

Malaysia

Underweight (no change)

Highlighted Companies
Lotte Chemical Titan
REDUCE, TP RM2.26, RM2.33 close

The petrochemical price spread against naphtha widened during 2H20 but we believe this may narrow in 1H21F if industry capacity additions pressure prices and higher oil prices raise naphtha costs.

Petronas Chemicals Group
REDUCE, TP RM6.95, RM7.56 close

PCG's quarterly net profits may peak in 1H21F, we believe, and then sequentially fall as industry capacity additions weigh on selling prices. Its new Pengerang plants may intensify domestic competition.

Summary Valuation Metrics

| P/E (x) | Dec-20F | Dec-21F | Dec-22F |
|--------------------------|---------|---------|---------|
| Lotte Chemical Titan | 35.64 | 16.19 | NA |
| Petronas Chemicals Group | 37.55 | 24.33 | 28.81 |
| P/BV (x) | Dec-20F | Dec-21F | Dec-22F |
| Lotte Chemical Titan | 0.45 | 0.44 | 0.45 |
| Petronas Chemicals Group | 1.98 | 1.88 | 1.83 |
| Dividend Yield | Dec-20F | Dec-21F | Dec-22F |
| Lotte Chemical Titan | 1.29% | 3.00% | 0.00% |
| Petronas Chemicals Group | 1.46% | 2.12% | 1.85% |

Petrochemical

Mixed outcomes as naphtha prices rise

- Strong demand and constrained supplies, coupled with rising naphtha prices, have lifted petchem selling prices, which will benefit PCG in 1Q21F.
- However, naphtha-based players like LCT have seen spreads compress in 1Q21F, relative to 4Q20 levels, and we expect LCT's stock to derate quickly.
- Reiterate Underweight as petchem selling prices may fall from 2Q21F, and PCG's positive core net profit momentum may not last beyond this quarter.

What's behind the strong petchem prices?

Petchem demand was lifted by the surge in consumer demand for manufactured goods in 2H20, making up for the 2Q20 demand drop, and demand for Covid-19-related medical or protective supplies, according to IHS. The strong demand has spilled over into 1Q21F, and may be supported by rising demand for durable goods and autos as vaccine rollouts progress. In China, factories will likely restart earlier than usual post the Lunar New Year, in our view, as many workers did not return to their hometowns. IHS noted that US petchem plants are still struggling to restock after the hurricanes in 3Q20 amid robust demand, while petchem plants in Asia have suffered from unscheduled shutdowns. In addition, reduced coal and gas availability and the resulting spike in prices during the recent winter negatively affected supplies of MEG, methanol and urea. Finally, with the spring maintenance season about to start, we think plant operating rates may dip.

Outlook for PCG and LCT to diverge in 1Q21F

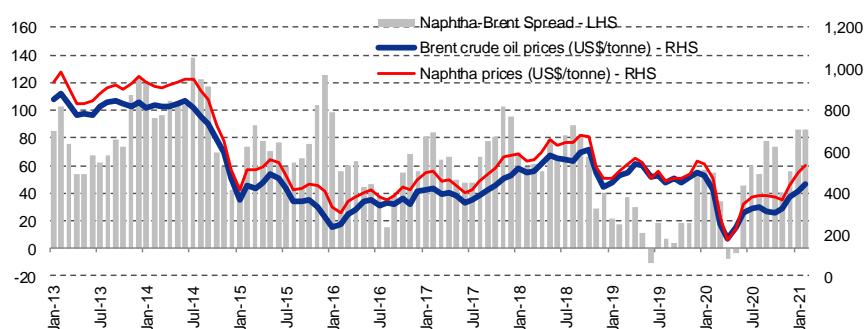
Petchem selling prices have continued to do well in 1Q21F, due to higher naphtha feedstock prices. While the petchem price rally in 2H20 benefitted both PCG and LCT, their earnings outlook will diverge in 1Q21F. PCG benefits from higher selling prices without being burdened by higher naphtha costs as it buys ethane feedstock at fixed prices, while its methane feedstock cost moves in tandem with its methanol and urea selling prices (thus ensuring spread protection). However, petchem price spreads against naphtha have narrowed in 1Q21F vs. 4Q20, with LCT likely to see its core net profits impacted from 2Q21F. The current trends suggest that LCT's share price is at risk of a derating, but we may have to wait longer for our Reduce call on PCG to be actualised.

Key derating catalyst: Petchem prices may weaken from 2Q21F

We expect petchem prices to weaken sequentially from 2Q21F onwards, as winter-related supply disruptions are resolved and substantial new capacities are commissioned. This is the *raison d'être* for our Underweight sector call. For ethane-based products, the potential negative impact on PCG's topline could flow through directly to the bottomline, and its share price may derate accordingly. On the balance of probabilities, LCT's core net profits should also be negatively impacted, if naphtha costs remain stable or continue to increase. In the latter scenario, LCT may see margin compression from the pincer action of lower revenues and higher costs. Sector upside risks include the possibility that the commissioning of new capacities may be delayed, and demand growth for petrochemicals is better than expected due to improving global GDP growth.

Analyst(s)


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Figure 1: Rising naphtha prices driving petchem prices, but compressing spreads


SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Figure 2: Sector Comparisons

| Company | Bloomberg Ticker | Recom. | Price (local curr) | Target Price (local curr) | Market Cap (US\$ m) | Core P/E (x) | | 3-year EPS CAGR | P/BV (x) | | Recurring ROE (%) | | EV/EBITDA (x) | | Dividend Yield (%) | |
|--|------------------|-----------|--------------------|---------------------------|---------------------|--------------|-------------|-----------------|------------|------------|-------------------|--------------|---------------|-------------|--------------------|-------------|
| | | | | | | CY20F | CY21F | | CY20F | CY21F | CY20F | CY21F | CY20F | CY21F | | |
| Petronas Chemicals Group | PICHEM MK | Reduce | RM7.56 | RM6.95 | 14,992 | 32.8 | 24.3 | -8.0% | 2.0 | 1.9 | 5.9% | 7.9% | 14.7 | 10.8 | 1.5% | 2.1% |
| Lotte Chemical Titan | TTNP MK | Reduce | RM2.33 | RM2.26 | 1,313 | 41.0 | 16.2 | -166.6% | 0.4 | 0.4 | 1.0% | 2.7% | -0.6 | -0.8 | 1.3% | 3.0% |
| Indorama Ventures | IVL TB | Reduce | THB39.50 | THB28.50 | 7,421 | 1769.3 | 19.9 | 31.1% | 1.7 | 1.6 | 0.1% | 8.2% | 16.3 | 10.4 | 0.3% | 1.1% |
| Siam Cement | SCC TB | Hold | THB374.00 | THB420.00 | 15,018 | 13.1 | 12.6 | 3.3% | 1.4 | 1.4 | 10.9% | 11.2% | 9.2 | 11.9 | 3.8% | 4.0% |
| PTT Global Chemical | PTTGC TB | Add | THB64.00 | THB75.50 | 9,608 | 1220.5 | 23.7 | 18.3% | 1.0 | 1.0 | 0.1% | 4.2% | 20.7 | 11.3 | 0.0% | 2.1% |
| IRPC | IRPC TB | Reduce | THB3.70 | THB3.50 | 2,530 | na | 52.2 | na | 1.0 | 1.0 | -7.3% | 1.9% | 68.2 | 11.8 | 0.0% | 0.5% |
| Lotte Chemical | 011170 KS | Hold | Won306,000 | Won300,000 | 9,522 | 41.4 | 11.3 | 2.7% | 0.8 | 0.7 | 1.9% | 6.8% | 7.3 | 4.2 | 1.1% | 2.3% |
| LG Chem | 051910 KS | Add | Won990,000 | Won1,300,000 | 63,446 | 76.2 | 32.6 | 111.8% | 3.8 | 3.6 | 5.3% | 11.3% | 16.6 | 13.3 | 1.0% | 1.1% |
| Kumho Petrochemical | 011780 KS | Add | Won264,500 | Won220,000 | 7,316 | 16.0 | 12.7 | 30.6% | 2.6 | 2.2 | 17.7% | 18.9% | 8.7 | 7.3 | 0.6% | 0.6% |
| OCI | 010060 KS | Add | Won119,000 | Won78,000 | 2,577 | na | 36.0 | na | 1.1 | 1.1 | -3.1% | 3.0% | NA | 17.5 | 0.3% | 0.3% |
| Posco Chemical | 003670 KS | Add | Won150,000 | Won105,000 | 10,549 | 288.3 | 91.3 | 2.7% | 9.1 | 10.5 | 3.1% | 10.8% | 80.6 | 49.9 | 0.1% | 0.3% |
| Chandra Asri Petrochemical | TPIA IJ | Not Rated | Rp11,200.00 | n.a. | 14,361 | 268.8 | 61.9 | 44.7% | 8.1 | 8.1 | 3.0% | 13.1% | 93.0 | 52.5 | 0.1% | 0.2% |
| Wanhua Chemical Group | 600309 CH | Not Rated | Rmb140.42 | n.a. | 68,266 | 44.0 | 28.8 | 22.9% | 9.0 | 7.3 | 23.0% | 27.9% | 25.8 | 17.5 | 0.8% | 0.9% |
| Formosa Plastics | 1301 TT | Not Rated | TWD89.80 | n.a. | 20,424 | 28.4 | 16.0 | 6.1% | 1.7 | 1.6 | 6.0% | 10.4% | 22.8 | 17.2 | 3.2% | 3.3% |
| Formosa Chemicals & Fibre | 1326 TT | Not Rated | TWD79.90 | n.a. | 16,732 | 25.8 | 17.1 | 1.9% | 1.5 | 1.4 | 5.5% | 8.2% | 14.1 | 12.2 | 3.1% | 2.9% |
| Nan Ya Plastics | 1303 TT | Not Rated | TWD68.50 | n.a. | 19,410 | 26.3 | 17.5 | 19.5% | 1.6 | 1.6 | 6.1% | 9.1% | 17.1 | 16.4 | 2.9% | 3.0% |
| Formosa Petrochemical | 6505 TT | Not Rated | TWD91.90 | n.a. | 31,278 | 102.4 | 25.2 | 18.6% | 2.8 | 2.8 | 2.8% | 11.2% | 41.5 | 14.9 | 1.8% | 1.2% |
| Petrochemical average | | | | | | 43.4 | 22.8 | 10.2% | 2.4 | 2.3 | 5.5% | 10.1% | 17.7 | 12.9 | 1.4% | 1.6% |
| PetroVietnam Fertilizer and Chemicals | DPM VN | Hold | VND15,950 | VND17,100 | 271 | 8.1 | 9.2 | 10.9% | 0.7 | 0.7 | 9.4% | 8.0% | 2.0 | 1.7 | 6.3% | 6.3% |
| China BlueChemical | 3983 HK | Not Rated | HK\$1.80 | n.a. | 1,070 | 14.5 | 11.6 | -9.6% | 0.3 | 0.5 | 2.9% | 3.0% | 6.5 | 4.9 | 5.0% | 5.0% |
| Hubei Xinyangfeng Fertilizer | 000902 CH | Not Rated | Rmb21.41 | n.a. | 4,325 | 28.8 | 23.9 | 27.1% | 3.9 | 3.5 | 14.4% | 15.4% | 19.1 | 14.9 | 1.1% | 1.1% |
| CF Industries Holdings | CF US | Not Rated | US\$44.36 | n.a. | 9,489 | 37.1 | 27.5 | 2.3% | 3.35 | 3.46 | 8.8% | 12.4% | 9.9 | 8.7 | 2.7% | 2.7% |
| Nutrien Ltd | NTR US | Not Rated | US\$56.01 | n.a. | 31,884 | 32.2 | 23.5 | 4.1% | 1.45 | 1.44 | 4.3% | 6.1% | 11.5 | 9.8 | 3.2% | 3.2% |
| Methanex Corp | MX CN | Not Rated | C\$49.06 | n.a. | 2,946 | na | 21.9 | -22.4% | 2.48 | 2.32 | -9.6% | 10.9% | 14.0 | 6.7 | 2.1% | 1.1% |
| OCI NV | OCI NA | Not Rated | €18.68 | n.a. | 4,764 | na | 24.7 | na | 3.92 | 3.31 | -10.7% | 14.5% | 10.3 | 6.8 | 0.0% | 0.0% |
| SAFCO | SAFCO AB | Not Rated | SAR98.90 | n.a. | 12,552 | 30.1 | 23.4 | 3.3% | 5.3 | 4.7 | 17.8% | 21.3% | 24.4 | 17.8 | 3.0% | 2.3% |
| Fertilizer and methanol group average | | | | | | 41.5 | 23.7 | 7.2% | 2.0 | 2.0 | 4.7% | 8.6% | 12.1 | 9.5 | 2.7% | 2.5% |
| Average (all) | | | | | | 43.1 | 23.0 | 9.4% | 2.3 | 2.2 | 5.3% | 9.8% | 16.2 | 12.0 | 1.7% | 1.8% |

