY17	FY18	Trendline
Total Demand	22.46	23.59	25.96	25.15	
Imports	12.56	14.94	14.90	13.15	
Local	9.90	8.65	11.06	12.01	

Source: PACRA Data Bank

- ~52% of the country's demand is met through imports while remaining ~48% is being produced locally.
- Over the years, imports have been reduced while local productions has increased.

Local Refineries | POL Volume Sales

Local Refineris | POL Volume Sales	PARCO			NRL			ARL			PRL			BYCO		mln MTs
	FY16	FY17	FY18	FY16	FY17	FY18	FY16	FY17	FY18	FY16	FY17	FY18	FY16	FY17	FY18
MOGAS	0.87	0.88	0.89	0.15	0.17	0.21	0.23	0.46	0.64	0.26	0.24	0.23	-	0.24	0.35
HSD	1.83	1.90	1.89	0.83	0.89	0.90	0.46	0.64	0.69	0.65	0.62	0.66	-	0.77	1.11
JP1	0.34	0.36	0.36	0.12	0.11	0.11	0.10	0.14	0.14	0.11	0.10	0.09	-	-	-
JP8	0.07	0.07	0.08	0.02	0.02	0.03	0.02	0.02	0.03	0.02	0.02	0.02	-	0.00	0.03
SKO	0.06	0.06	0.04	0.01	0.01	0.00	0.04	0.05	0.05	0.01	0.00	0.00	-	0.00	0.02
LDO	0.02	0.01	0.01	-	-	-	0.00	0.01	0.01	-	-	-	-	-	-
Total - A	3.19	3.27	3.26	1.13	1.20	1.26	0.85	1.31	1.55	1.05	0.98	1.00	-	1.01	1.50
FO	0.95	1.02	0.88	0.41	0.46	0.44	0.35	0.52	0.42	0.51	0.50	0.52	-	0.58	0.99
Lubes	-	-	-	0.20	0.20	0.17	-	-	-	-	-	-	-	0.00	0.00
Total - B	0.95	1.02	0.88	0.61	0.66	0.61	0.35	0.52	0.42	0.51	0.50	0.52	-	0.58	1.00
Total - A + B	4.15	4.29	4.14	1.74	1.86	1.87	1.20	1.84	1.98	1.56	1.48	1.52	1.10	1.59	2.50

Source: PACRA Data Bank

Local Refineris | POL Volume Sales | Summary				
	FY16	FY17	FY18	Trendline
PARCO	4.15	4.29	4.14	
NRL	1.74	1.86	1.87	
ARL	1.20	1.84	1.98	
PRL	1.56	1.48	1.52	
BYCO	1.10	1.59	2.50	
Total	9.75	11.06	12.01	

Source: PACRA Data Bank

MOGAS | Domestic Production

Consumption - MOGAS				
Amounts in 'mln MT				
	FY16	**FY17**	**FY18**	Trendline
Imports	4.15	4.67	5.19	
Local	1.61	1.98	2.32	
Demand	5.76	6.65	7.50	
Inc/Dec in Demand (%)	21.2%	15.4%	12.9%	

Refineries - Production | MOGAS				
Amounts in 'mln MT				
	FY16	**FY17**	**FY18**	Trendline
PARCO	0.87	0.88	0.89	
NRL	0.15	0.17	0.21	
ARL	0.23	0.46	0.64	
PRL	0.26	0.24	0.23	
BYCO	0.10	0.24	0.35	
Total	1.61	1.98	2.32	

Source: PACRA Data Bank

- The country's petrol consumption observed continuous rising trend due to higher automobile demand and low availability of CNG.
- The increased consumption level in recent years is met though a mix of imports (~69%) and domestic production (~31%).
- Additionally, over the recent years domestic production has increased with the four year CAGR of ~9.4%.
- Three refineries including PARCO, ARL and BYCO contributes ~80% of the total MOGAS supply.

