Research

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Petrochemicals – Cracker margins under pressure

Softer crude oil prices, changing global trade dynamics and demand slowdown in focus

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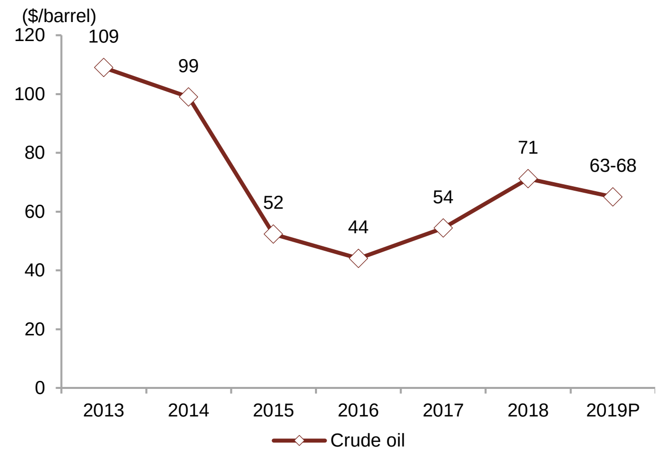
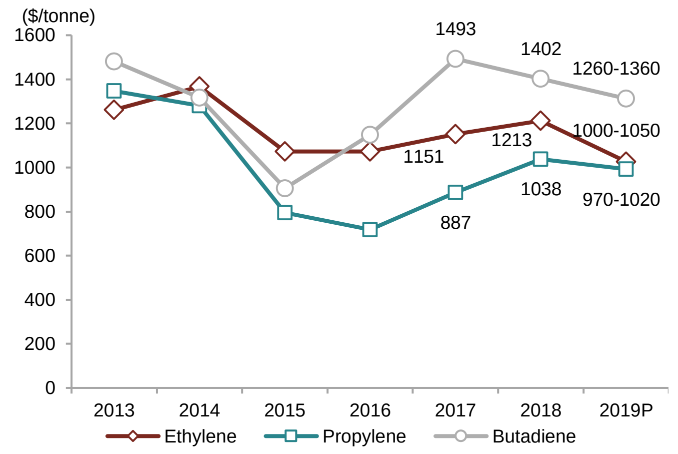
A sector snapshot