SOURCES: CGS-CIMB RESEARCH ESTIMATES, BLOOMBERG, COMPANY REPORTS; DATA AS AT 15 FEB 2021; NON-RATED COMPANIES' ESTIMATES ARE BASED ON BLOOMBERG CONSENSUS ESTIMATES (NR COMPANIES SHOW REPORTED NET PROFIT)



Mixed outcomes as naphtha prices rise

PREFACE

Companies mentioned in this report ►

Braskem Idesa (Unlisted, part of Braskem SA (BRKM5 BZ, Not Rated))
Bushehr (Unlisted)
Chevron Phillips Chemical (Unlisted)
ExxonMobil (XOM US, Not Rated)
ExxonMobil Singapore (Unlisted)
Formosa Plastics USA (Unlisted, part of Formosa Plastics Corp (1301 TT, Not Rated))
Hengyi Brunei (Unlisted, part of Hengyi Petrochemical (000703 CH, Not Rated))
Indorama Ventures (IVL TB, THB39.75, Reduce, TP: THB28.50)
INEOS (Unlisted)
Kaveh Co (KVEH1 IE, Not Rated)
LyondellBasell Industries (LYB US, Not Rated)
Methanex Corp (MX CN, Not Rated)
Pars Kimia (Unlisted)
PEMEX (Unlisted)
Saudi Aramco (ARAMCO AB, Not Rated)
Saudi Basic Industries Corporation (SABIC AB, Not Rated)
Sinopec Hainan (Unlisted, part of China Petroleum & Chemical Corp (386 HK, Not Rated))
Supreme Infrastructure India Ltd (SPII IN, Not Rated)
Total Petrochemical and Refinery (Unlisted)
Zhejiang Petroleum & Chemical Co Ltd (otherwise known as Zhejiang Petrochemical, Unlisted)
Zhejiang Satellite Petrochemical (002648 CH, Not Rated)

Abbreviations and acronyms ►

Proper names

OPEC: Organization of the Petroleum Exporting Countries
OPEC+: OPEC, and its key collaborators, in particular Russia
IEA: International Energy Agency
EIA: The US Energy Information Administration
IHS: IHS Markit, a consultancy
RAPID: Refinery And Petrochemical Integrated Development complex in Pengerang

Key energy and petrochemical product names

LNG: Liquefied natural gas, or liquefied methane gas
LPG: Liquefied petroleum gas, or liquefied propane and butane gases
C₁: Methane gas, and products derived from the C₁ chain
C₂: Ethane gas, and products derived from the C₂ chain
C₃: Propane gas, and products derived from the C₃ chain
C₄: Butane gas, and products derived from the C₄ chain
EPB: Ethane, propane and butane gases

PE: Polyethylene polymers, derived from ethylene (C₂ chain)

- HDPE: High density polyethylene
- LDPE: Low density polyethylene
- LLDPE: Linear low density polyethylene
- mLLDPE: Metallocene LLDPE

PP: Polypropylene polymers, derived from propane (C₃ chain)

MEG: Monoethylene glycol, used as feedstock for polyester fibres and polyethylene terephthalate (PET)

PTA: Purified terephthalic acid

PET: Polyethylene terephthalate

MTBE: Methyl tertiary butyl ether

BTX: Aromatics comprising benzene (BZ), toluene (TL) and paraxylene (PX)

ABS: Acrylonitrile butadiene styrene

SBR: Styrene butadiene rubber

PVC: Polyvinyl chloride

Key processes and other acronyms

PDH: Propane dehydrogenation plants

CTO: Coal-to-olefins plants

MTO: Methanol-to-olefins plants

CFR: Cost and freight (shipping cost included in the selling price)

FOB: Free on board (shipping cost excluded from the selling price)

tpa: tonnes per annum

mbpd: million barrels per day

mmbtu: Million British thermal units

mmscf: Million standard cubic feet

Boe: Barrels of oil equivalent

RECENT DEVELOPMENTS AND OUTLOOK

Oil and naphtha markets ►

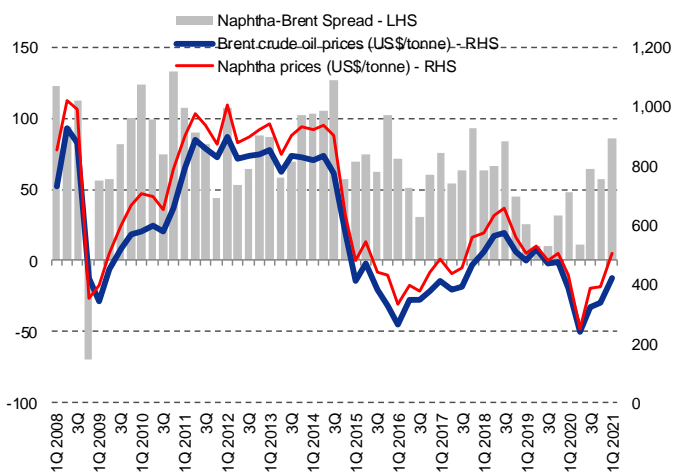
Recent developments

Brent crude oil prices have rallied sharply since January 2021 and today traded above US\$63/bbl. In January, OPEC+ did not increase production by the planned +0.5 mbpd vs. December, but only by +0.44 mbpd, according to Platts, ensuring its compliance to quotas was 101%. The Brent price rally continued into February, driven by Saudi Arabia's voluntary 1 mbpd crude oil production cut for February and March, which the US EIA expects to result in global inventory draws in 1Q21F. Nigeria's oil production was affected by maintenance and technical issues.

For February, taking into account Saudi Arabia's voluntary 1 mbpd cut, but factoring in Russia's and Kazakhstan's combined increase of 0.075 mbpd, OPEC+ might produce only 37.69 mbpd, down 2.4% against 38.61 mbpd in January, assuming that all other OPEC+ member countries do not increase their production, in our calculations. However, Libyan crude oil exports reduced in the past three weeks due to strikes at one of its three oil ports. Also, US crude oil production declined to just 11 mbpd in January 2021, from a peak of 12.86 mbpd in November 2019, although slightly higher than the average of 10.89 mbpd during 4Q20. The US EIA forecasts US crude production to continue to decline slightly in the coming months, reaching 10.9 mbpd in June.

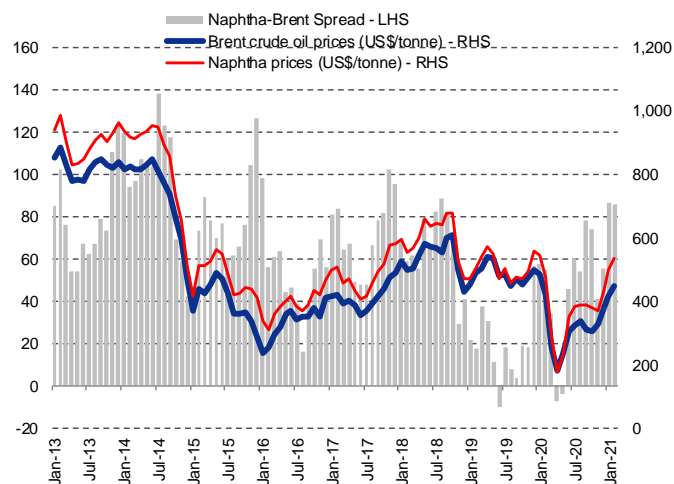
Naphtha prices have also moved up strongly, on the back of higher crude oil prices, and naphtha-Brent spreads widened in January, as demand for naphtha (as opposed to demand for LPG) for use as petrochemical feedstock remained strong, given that winter-related heating demand has kept LPG prices high.

Figure 3: Brent crude and naphtha (Singapore FOB) quarterly prices vs. naphtha-Brent spread



SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Figure 4: Brent crude and naphtha (Singapore FOB) monthly prices vs. naphtha-Brent spread



SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

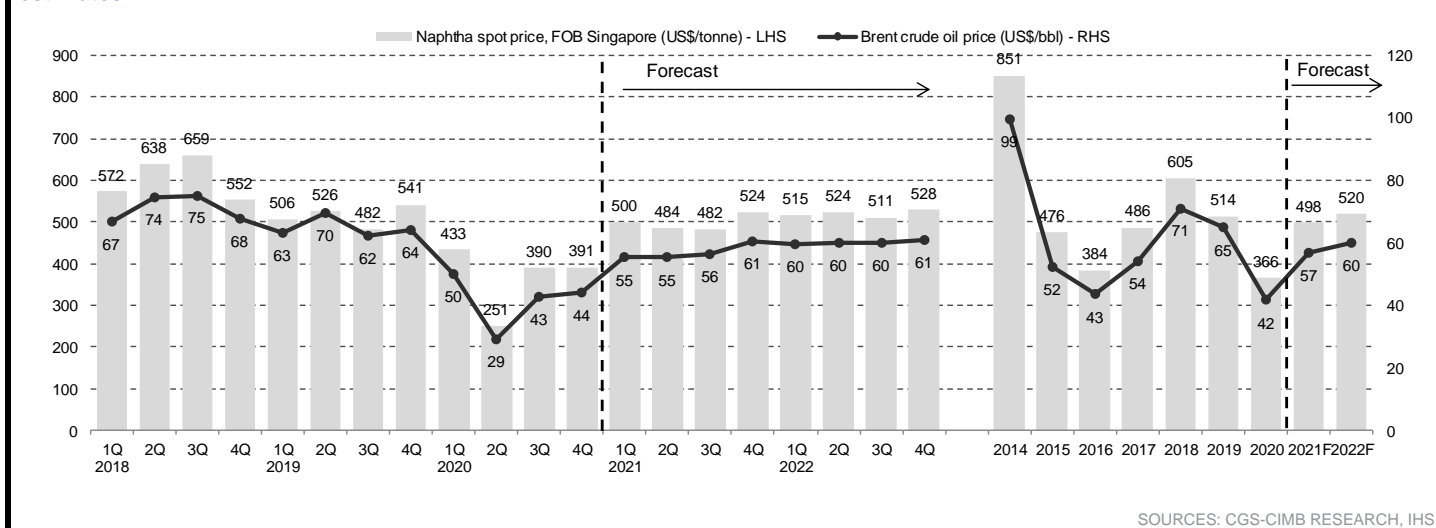
Outlook

On 9 February, the US EIA revised up its Brent crude oil forecast to US\$53/bbl in 2021F and US\$55/bbl in 2022F. Consultancy IHS is more aggressive, forecasting Brent to average US\$57/bbl in 2021F and US\$60/bbl in 2022F. The Brent crude price has so far averaged US\$56/bbl this year, but exceeded US\$62/bbl over the Lunar New Year weekend.