HSD | Domestic Production

Consumption - HSD				
Amounts in 'mln MT				
	FY16	FY17	FY18	Trendline
Imports	3.08	3.67	3.80	
Local	4.67	4.82	5.24	
Demand	7.75	8.49	9.04	
Inc/Dec in Demand (%)	4.7%	9.6%	6.4%	

Refineries - Production | HSD				
Amounts in 'mln MT				
	FY16	FY17	FY18	Trendline
PARCO	1.83	1.90	1.89	
NRL	0.83	0.89	0.90	
ARL	0.46	0.64	0.69	
PRL	0.65	0.62	0.66	
BYCO	0.91	0.77	1.11	
Total	4.67	4.82	5.25	

Source: PACRA Data Bank

- The country's diesel consumption increased on the back of energy demand.
- Of the total consumption, ~90% of the HSD is used in transport sector, followed by industry (~6%), Power (~2%).
- Local production has increased in recent years.
- PARCO, NRL and BYCO contributes ~74% to the total domestic supply.

FO | Domestic Production

Consumption - FO				
Amounts in 'mln MT				
	FY16	FY17	FY18	Trendline
Imports	6.15	6.53	4.13	
Local	2.84	3.08	3.26	
Demand	8.99	9.61	7.39	
Inc/Dec in Demand (%)	21.5%	6.9%	(23.1)%	

Refineries - Production | FO				
Amounts in 'mln MT				
	FY16	FY17	FY18	Trendline
PARCO	0.95	1.02	0.88	
NRL	0.41	0.46	0.44	
ARL	0.35	0.52	0.42	
PRL	0.51	0.50	0.52	
BYCO	0.62	0.58	0.99	
Total	2.84	3.08	3.26	

Source: PACRA Data Bank

- During Dec17, government decided to restrict the import of fuel oil to save foreign currency reserves growing import of comparatively inexpensive liquefied natural gas (LNG). However, during Apr18, government has lifted the ban on import of furnace oil for running power plants in order to meet growing electricity demand in the country.
- PARCO and Byco contributes the most in total supply to the domestic market (~58%)

Local Refineries | Market Share

Local Refineris | Market Share						
	FY16	Mark. Share	FY17	Mark. Share	FY18	Mark. Share
PRL	1.56	15.4%	1.48	13.4%	1.52	12.7%
NRL	1.74	17.3%	1.86	16.8%	1.87	15.6%
ARL	1.20	11.9%	1.84	16.6%	1.98	16.5%
BYCO	1.44	14.3%	1.59	14.4%	2.50	20.8%
PARCO	4.15	41.1%	4.29	38.8%	4.14	34.5%
Total	10.09	100.0%	11.06	100.0%	12.01	100.0%

Source: PACRA Data Bank

- Byco has added more sales volumes after the company commissioned its second refinery unit and the reformer unit. Because of this, relative positioning, in turn, market share of the refineries have changed.

Product wise Refineries market share

PARCO			
	FY17	FY18	Trendline
MOGAS	44.3%	38.3%	
HSD	39.4%	36.0%	
FO	33.2%	27.1%	

NRL			
	FY17	FY18	Trendline
MOGAS	8.6%	9.2%	
HSD	18.4%	17.1%	
FO	14.8%	13.6%	

ARL			
	FY17	FY18	Trendline
MOGAS	23.2%	27.6%	
HSD	13.2%	13.2%	
FO	17.0%	12.9%	

PRL			
	FY17	FY18	Trendline
MOGAS	12.0%	9.8%	
HSD	12.9%	12.6%	
FO	16.2%	16.0%	

BYCO			
	FY17	FY18	Trendline
MOGAS	12.0%	15.1%	
HSD	16.0%	21.1%	
FO	18.8%	30.5%	

Source: PACRA Data Bank

- Most of the refineries are trying to take more market share in high margin products.

Refineries | Capacity Vs Utilization

Capacity and Utilization								
								mln MT per anum
Refinery	2016		2017		2018			
	Capactity	Utilization	Capactity	Utilization	Capactity	Production	Sales	Utilization
Byco Petroleum	1.8	65.0%	7.5	14.9%	7.5	2.7	2.7	35.6%
Pak Arab Refinery	4.5	100.0%	4.5	104.5%	4.5	4.3	4.5	95.1%
National Refinery	2.7	81.4%	2.8	82.9%	2.8	2.4	2.3	84.8%
Pakistan Refinery	2.1	79.3%	2.1	77.0%	2.1	1.7	1.6	79.4%
Attock Refinery	2.0	87.0%	2.5	91.5%	2.5	2.3	2.2	93.9%
Total	13.1	83%	19.4	74%	19.4	13.3	13.4	68.8%

Source: NRL Annual Report
PRL Annual Report
ARL Annual Report
PARCO Annual Report
Byco Annual Report

- Almost all the refineries have got their utilization increased, while Byco is picking up.