Crude oil prices softening… 1



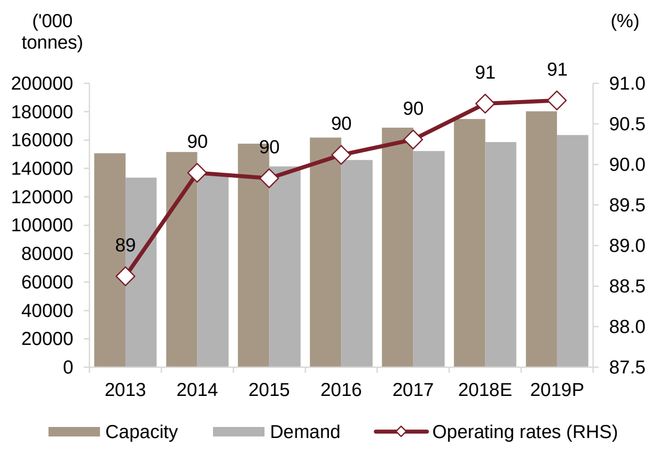
Source: CRISIL Research

… waning petrochemical prices 2



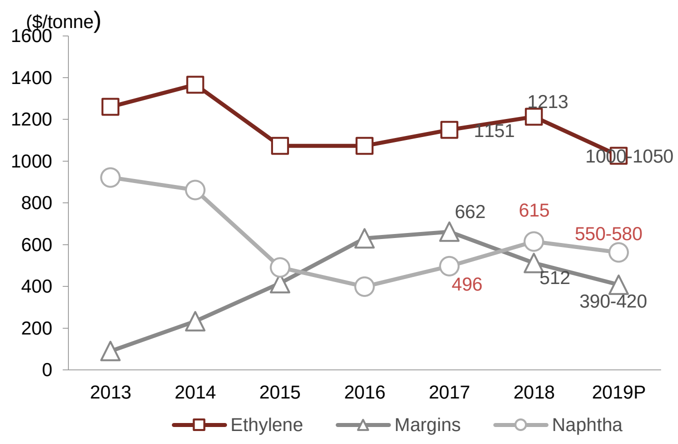
Source: CRISIL Research

Global ethylene capacities are expanding… 3



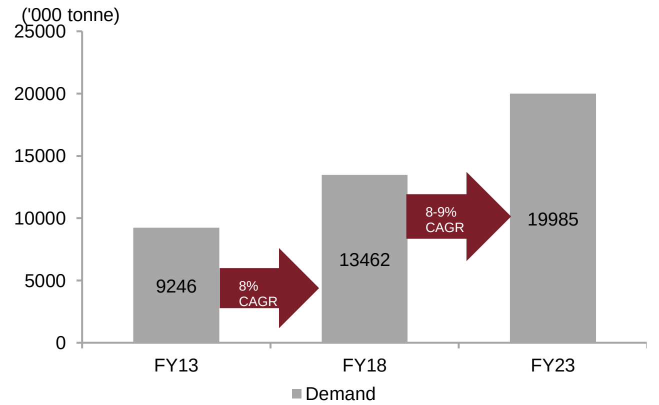
Source: CRISIL Research

…stifling cracker margins 4



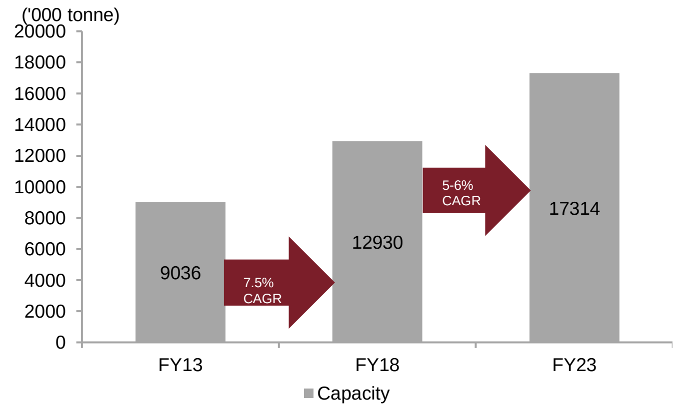
Source: CRISIL Research

Domestic polymer demand on a fast clip… 5



Source: Industry, CRISIL Research

…but capacity expansion is lagging 6



Source: Industry, CRISIL Research

Petrochemical prices to decline, following softer crude oil prices

In calendar 2018, crude oil prices increased 31% to $71 per barrel, with naphtha prices increasing at a similar pace. The on-going tensions in Libya, sanctions on Iran and falling output from Venezuela resulted in a spike in crude oil prices. Petrochemical prices increased in 2018, too, because of a rise in feedstock prices, following a recovery in crude oil prices. However, higher capacity addition put a brake on the pace of rise.

Slowing demand is expected to keep crude oil prices under check. Consequently, we expect the prices to range $63-68 per barrel in 2019, considering the impact of any production cuts from the Organisation of the Petroleum Exporting Countries (OPEC) to arrest a further decline in crude oil prices, which are currently hovering at ~$60 per barrel. Naphtha prices are expected to decline at a similar pace as those of crude oil prices. This, in turn, will likely hurt petrochemicals prices.

Prices under pressure, as supply addition outpaces demand growth

Rising global supply is also exerting downward pressure on petrochemical prices, with demand momentum not keeping pace. Between 2015 and 2018, ethylene capacity rose nearly 23 million tonne, primarily led by the US and China. Thanks to the shale-oil revolution, the US has captured a prominent presence in global ethylene capacity. On the other hand, during this period, ethylene demand is estimated to have increased 21 million tonne. Higher capacity addition in this segment has kept ethylene prices under check.

In fact, even in calendar 2019, net ethylene capacity is projected to increase ~5.5 million tonne against demand growth of 5 million tonne. This, along with ~6 million tonne of capacity addition in calendar 2018 (primarily led by China), is expected to result in a further decline in ethylene prices. Consequently, we expect the decline in ethylene prices to be steeper at 13-18%, ranging between $1,000 and $1,050 per tonne.

Even in the case of benzene, global supply overhang is a key concern. In calendar 2019, around 2.5 million tonne of capacity is expected to be commissioned. With demand expected to inch up by 2-3% versus 3.5-4% growth in capacity addition, benzene prices are likely to nosedive in calendar 2019.

Thus, with softening crude oil prices, increasing global supply, lower forecasts for global economic growth and US-China trade war, petrochemical prices could see some trouble ahead. This decline in product prices is also likely to have a direct impact on cracker margins and product spreads.