Oil prices are difficult to forecast accurately, because of the uncertainty over the pace of demand recovery from the Covid-19 lows of 2Q20, and the extent to which OPEC+ will remain united and increase their aggregate production in line with the recovery in demand. For the rest of 1Q21F, Saudi Arabia's voluntary 1 mbpd production cuts will likely keep crude oil prices strong, in our view, but the outlook for 2Q21F remains highly dependent on OPEC+'s output decision.

Several OPEC+ members, such as Nigeria, the UAE, and Russia, have pushed for higher production quotas, and historically, higher oil prices have weakened OPEC+'s desire to maintain or comply with production quotas. Furthermore, OPEC+ has abandoned medium-term production quotas and is making month-to-month decisions; hence, changes in production quotas can be effected with just one month's advance notice. All eyes will be on the OPEC+ Joint Ministerial Monitoring Committee (JMMC) meeting on 3 March and the OPEC and Non-OPEC Ministerial Meeting (ONOMM) on 4 March, which will likely decide on the production quotas for April. This is important because Saudi Arabia has committed to a voluntary cut of 1 mbpd for February and March only.

Figure 5: Naphtha export prices, FOB Singapore (US\$/tonne) and Brent crude oil prices (US\$/bbl) - historical prices and IHS estimates



SOURCES: CGS-CIMB RESEARCH, IHS

Figure 6: IHS: Brent crude oil and naphtha price forecasts

| | Brent crude oil price | | Naphtha price | | a | | b | | b - a |
|-------|-----------------------|--------------|---------------|--------------|---------------|------------|---------------|------------|-------|
| | FOB North Sea | | FOB Singapore | | FOB North Sea | | FOB Singapore | | |
| | US\$/bbl | Yoy change % | US\$/bbl | Yoy change % | US\$/tonne | US\$/tonne | US\$/tonne | US\$/tonne | |
| 2016 | 43 | | 43 | | 329 | 384 | 56 | | |
| 2017 | 54 | 25.0% | 54 | 26.5% | 411 | 486 | 76 | | |
| 2017 | 71 | 30.9% | 67 | 24.5% | 538 | 605 | 68 | | |
| 2019 | 65 | -8.8% | 57 | -15.1% | 490 | 514 | 24 | | |
| 2020 | 42 | -35.8% | 41 | -28.8% | 315 | 366 | 51 | | |
| 2021F | 57 | 36.7% | 55 | 36.0% | 431 | 498 | 67 | | |
| 2022F | 60 | 5.6% | 58 | 4.4% | 455 | 520 | 65 | | |

SOURCES: CGS-CIMB RESEARCH, IHS

The wildcard for crude oil supply is Iran. Iranian crude oil exports peaked at 2.7 mbpd in May 2018, prior to the start of the "maximum pressure" campaign by the US Trump administration to sanction Iran for what the US perceived as its various nuclear or other transgressions. In November 2018, the US reimposed sanctions on Iran's energy sector. However, 6-month waivers from economic penalties were granted to the eight main buyers of Iranian crude, i.e. China, India, Japan, South Korea, Taiwan, Turkey, Italy and Greece, to give them time to find alternative sources and avoid causing a shock to global oil markets. These waivers ended on 1 May 2019.

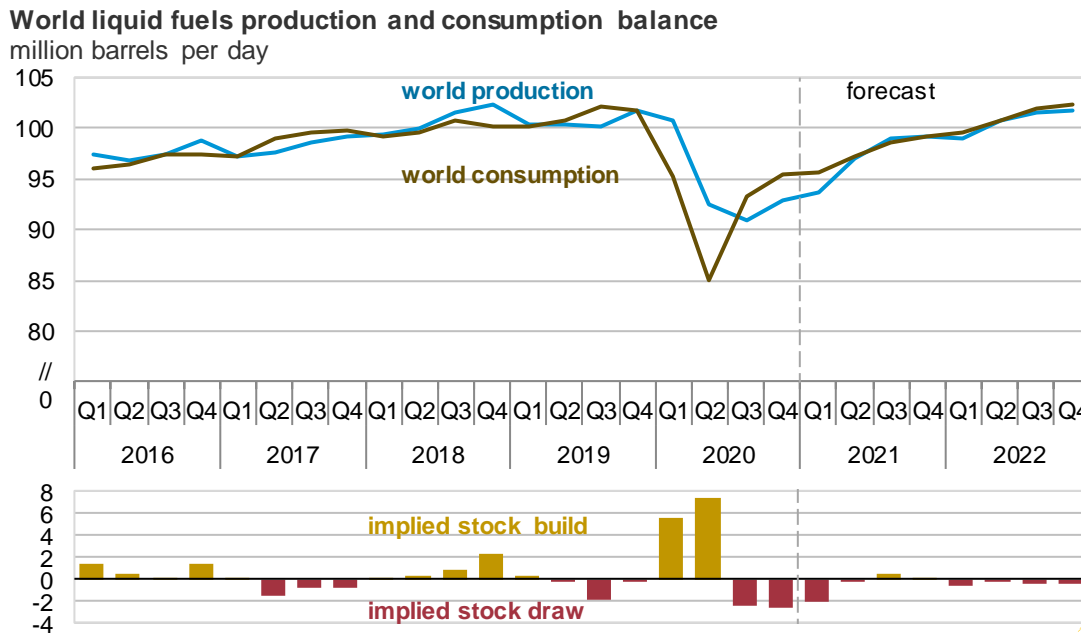
Since then, actual levels of Iranian crude oil exports have been hard to track, as Iran has taken many measures to hide the true level of its exports. According to data provider Refinitiv Eikon, in some months of 2020, Iranian crude oil exports fell to as little as 0.1 mbpd to 0.2 mbpd, but rose to 0.37 mbpd of exports in December 2020. Washington-based bank SVB International, as quoted by Reuters, estimated Iranian crude exports increased to 0.71 mbpd in December from 0.49 mbpd in October, and rose even further in January. Iran's oil minister,

Bijan Zanganeh, said in January that the country’s crude exports had recently risen “significantly” without giving figures. Elias Naderan, an Iranian lawmaker, was quoted by Mehr news agency as saying crude exports had reached 0.9 mbpd.

Whatever the actual volume of exports, there is a clear consensus that Iranian exports are increasing. The new US president Biden has publicly stated that he intends to revisit the Joint Comprehensive Plan of Action (JCPOA), or commonly known as the Iran nuclear deal, which was signed on 14 July 2015 between Iran and a group of countries led by the US. However, it appears that Iran is not waiting for the JCPOA to be reinstated, but has taken advantage of the departure of former president Trump to increase crude oil exports again. The Wall Street Journal reported that Iran is offering rebates of more than US\$1/bbl to buyers to take its oil.

Data provider and consultancy S&P Global Platts reported recently that the Iranian government is eyeing crude exports of 2.3 mbpd in its next fiscal year that starts on 21 March 2021. If this materialises, it will add plenty of new supply to the oil markets. How oil prices react will hinge on how the rest of OPEC+ accommodates the return of Iranian oil exports.

Figure 7: The US EIA expects oil liquids inventories to draw in 1Q21F, continuing from the stock draws in 2H20



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, February 2021



SOURCES: US ENERGY INFORMATION ADMINISTRATION

Polyethylene (PE) markets ►

Recent developments

In China, PE prices weakened slightly in January from December highs, as buyers preferred to reduce their holdings of inventories prior to the Lunar New Year, but prices in January remained high nevertheless. In February, PE prices in China rose slightly due to limited import supplies, while local producer-held inventories hit a 2-year low, amid strong feedstock costs. According to IHS, confidence among buyers remains high as Chinese petrochemical and PE plants will undergo planned maintenance outages in March and May 2021, while demand is expected to rise during March and April, in the post-Lunar New Year period.

In the US, PE prices have continued to do very well due to the tail effect of the disruptive US hurricanes in August and October 2020, which caused inventories to whittle down, coupled with the strong demand for PE in the US, which prevented inventory levels from rising. High container freight rates from Asia due to the immense demand for imports from Asia and the resulting shortage of container shipping space have also prevented Asian PE exports from reaching the US. According to IHS, plant turnarounds and manufacturing delays in the US are expected to continue through March 2021.

There have been prolonged outages of two out of the three Formosa crackers in Point Comfort, Texas, which represents 8.3% and 6.8% of US HDPE and LLDPE capacity, respectively since 2Q20. The Indorama Ventures cracker in Lake Charles, Louisiana, remains offline. ExxonMobil's Mont Belvieu facility and LyondellBasell's facility in Clinton, Iowa, have also been affected by various production constraints, while Chevron Phillips Chemical has significant scheduled maintenance during 1Q-2Q21.

Meanwhile, US PE exports increased in November and December as the US had ample access to empty containers. The Mexican plants of Braskem Idesa are operating at the 60% rate since 2 December 2020 due to feedstock and/or maintenance issues, according to IHS, in particular a dispute with PEMEX for the supply of natural gas. The PEMEX PE plants also struggled with production issues. This caused shortages of resin in the Mexican market, pulling in supplies from the US and tightening the US market further.

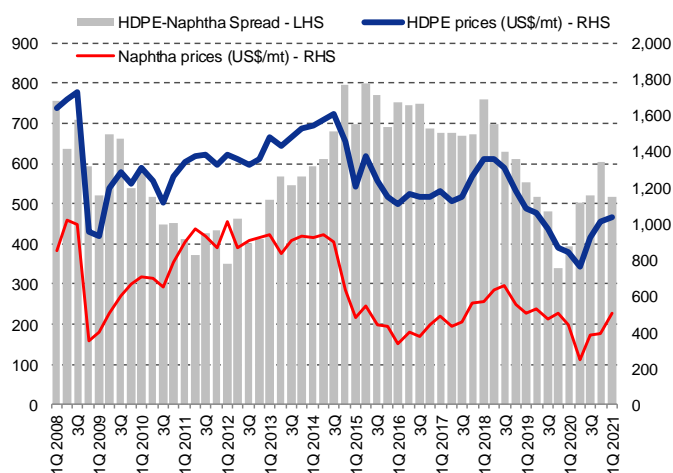
In Europe, PE markets have had a very firm start to 2021 as buyers moved quickly to replenish a depleted supply chain, while domestic demand was strong as a result of stockpiling due to Europe's return to strict lockdown measures. According to IHS, medical products, household cleaners, personal-care products, food and beverages, and secondary packaging items were seeing solid demand. Building and construction, automotive, and industrial product markets saw a dip in demand as pandemic-related lockdowns affected normal activity. Nevertheless, on expectations of elevated PE prices ahead due to higher feedstock and naphtha prices, buyers in Europe purchased more PE in January.

Outlook

Due to the strong import demand for manufactured goods from the US, and the fact that fewer Chinese workers travelled back to their hometowns this Lunar New Year, China's converters that use PE to manufacture plastics may reopen their operations faster this year and hence, demand for PE may recover from the holiday lull quicker, in our view.