Peer comparison

PARCO | Amounts in mln'					
(PKR mln)	FY16	FY17	FY18	Sep-18	Trendline
Revenue	198,099	225,792	274,933	86,513	
Net Income	18,831	19,063	18,517	4,855	
Gross Margin	13.8%	12.0%	8.6%	6.4%	
Short-Term Borrowings	7,031	-	-	-	
Long-Term Borrowings	1,568	1,048	607	621	
Equity	72,088	78,421	96,477	101,332	

NRL | Amounts in mln'					
(PKR mln)	FY16	FY17	FY18	Sep-18	Trendline
Revenue	93,788	107,447	136,985	41,259	
Net Income	7,688	8,046	1,771	(1,066)	
Gross Margin	11.8%	9.1%	2.8%	(1.3)%	
Short-Term Borrowings	-	-	1,340	3,478	
Long-Term Borrowings	-	766	89	-	
Equity	36,822	43,339	43,252	42,185	

ARL | Amounts in mln'					
(PKR mln)	FY16	FY17	FY18	Sep-18	
Revenue	66,565	101,412	129,597	44,458	
Net Income	816	5,414	579	(64)	
Gross Margin	(1.4)%	4.3%	(0.8)%	(1.4)%	
Short-Term Borrowings	-	-	-	-	
Long-Term Borrowings	15,164	19,872	14,843	14,359	
Equity	33,190	39,381	39,318	39,254	

PRL | Amounts in mln'					
(PKR mln)	FY16	FY17	FY18	Sep-18	
Revenue	64,733	69,929	92,229	-	
Net Income	283	1,060	504	-	
Gross Margin	3.1%	3.6%	1.1%	-	
Short-Term Borrowings	6,594	5,322	3,990	-	
Long-Term Borrowings	3,967	2,234	5,329		
Equity	2,167	3,101	4,063		

BYCO | Amounts in mln'				
(PKR mln)	FY17	FY18	Sep-18	Trendline
Revenue	88,420	166,290	-	
Net Income	2,182	5,020	-	
Gross Margin	4.8%	5.5%	-	
Short-Term Borrowings	3,372	2,323	-	
Long-Term Borrowings	30,331	26,547	-	
Equity	21,918	30,222	-	
Rating	-			

Source: NRL Annual Report
PRL Annual Report
ARL Annual Report
PARCO Annual Report
Byco Annual Report

Local Crude Production

Crude Production | mln M.Tons						
	2015	Share	2016	Share	2017	Share
Oil & Gas Development Co	1.8	44.7%	1.8	48.5%	2.0	51.5%
MOL Pakisan Oil and Gas Company	0.9	21.2%	0.9	23.3%	0.9	24.6%
Pakistan Petroleum Limited	0.3	6.8%	0.3	7.9%	0.4	9.2%
Pakistan Oilfields Limited	0.1	1.8%	0.1	1.7%	0.1	1.8%
United Energy Pakistan Limited	0.8	18.8%	0.5	12.3%	0.3	7.5%
Others	0.3	6.7%	0.2	6.3%	0.2	5.5%
Total	4.11	100.0%	3.76	100.0%	3.85	100.0%

- OGDCL and MOL Pakistan contributes ~75% to the total crude production in the country.

World Production Vs Consumption | By Region

World Production By Region								
	mln MTs'							
	2014	Share	2015	Share	2016	Share	2017	Share
North America	869	20.6%	908	20.9%	883	20.2%	917	20.9%
South & Central America	393	9.3%	398	9.1%	382	8.7%	368	8.4%
Total Europe	157	3.7%	164	3.8%	166	3.8%	163	3.7%
Commonwealth of Independent States	678	16.1%	684	15.7%	695	15.9%	700	15.9%
Middle East	1,339	31.7%	1,412	32.4%	1,500	34.3%	1,481	33.8%
Africa	390	9.2%	387	8.9%	366	8.4%	383	8.7%
Asia	397	9.4%	402	9.2%	385	8.8%	376	8.6%
Total World	4,223	100.0%	4,355	100.0%	4,377	100.0%	4,387	100.0%