Petrochemicals – Actual prices and forecasts of key products

Prices ($/tonne)	Actual, 2018	Forecast, 2019			Forecast, 2019 (%)		
Crude	71	63	-	68	-4%	-	-11%
Naphtha	615	550	-	580	-6%	-	-11%
Ethylene	1,213	1,000	-	1,050	-13%	-	-18%
Propylene	1,038	970	-	1,020	-2%	-	-7%
Butadiene	1,402	1,260	-	1,360	-2%	-	-8%
Benzene	822	660	-	710	-14%	-	-20%

Source: CRISIL Research

Changing global trade dynamics to be a key monitorable

Demand for petrochemicals is linked to GDP growth, as petrochemicals find application in most of the key end-user sectors, such as automobiles, consumer durables, construction and irrigation. With the International Monetary Fund (IMF) cutting its forecasts for global economic growth in calendar 2019 to 3.5%, global demand for petrochemicals is likely to get impacted.

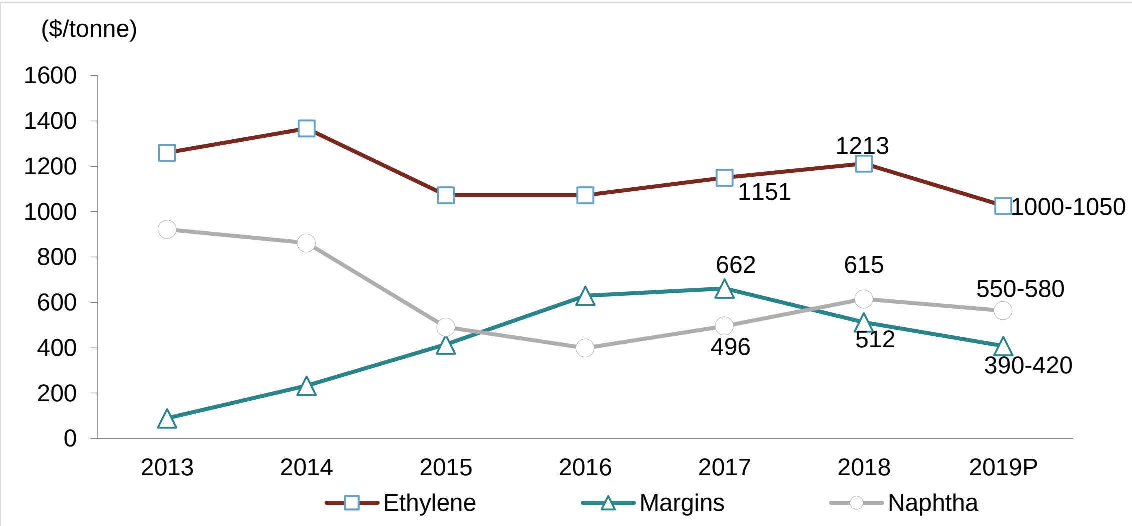
Moreover, demand from China, which is biggest market for petrochemicals, continues to be hanging in the balance. While China is a manufacturing hub for key end-user segments, such as electricals and electronics, the ongoing US-China trade war is weighing on demand from these segments. Consequently, production has taken a hit, impacting demand for polymers. Furthermore, lower automobile sales (resulting in a slowdown in tyre demand, and subsequently, elastomer demand, i.e., for synthetic rubber) in China also does not help the case.

Cracker margins slipping for naphtha below their five-year average

As discussed above, ethylene prices are expected to decline significantly, as capacity addition continues to outpace demand growth. Cracker margins peaked in calendars 2016 and 2017, and have been on a downward trend since then. In calendar 2019, a sharper price decline in ethylene prices versus ethylene cash-cost is expected to result in a contraction in cracker margins to $390-420 per tonne, compared with the five-year average of $490 per tonne.

(Note: Ethylene cash-cost is calculated as naphtha cost minus by-product credit plus $100 per tonne conversion cost; where by-product credit includes respective proportionate realisations for propylene, butadiene, benzene, toluene, mixed xylenes, and fuel oil).

Cracker margins to contract in CY19



F: Forecast
Source: CRISIL Research

Narrowing margins to cast a shadow on the profitability of players

Volume growth of petrochemicals in India over the next two years is likely to remain healthy, growing 7-9%. However, capacity addition in the global market, subsequent competition from imports, and lower crude oil prices restrict the ability of domestic players to keep product prices high.

Profitability of players is a factor of cracker margins, the level of integration and the value chain. The type of feedstock used in a cracker is also a key determinant of profitability. Compared with naphtha or gas crackers, investments in dual-feed crackers provide players with flexibility to switch between feedstocks. For instance, in times of rising crude oil prices, and consequently, naphtha prices, players with dual-feed crackers are better positioned to offset the risk of volatile raw material costs by increasing the proportion of gas as a feedstock.

Moreover, players with a rich and diversified value chain would be in a better position to manage product-level spreads. At the same time, dual-feed crackers would be less subjected to the volatility in raw material prices.

With cracker margins coming under pressure, profitability of players could see some shrinkage compared with the strong margin growth in the past two years.

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