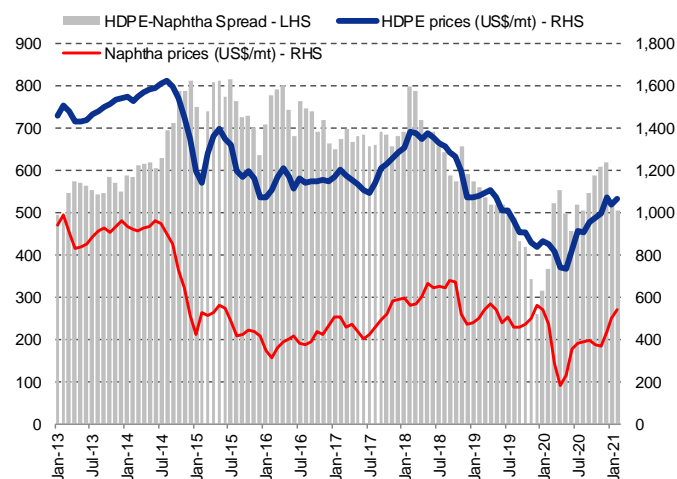
New Chinese PE capacities continue to be added, with 4.1m tpa of new PE capacity added during 2020 (1.6m tpa in 4Q20 alone), and, in 1Q21, another 1.1m tpa of new PE capacity will be added (0.3m tpa HDPE, 0.4m tpa LDPE and 0.4m tpa LLDPE), according to IHS. However, the demand improvement from the recovering Chinese economy coupled with slow ramp-up of the new facilities may enable China's PE prices to remain strong during 1Q21.

Figure 8: HDPE (spot SEA CFR) and naphtha (Singapore FOB) quarterly prices vs. HDPE-naphtha spread



SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Figure 9: HDPE (spot SEA CFR) and naphtha (Singapore FOB) monthly prices vs. HDPE-naphtha spread



SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

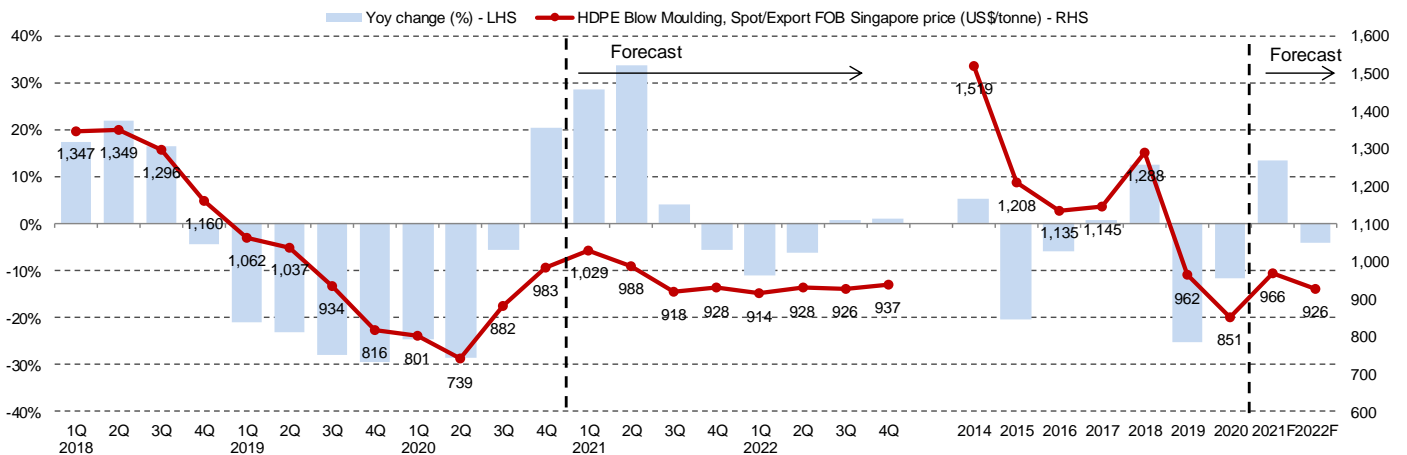
Meanwhile, naphtha and ethane crackers in Asia, Middle East, US and Europe may undergo their usual spring maintenance cycle in the coming months, affecting the availability of feedstock for the production of PE. This may keep PE prices strong for the duration of spring, in our view. Production of PE from Middle East sources in January has been lower than year-ago levels due to the cutbacks in ethane gas feedstock supplies as a result of the deliberate drop in OPEC oil production, which has affected the production of associated gas from the oilfields. Saudi Arabia's voluntary 1 mbpd production cut for February and March will likely keep ethane feedstock gas supplies in the Middle East lower than usual for the rest of 1Q21, according to IHS.

Looking further ahead, spot PE prices in Asia will probably be correlated to higher crude oil and naphtha feedstock prices, in our view. As we note in the section on crude oil and naphtha markets, we cannot take for granted that oil prices will continue to increase beyond March, as this will depend on OPEC+'s supply response and how it accommodates Iran's determination to increase its oil exports, as well as the pace of oil demand growth.

Furthermore, with 7.5m tpa of global PE capacity growth expected for 2021F, against IHS's forecast of 5m tpa of demand growth, there is an unfavourable gap between demand growth and supply growth that may lead to lower PE prices as 2021F progresses, in our view. On the other hand, if supply growth is mitigated by ramp-up delays and demand growth exceeds IHS's expectations due to an acceleration in global GDP growth, there is the potential that the unfavourable demand-supply gap in 2021F may not be as large as currently thought, and any downtrend in PE prices may be gentle. This seems to be what IHS is projecting.

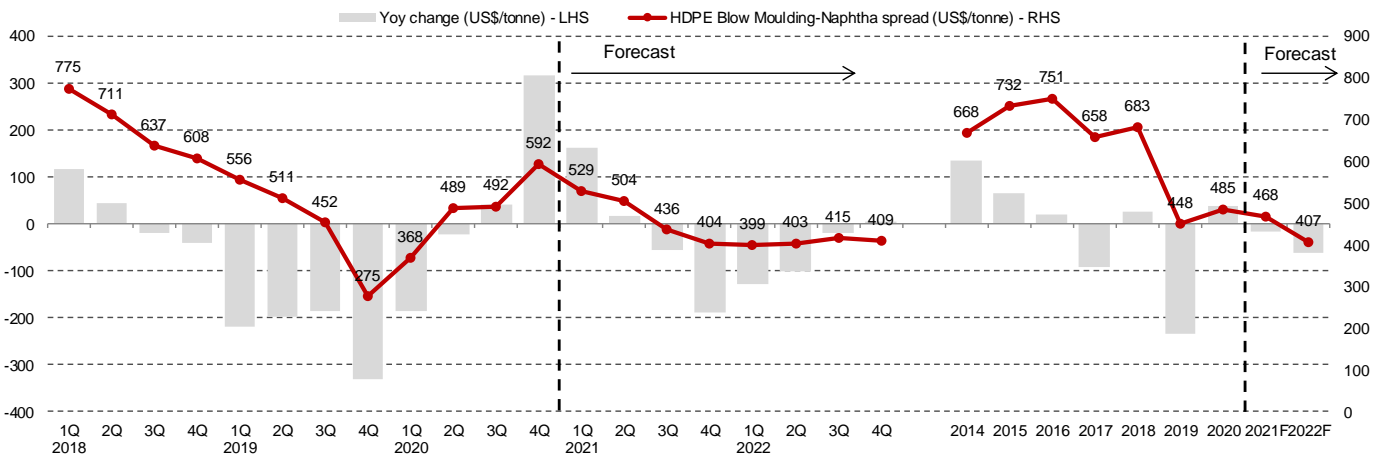
Demand growth this year may be tempered by China's ban on the use of single-use plastics at the start of 2021, and that may affect the demand growth for HDPE in particular. According to IHS projections, HDPE prices may peak in 1Q21F and then trend lower in the quarters ahead, although average HDPE prices in 2021F may be higher yoy. The HDPE-naphtha spread has already come under pressure in 1Q21F and may be lower yoy on average in 2021F, according to IHS.

Figure 10: HDPE blow moulding, spot/export FOB Singapore price (US\$/tonne) - historical prices and IHS estimates



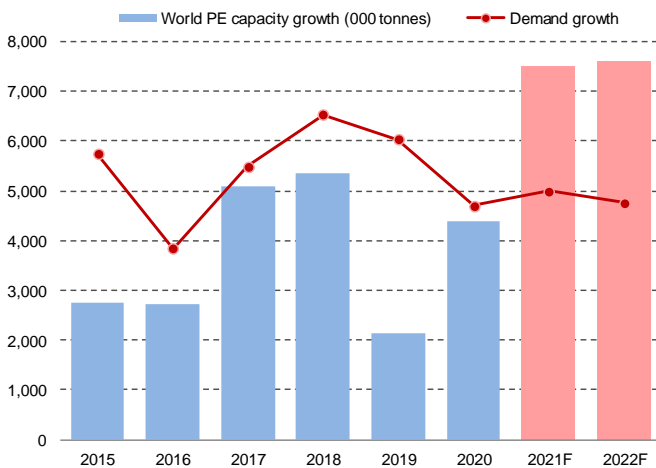
SOURCES: CGS-CIMB RESEARCH, IHS

Figure 11: HDPE blow moulding-naphtha spread (US\$/tonne) - historical spreads and IHS estimates



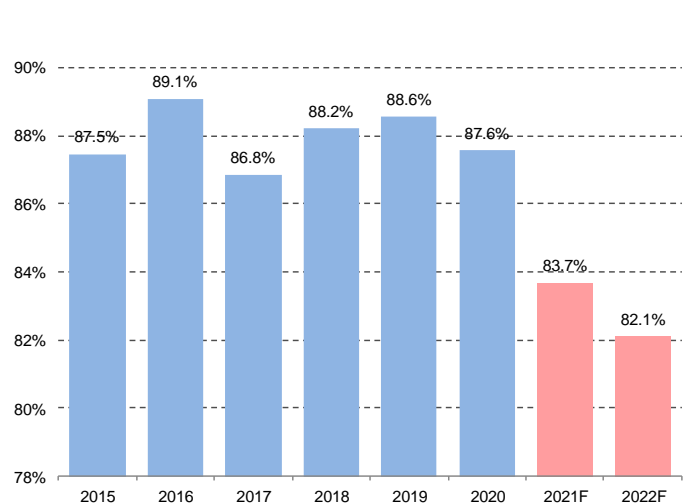
SOURCES: CGS-CIMB RESEARCH, IHS

Figure 12: World PE annual demand growth versus capacity growth (time-weighted capacity additions)



SOURCES: CGS-CIMB RESEARCH, IHS

Figure 13: World PE plant utilisation rate - actual and forecast



SOURCES: CGS-CIMB RESEARCH, IHS

Polypropylene (PP) markets ►

Recent developments

During 2020, new PP plants in China commissioned 3.8m tpa of new nameplate capacity. However, plant outages and delayed start-ups, coupled with strong demand, resulted in tight supply of PP, leading to strong PP price recovery. Several PP plants in China also operated at lower rates due to the shortage of propylene feedstock, due in part to lower run-rates for crude oil refineries, according to IHS.

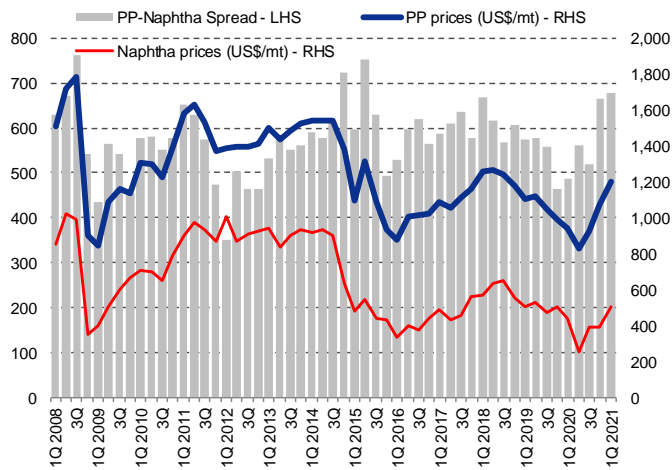
PP markets in China remained strong in 2021 due to low inventories, although PP prices declined ahead of the Lunar New Year holidays, when buyers wanted to destock. Despite this, IHS noted that the PP futures market was strong, as market participants anticipated robust demand post-Lunar New Year holidays, i.e. in the March and April peak season. Demand for copolymer PP for medical equipment was strong due to robust exports of China's medical equipment. Demand for PP nonwoven fibres also remained strong due to face mask applications. PP exports to China from the US diminished after August due to the hurricane-related production disruptions in the US, and low PP inventories in the US also caused US PP exports to decline materially, based on IHS data. This helped support PP prices in Asia.