World Consumption By Region								
	mln MTs'							
	2014	Share	2015	Share	2016	Share	2017	Share
North America	1,077	24.5%	1,092	24.4%	1,105	24.2%	1,109	24.0%
South & Central America	334	7.6%	330	7.4%	321	7.0%	319	6.9%
Total Europe	686	15.6%	703	15.7%	719	15.8%	731	15.8%
Commonwealth of Independent States	207	4.7%	198	4.4%	203	4.5%	203	4.4%
Middle East	415	9.4%	414	9.2%	416	9.1%	420	9.1%
Africa	184	4.2%	189	4.2%	193	4.2%	196	4.2%
Asia	1,493	34.0%	1,550	34.6%	1,601	35.1%	1,643	35.6%
Total World	4,395	100.0%	4,476	100.0%	4,557	100.0%	4,622	100.0%

Source: BP Statistics

Includes : Crude Oil, Shale oil & Natural Gas Liquids. Excludes biomas and derivatives of coal and natural gas

World Production Vs Consumption | By Country

World Production By Countries								
	mln MTs'							
	2014	Share	2015	Share	2016	Share	2017	Share
US	523	12.4%	565	13.0%	543	12.4%	571	13.0%
Canada	209	5.0%	216	5.0%	219	5.0%	236	5.4%
Mexico	137	3.2%	128	2.9%	121	2.8%	110	2.5%
Brazil	123	2.9%	132	3.0%	137	3.1%	143	3.3%
Venezuela	139	3.3%	135	3.1%	123	2.8%	108	2.5%
Iran	174	4.1%	181	4.1%	217	5.0%	234	5.3%
Iraq	159	3.8%	196	4.5%	218	5.0%	222	5.0%
Kuwait	150	3.6%	148	3.4%	153	3.5%	146	3.3%
Saudi Arabia	543	12.9%	568	13.0%	587	13.4%	562	12.8%
United Arab Emirates	163	3.9%	175	4.0%	182	4.1%	176	4.0%
Nigeria	211	5.0%	215	4.9%	200	4.6%	192	4.4%
Russian Federation	535	12.7%	542	12.4%	556	12.7%	554	12.6%
Others	1,157	27.4%	1,156	26.5%	1,123	25.7%	1,134	25.8%
Total	4,223	100.0%	4,355	100.0%	4,377	100.0%	4,387	100.0%
OPEC	1,750	41.4%	1,818	41.7%	1,878	42.9%	1,860	42.4%
Non-OPEC	2,473	58.6%	2,538	58.3%	2,499	57.1%	2,527	57.6%
Total	4,223	100.0%	4,355	100.0%	4,377	100.0%	4,387	100.0%

World Consumption By Countries								
	mln MTs'							
	2014	Share	2015	Share	2016	Share	2017	Share
US	879	20.0%	898	20.1%	908	19.9%	913	19.8%
Canada	108	2.5%	105	2.3%	107	2.3%	109	2.3%
Brazil	148	3.4%	143	3.2%	136	3.0%	136	2.9%
Germany	115	2.6%	115	2.6%	117	2.6%	120	2.6%
Russian Federation	158	3.6%	150	3.3%	153	3.3%	153	3.3%
Saudi Arabia	167	3.8%	173	3.9%	174	3.8%	172	3.7%
China	538	12.2%	574	12.8%	587	12.9%	608	13.2%
India	183	4.2%	198	4.4%	217	4.8%	222	4.8%
Japan	204	4.6%	197	4.4%	191	4.2%	188	4.1%
South Korea	114	2.6%	120	2.7%	129	2.8%	129	2.8%
Others	1,781	40.5%	1,804	40.3%	1,839	40.3%	1,871	40.5%
Total	4,395	100.0%	4,476	100.0%	4,557	100.0%	4,622	100.0%

Source: BP Statistics

Includes : Crude Oil, Shale oil & Natural Gas Liquids. Excludes biomas and derivatives of coal and natural gas

Key Challenges

1. Growth is a given factor in the domestic market; yet the relevant proportion of domestic Vs import may face transition.
2. Reliance on alternative energy sources (especially LNG) may create off take challenge for domestic refineries particular in case of FO.
3. Refineries profitability takes significant cue from the deemed duty.
4. Relative positioning of the players in the premium products (HSD and MOGAS); efficiency and utilization of available capacity is essential.
5. Exchange rate volatility.

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