In the US, PP prices continue to increase on low inventories of less than 27 days' consumption in late-December, a record low. IHS noted that although production was strong during 4Q20, demand was also very strong, driven by demand for personal protective equipment (PPE: masks, garments, and disposable bedding), medical vials, food and takeaway packaging, as well as recovering markets such as automotive PP copolymer applications.

According to IHS, US production of PP in December 2020 was 15.4% yoy higher, but demand growth was even stronger, up 24.6% yoy, causing PP inventories to fall to just 26.9 days, a new record low. IHS forecasts that inventory days will not rise above 30 days until March and inventories are not expected to reach usual levels of c.40 days until April. Supply growth was limited by the force majeure at several plants such as INEOS, Formosa Plastics USA, LyondellBasell, and Total Petrochemical and Refinery. As such, US PP prices are likely to remain strong all through 1Q21F. IHS currently forecasts US PP demand to grow 3.5% yoy in 2021F, although the current spike in PP prices may cause some substitution in favour of HDPE.

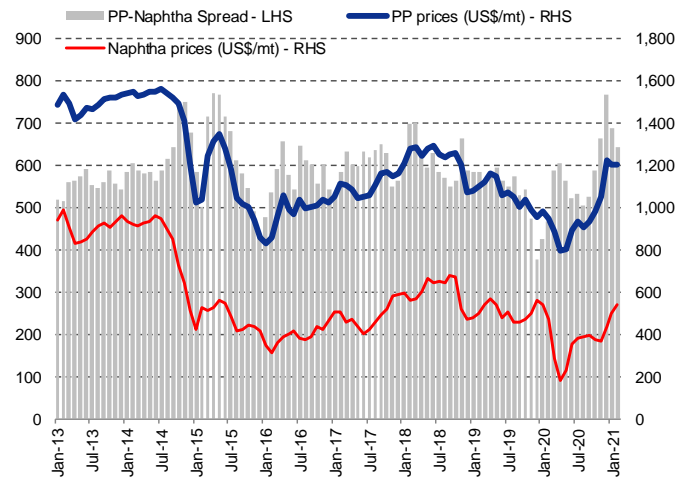
In Europe, PP demand was strong due to consumer stockpiling in response to the rise in Covid-19 infections, which is likely to keep demand high for packaging, while moderate inventory levels in Europe will keep the buying momentum steady, according to IHS. The consultancy further believes Middle East exports of PP to Europe dropped due to various plant outages, while Middle East producers preferred to send material to Asia instead due to better prices in Asia.

Figure 14: PP (spot SEA CFR) and naphtha (Singapore FOB) quarterly prices vs. PP-naphtha spread



SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Figure 15: PP (spot SEA CFR) and naphtha (Singapore FOB) monthly prices vs. PP-naphtha spread



SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Outlook

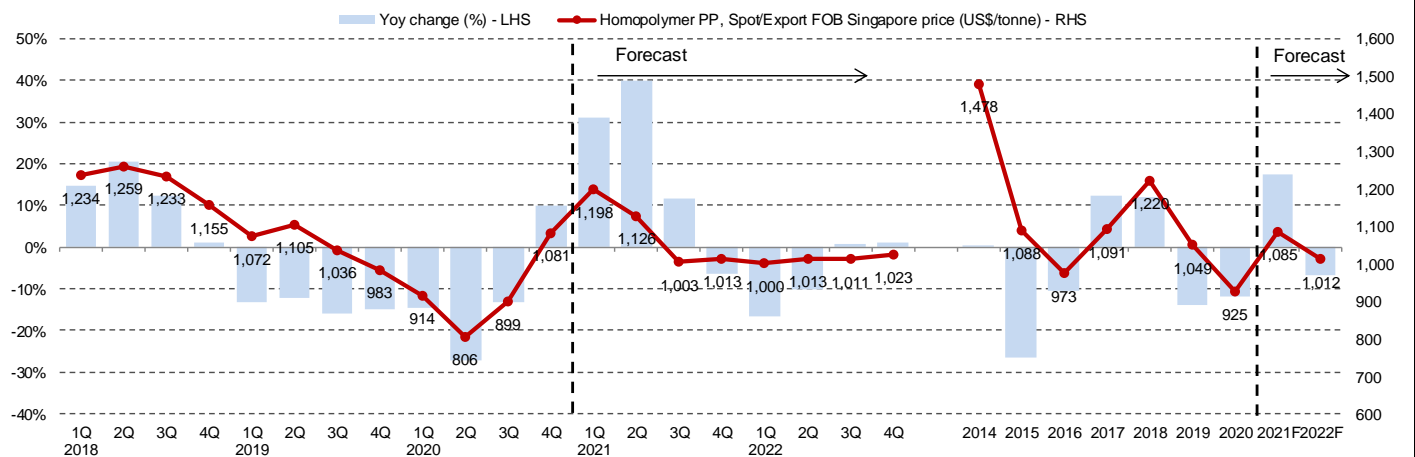
During 1H21F, numerous PP plants with a combined capacity of 2.6m tpa are expected to begin operations in China, on top of the 3.8m tpa of PP capacity that was commissioned in 2020, according to IHS data. Some PP buyers in China are refraining from accumulating PP inventories in the expectation that these new capacities will bolster domestic supplies and keep prices from rising further.

Having said that, PP markets in Asia will be supported by the post-Lunar New Year restart of manufacturing plants from late-February onwards, with factories resuming operations earlier than usual as many workers did not make their annual trips back to their hometowns this year due to Covid-19-related travel restrictions. As a result, demand for PP in March and April will likely be strong, in our view.

As the year progresses, additional global PP capacities will be added, according to IHS data, at a rate that is expected to far exceed demand growth. As such, China may see its self-reliance in PP supplies increase from an average of 81% in 2020 to an average of 86-87% in 2021F, which may cause PP imports into China to decline yoy.

Based on IHS projections, SE Asian PP prices may peak in 1Q21F and then trend lower in the quarters ahead, although average PP prices in 2021F may be higher yoy. Similarly, the PP-naphtha spread may come under pressure from 2Q21F onwards.

Figure 16: Homopolymer PP, spot/export FOB Singapore price (US\$/tonne) - historical prices and IHS estimates



SOURCES: CGS-CIMB RESEARCH, IHS

Figure 17: Homopolymer PP-naphtha spread (US\$/tonne) - historical spreads and IHS estimates

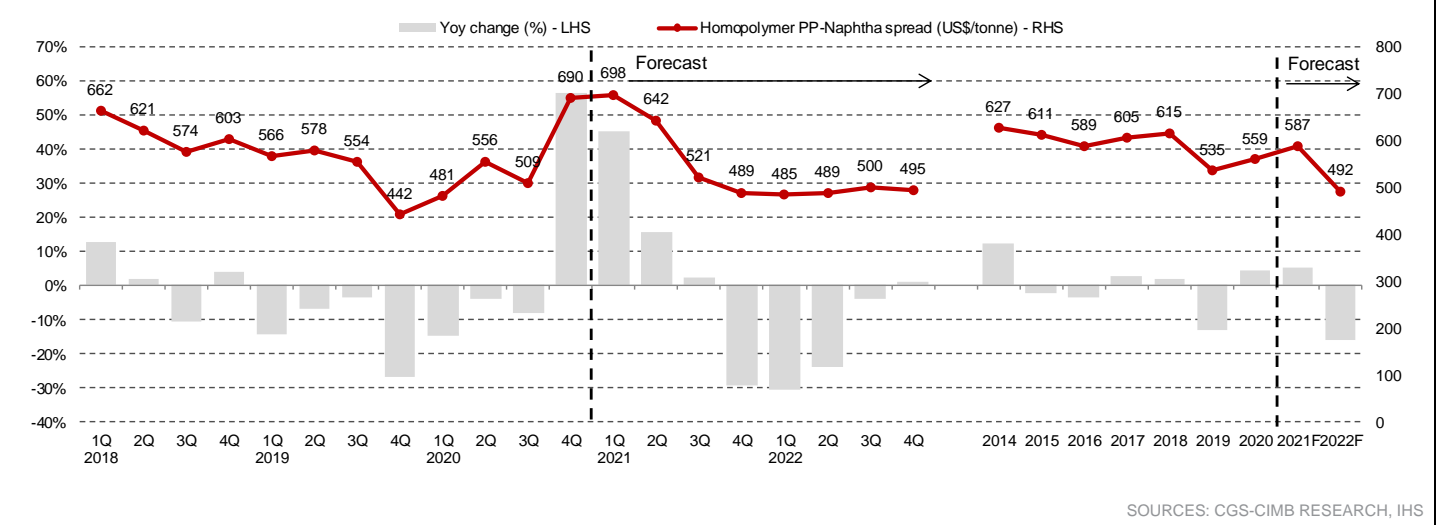


Figure 18: World PP annual demand growth versus capacity growth (time-weighted capacity additions)

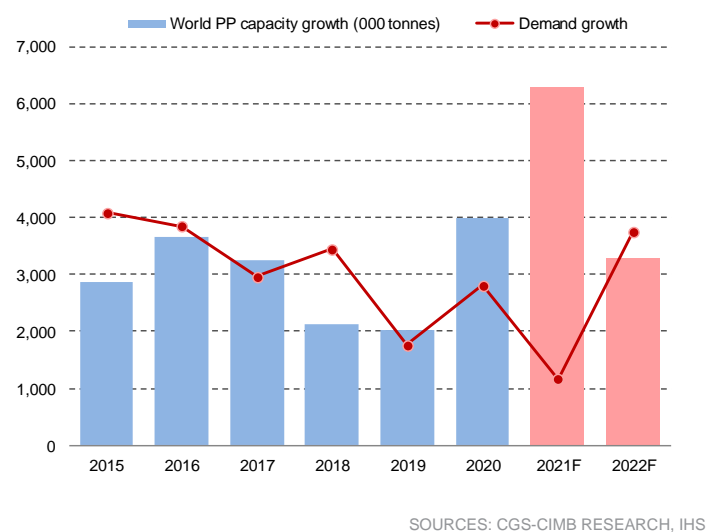
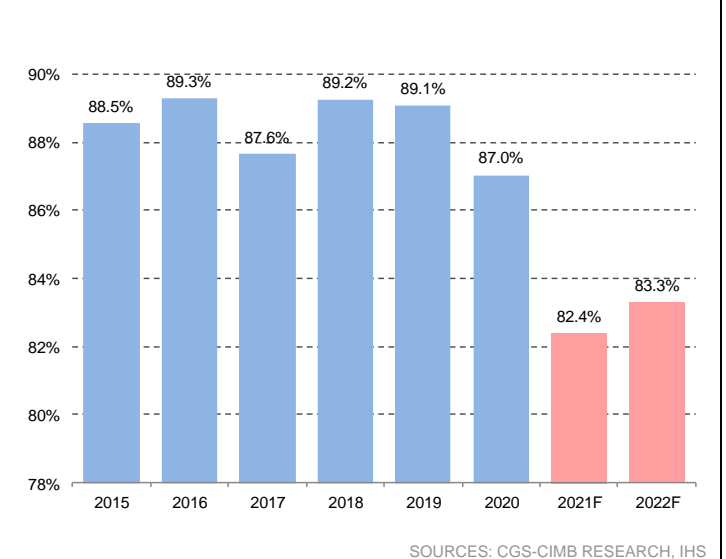


Figure 19: World PP plant utilisation rate - actual and forecast



Monoethylene glycol (MEG) markets ►

Recent developments

MEG prices were in the doldrums for most of 2020, recovering convincingly only from October or November. MEG prices have continued their surge in January and February 2021.

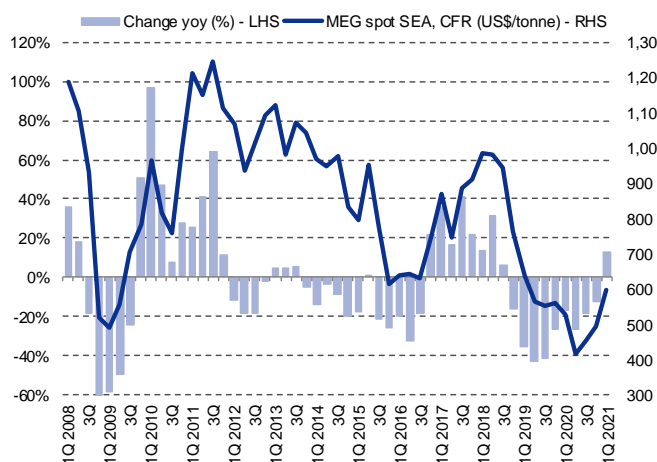
Over the past 5-6 months, MEG supplies globally have tightened visibly, according to IHS and consultancy ICIS. This can be seen in terms of the MEG port inventories in East China, which have declined from its peak of 1.5m tonnes at end-July 2020 (23 days' consumption) to c.680k tonnes in the first week of February (13 days' consumption). MEG and PX are used to make polyester fibres, and polyester fibre inventories in China have also trended lower in recent months, indicating strong demand for textiles and fabrics exported from China.

In North America, MEG production was disrupted by the US hurricanes that hit in late-August and early-October; this tightened domestic MEG supplies in the US, and US-based producers were not in a position to export volumes in excess of their contractual commitments. IHS noted that PET producers in the US even had to import MEG from Asia in order to secure enough raw materials for the production of PET. Additionally, in Western Europe, there were several plant outages that tightened MEG supplies in the continent. The MEG supply tightness in the US and Western Europe eased in early-2021 but has not dissipated entirely, according to IHS.

Another major factor supporting the tightness of global MEG markets is the issue of ethane gas feedstock shortages in the Middle East, due to the OPEC reduction in production of crude oil, which also impacted the production of associated gas. Saudi Basic Industries Corporation (SABIC), which is 70% owned by Saudi Aramco, had to purchase MEG in the open merchant spot market in order to supply their contractual term customers in China, according to IHS.

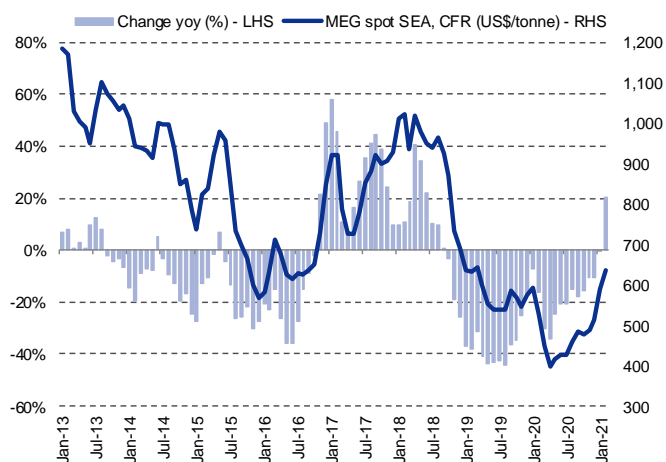
More recently, coal prices spiked in China since November, and this increased the economic pressure on the coal-to-MEG plants in China. Coal-to-MEG plants make up 42% of the MEG production capacity in China, or 27% of the MEG capacity in NE and SE Asia combined, in January 2021. According to IHS, 34% of coal-to-MEG plants in China were offline in January 2021 for economic reasons, and the average plant utilisation was only slightly higher than 40%.

Figure 20: MEG spot SEA, quarterly CFR average prices (US\$/tonne)



SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Figure 21: MEG spot SEA, monthly CFR average prices (US\$/tonne)

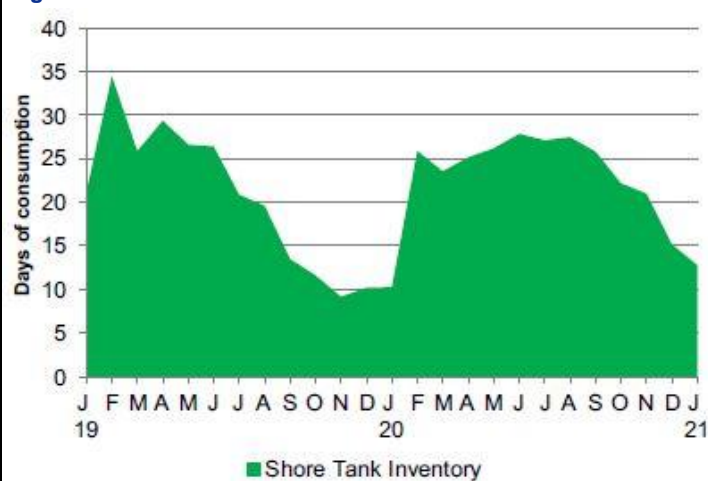


SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Coal prices have been strong in China for various reasons. First, the recent winter season has been colder than usual, increasing demand for coal for electricity generation. Second, the cold temperatures disrupted the loading of coal from train wagons to the ports, as the coal froze to the wagons, requiring additional time and manual labour to unload them. Third, the resurgence of Covid-19 in north China's Hebei province in January disrupted coal deliveries as truck drivers were required to provide negative results for Covid-19 tests and drivers that originated from high- and medium-risk areas were required to undergo a 14-day quarantine period, according to Mysteel. Fourth, government investigations into overproduction and coal licences in Inner Mongolia caused coal production from that province to decline 10% yoy during 2020, according to Argus Media, with production expected to decline further in 2021F. Fifth, China's coal imports were reined in in the 4Q20 as it had hit the annual import quotas in September, adding to the winter shortages in China.

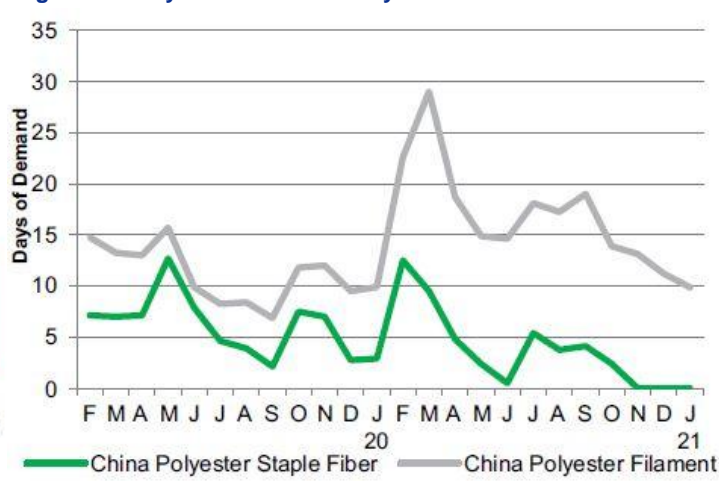
All the above factors supported the strong MEG price rally, which we expect to continue for the rest of 1Q21F.

Figure 22: China's shore tank MEG inventories



SOURCE: IHS

Figure 23: Polyester fibre inventory in China



SOURCE: IHS

Outlook

Despite the strength in MEG prices seen during 4Q20 and the likelihood that it will continue for the rest of 1Q21F, there are some indications that the MEG price rally may not extend into 2Q21F.

Coal prices in China are likely to soften as spring arrives. According to Bloomberg, the coal spot price at the Qinhuangdao port has fallen to Rmb685/tonne (US\$106), down 40% from its peak of Rmb1,150/tonne in mid-January. Buyers held back purchases ahead of the long Lunar New Year holiday while inventories at the power plants are also sufficient to cover consumption during the holiday without being excessive. In addition, China's coal import quotas were refreshed at the start of 2021, leading to higher imports from Indonesia. The Chinese government's ideal "green zone" price range is Rmb500-570/tonne, but Bloomberg Intelligence believes that Rmb600/tonne may be sustainable to balance the interests of coal producers and electricity generation companies. The coal spot price at the Qinhuangdao port averaged Rmb568/tonne during 2020. Lower coal prices in China will help to improve the economics of the country's coal-to-MEG plants, in our view.

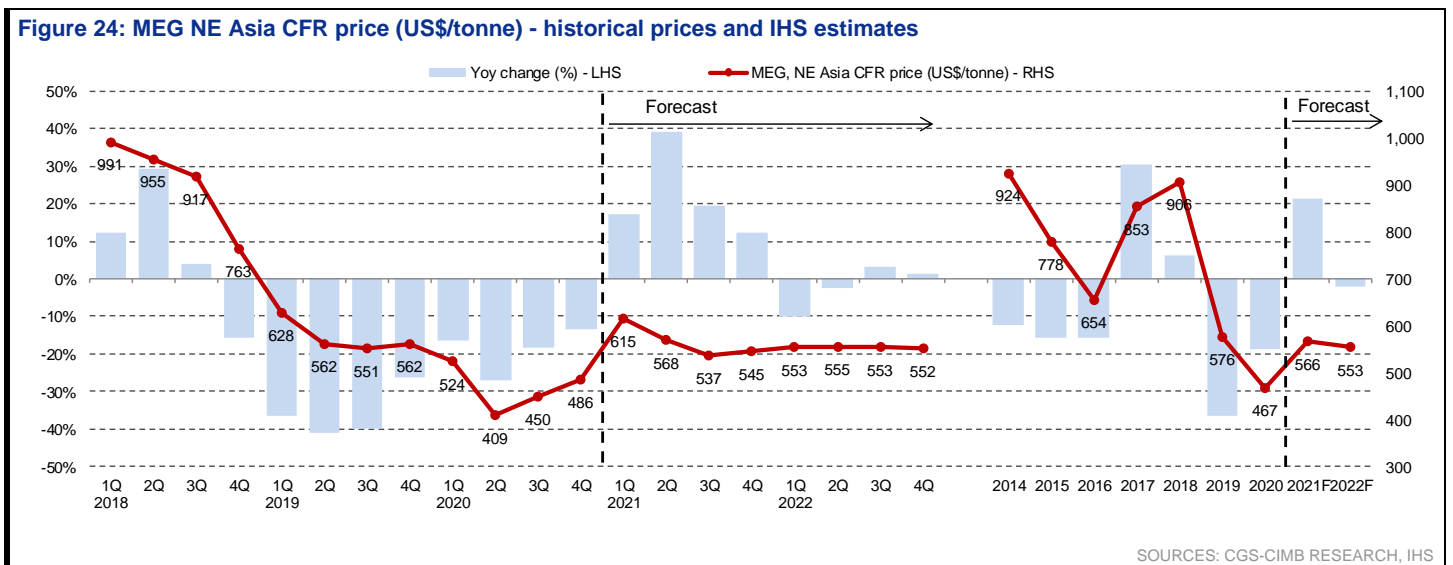
MEG is likely to face strong supply-side pressures in 2021F, arising from massive new capacity additions that will dwarf demand growth, according to IHS. However, most of the new capacity will not start up and impact the market before 2Q21F. As new conventional MEG capacities are commissioned, in particular the Zhejiang Satellite Petrochemical's 1.2m tpa MEG plants (two units of 600k tpa each), which will be progressively commissioned from 1Q21F, and Zhejiang Petrochemical's Phase 2 expansion of its Zhoushan naphtha cracker complex that will have the capacity for 800k tpa of MEG may be commissioned

as early as mid-2021F, MEG supplies may lengthen and MEG prices may come under pressure, in our view. In SE Asia, Petronas Chemicals will commission an 808k tpa of MEG production facility at Pengerang, Malaysia, probably from May 2021F onwards, according to the company.

Supply outages seen earlier in Western Europe and the US have also mostly ended, pointing to a gradual recovery in global supply, according to IHS. In the US, Formosa's new 800k tpa plant in Point Comfort, Texas, is scheduled to be commissioned in February and may ease the current tightness in the US market, which may help to facilitate greater volumes of MEG exports to Asia.

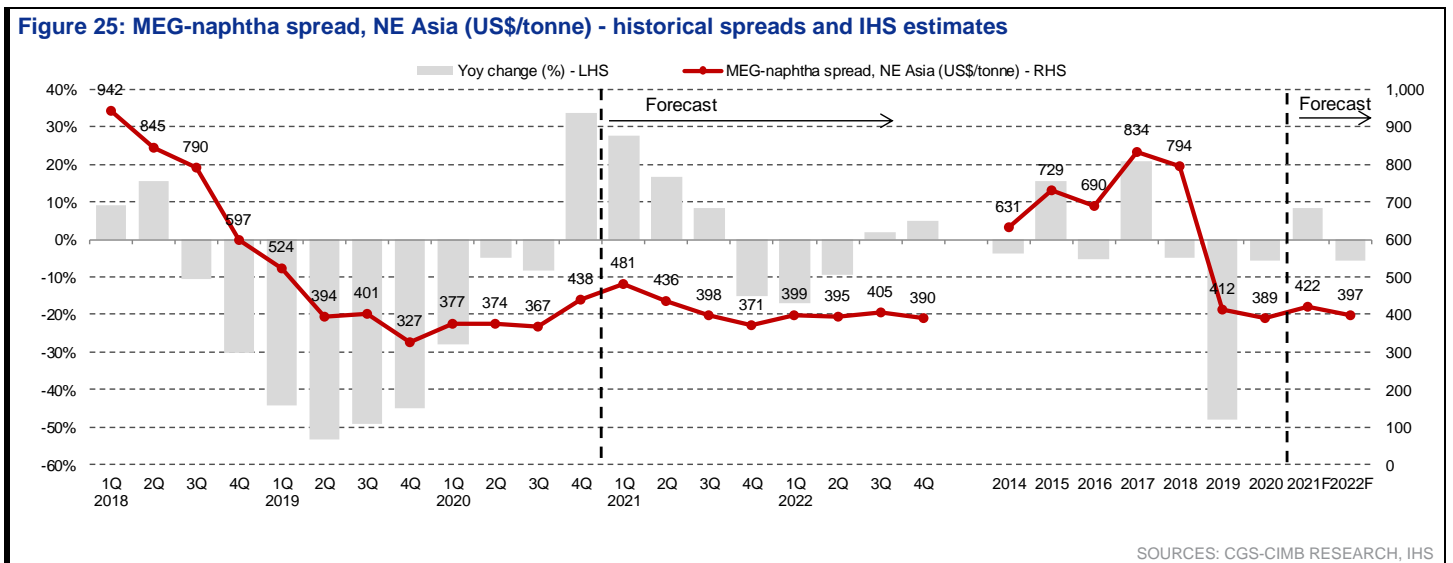
IHS's forecast is for MEG prices to peak in 1Q21F before trending down gradually; the full-year 2021F average MEG price is forecast to be higher than 2020F. In the medium to long term, coal-based MEG producers will continue to be marginal producers, raising output and operating rates when MEG-coal price spreads are high, but reducing operating rates when the opposite is true, in our view.

Figure 24: MEG NE Asia CFR price (US\$/tonne) - historical prices and IHS estimates



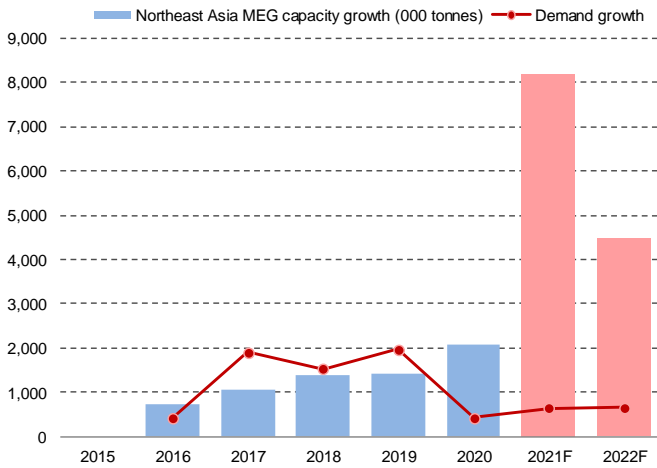
SOURCES: CGS-CIMB RESEARCH, IHS

Figure 25: MEG-naphtha spread, NE Asia (US\$/tonne) - historical spreads and IHS estimates



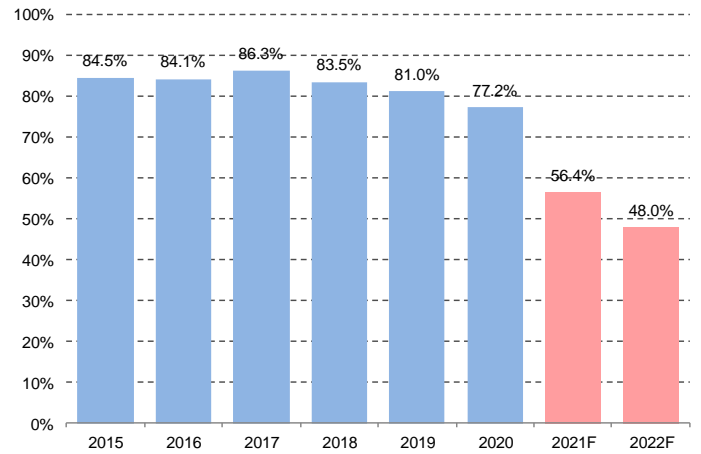
SOURCES: CGS-CIMB RESEARCH, IHS

Figure 26: Northeast Asia MEG annual demand growth versus capacity growth (time-weighted capacity additions)



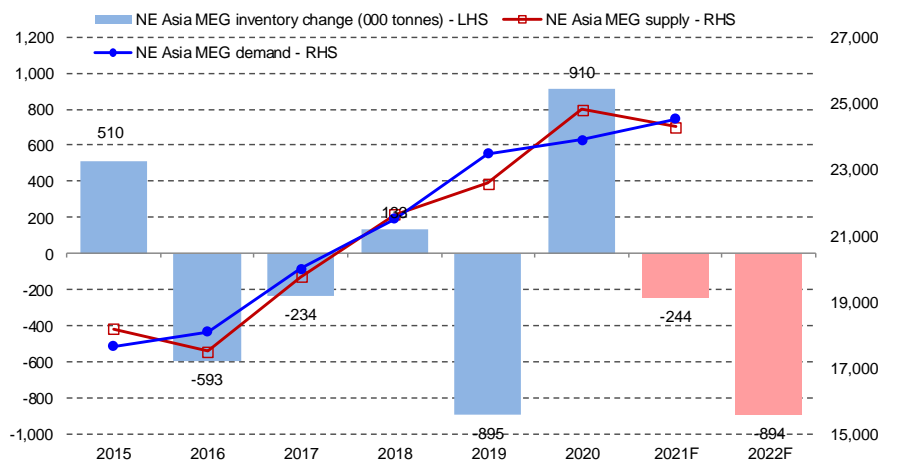
SOURCES: CGS-CIMB RESEARCH, IHS

Figure 27: Northeast Asia MEG plant utilisation rate - actual and forecast



SOURCES: CGS-CIMB RESEARCH, IHS

Figure 28: Northeast Asia MEG supply, demand and inventory change (000 tonnes)



SOURCES: CGS-CIMB RESEARCH, IHS

Paraxylene (PX) markets ►

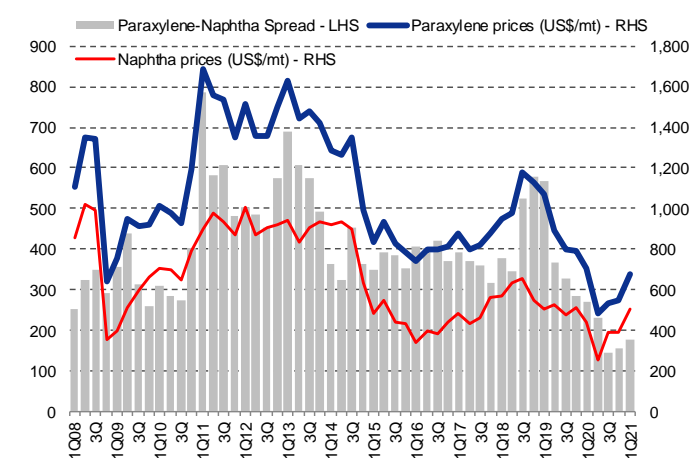
Recent developments

Across Asia, polyester and PET demand had returned to pre-Covid-19 levels by end-2020, which was a major turnaround from the demand weakness seen during 2Q20. This has underpinned by demand for polyester raw materials like MEG and PX. According to IHS, PX demand in China likely increased 9% yoy during 2020.

In Asia, short-term production issues tightened PX supply and prices rose. Several large PX assets in NE and SE Asia suffered unscheduled shutdowns, forcing major consumers to tap the market for spot supply, according to IHS. For instance, IHS reported that Sinopec Hainan is planning to operate at only 60% of its PX capacity due to feedstock issues, and that Zhejiang Petrochemical is operating at only 90% of capacity, also due to feedstock issues, as it had run into the limits of its crude oil import quota. In SE Asia, ExxonMobil Singapore shut down the Jurong Aromatics Recovery (JAR) site indefinitely in January 2021, in addition to shutting down its Singapore Aromatics Recovery No.1 Unit (SAR1) a year earlier in January 2020; its SAR2 unit will likely produce at reduced rates, according to IHS. Hengyi Brunei also shut down in late-January, although IHS was unsure as to the precise extent of the shutdown.

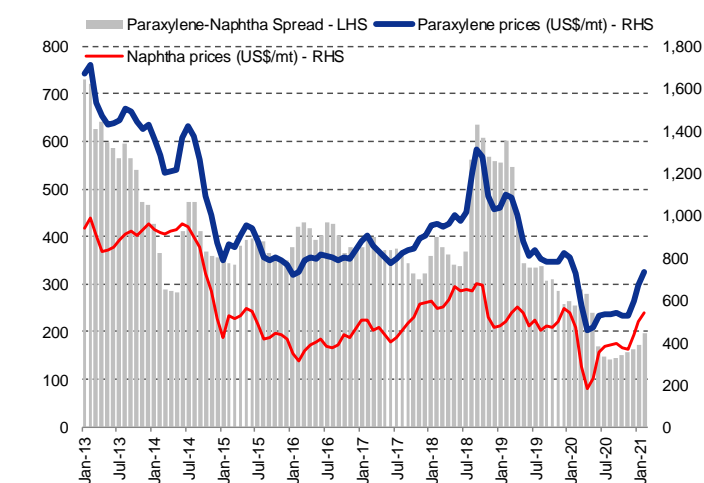
Meanwhile, PTA capacity globally is operating at close to full capacity, supporting PX demand. Until the PX plants in China, South Korea and SE Asia recover to their usual operating rates, IHS believes that PX prices have near-term upward momentum. The likely quick restart of polyester and PET plants in China after the Lunar New Year will also restore demand for the raw materials without as long a lull as seen in previous years.

Figure 29: Paraxylene (SEA CFR) and naphtha (Singapore FOB) quarterly prices vs. paraxylene-naphtha spread



SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Figure 30: Paraxylene (SEA CFR) and naphtha (Singapore FOB) monthly prices vs. paraxylene-naphtha spread

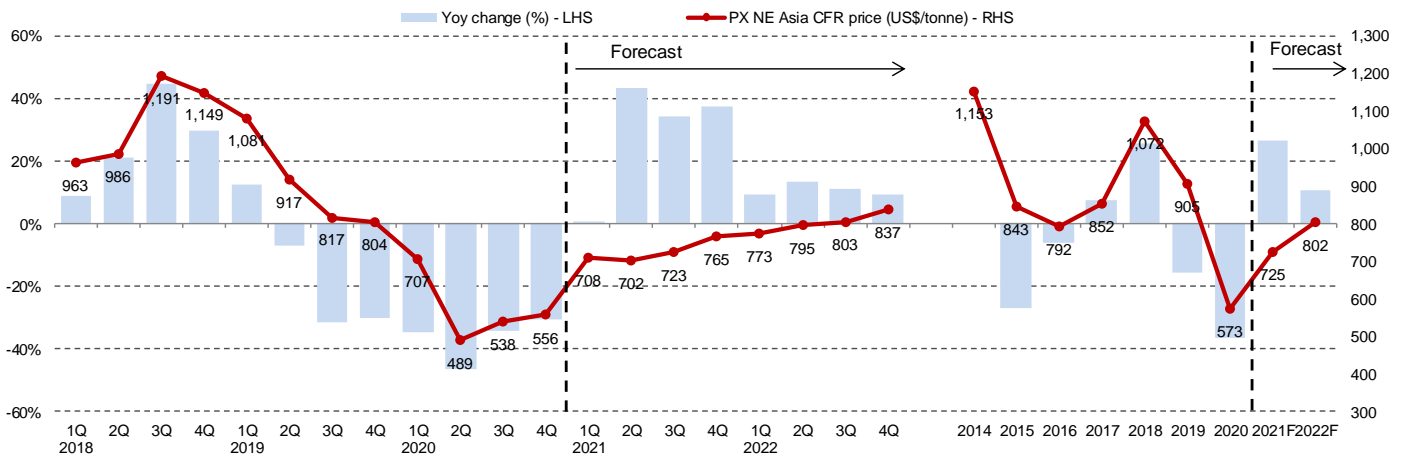


SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Outlook

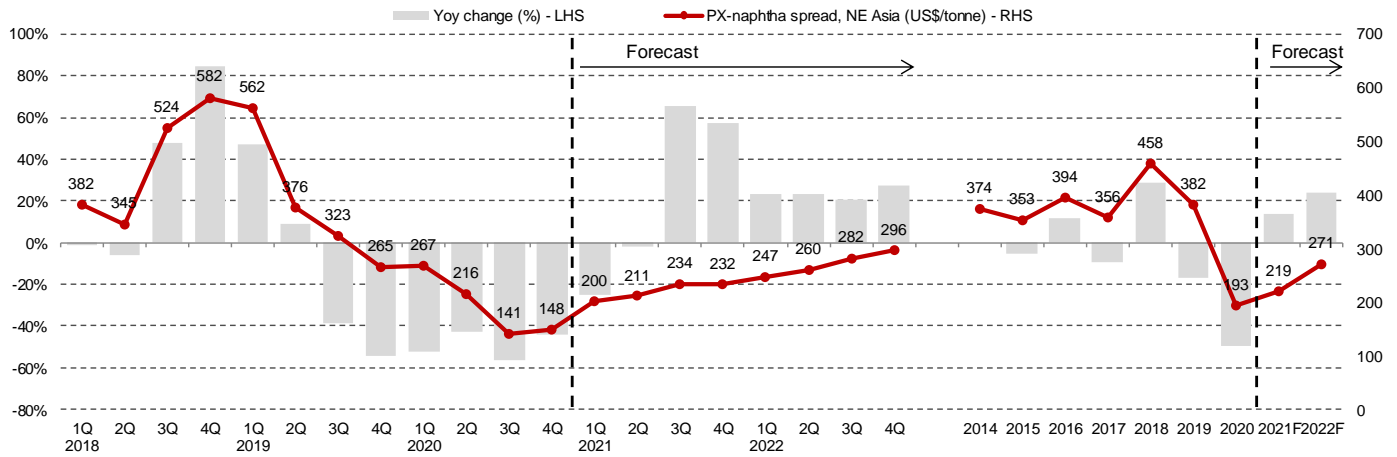
The first part of Zhejiang Petrochemical's Phase 2 expansion of its Zhoushan naphtha cracker complex, scheduled to start up in late-1Q21F to early-2Q21F, will have the capacity to produce a substantial 4.5m tpa of PX supply. Also adding to PX capacity from 2Q-3Q21F is Saudi Aramco's new 400k bpd domestic refinery and petrochemical project in Jazan, which has the capacity to produce 850k tpa of PX. The new capacities may weigh on PX prices in the months ahead, but IHS believes that high operating rates at PTA plants, new PTA capacities to be commissioned in China in 2021F, and strong downstream demand for polyester/PET resins, will outweigh the PX capacity additions and help maintain a continued upward trend in PX prices for the rest of 2021F.

Figure 31: PX NE Asia CFR price (US\$/tonne) - historical prices and IHS estimates



SOURCES: CGS-CIMB RESEARCH, IHS

Figure 32: PX-naphtha spread, NE Asia (US\$/tonne) - historical spreads and IHS estimates



SOURCES: CGS-CIMB RESEARCH, IHS

Methanol markets >

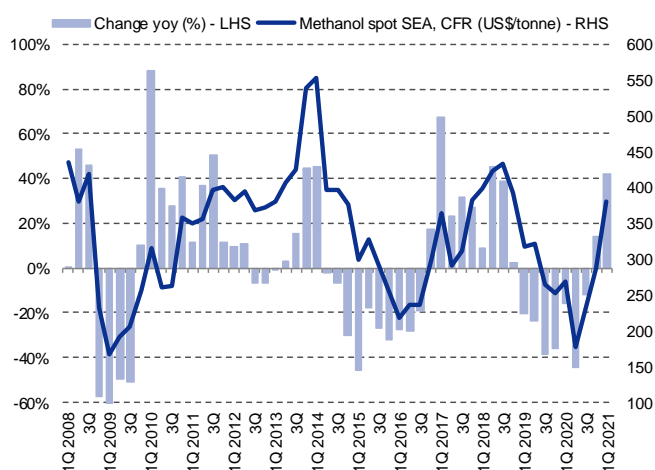
Recent developments

Methanol prices recovered in 2H20 as global lockdowns were eased, allowing for the global recovery in construction activity, recovery in demand for gasoline, diesel and biodiesel, and recovery in plastics prices and demand, according to consultancy Platts. Demand for formaldehyde and acetic acid from the manufacturing and construction industries also recovered, while MTBE, biodiesel and other fuel applications similarly probably saw higher demand. In addition, higher plastics prices supported methanol demand in methanol-to-olefins (MTO) plants.

According to Methanex, the world's largest methane producer, demand for traditional applications of methanol, such as formaldehyde and acetic acid as well as MTBE and other fuel applications, was down 5-6% yoy in 2020, but demand for methanol for MTO plants rose 12% yoy.

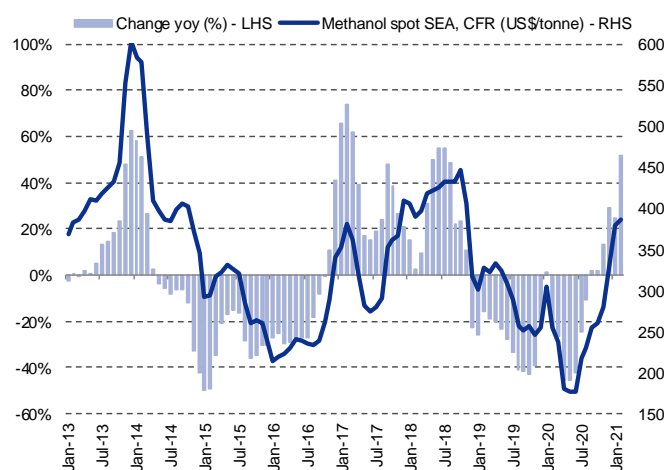
In addition to recovering methanol demand in 2H20, methanol prices were further supported by the decline in global methanol supply, due to various planned and unplanned outages. During 4Q20, Iranian methanol exports to China fell as Iranian methanol producers experienced methane gas supply shortages in winter due to higher demand for methane gas by power plants to supply heating, according to Platts. The shortage of coal in China during the cold winter season also led to a sharp increase in coal prices that raised the cost curve of coal-to-methanol plants, which then led to higher methanol prices.

Figure 33: Methanol spot SEA, quarterly CFR average prices (US\$/tonne)



SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Figure 34: Methanol spot SEA, monthly CFR average prices (US\$/tonne)



SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Outlook

Gas supply curtailments around the world to methanol plants, especially in Iran and China, as well as high coal prices in China are expected to keep methanol prices high in the near term, according to Argus Media.

Methanex said at its 4Q20 results conference call on 27 January that it is facing gas curtailments to its key facilities around the world. For instance, Methanex estimated that its production in New Zealand for 2021F would likely total 1.5m-1.6m tonnes, vs. 2020 production of 1.7m tonnes, as “a major offshore gas field, which supplies the New Zealand market has experienced significant and unexpected production declines, which will result in lower gas deliveries”. Methanex has two methanol plants in Trinidad with production capacity of 2m tpa as at late-January 2021, but one of the plants has been idled indefinitely due to its inability to reach an acceptable long-term gas supply agreement. For the other Trinidad plant that will remain online, Methanex estimated production in 2021F of only 0.9m tonnes, vs. 1m tonnes in 2020 as “upstream production declines and the delay of upstream maintenance work due to Covid-19 will result

in lower gas deliveries”. These declines are partly offset by Methanex’s estimates of higher methanol production in Chile for 2021F of 0.9m-1m tonnes, vs. 2020’s production of 0.8m tonnes.

Potentially lower methanol output at Methanex this year, coupled with potential demand recovery from higher global GDP growth and easing Covid-19 lockdowns as a result of vaccine rollouts, could ensure that methanol prices are stronger in 2021F vs. 2020. IHS expects medium-term methanol demand to return to 3-4% p.a. growth once the Covid-19 pandemic is over.

Nevertheless, tightness in the methanol market may ease from 2Q21F onwards, as Platts believes that additional production will come online in early-2021F, with the start-up of the 1.8m tpa YCI Methanol One plant in St. James, Louisiana, and the ramp-up to full operating rates of Caribbean Gas Chemical Ltd’s 1m tpa production facility in Trinidad (which commenced production in September). In the post-winter period, gas supply curtailments to methanol plants in Iran and China may ease, resulting in higher volumes of methane gas supplied to methanol plants. Lower coal prices in China after 1Q21F may also lower the cost of production of coal-to-methanol plants in China.

Furthermore, Iran is using the opportunity of the new Biden administration in the US to export greater volumes of crude oil, and we think that Iran may also try to export more methanol. According to Platts, Iranian methanol capacity almost doubled in the past two years, to 12m tpa in 2020, following the start-up of the Pars Kimia (1.65m tpa) and Bushehr (1.65m tpa) facilities during 2Q20, both located in Assaluyeh. The above followed the August 2018 commencement of Supreme Infrastructure India Ltd-owned Marjan’s 1.65m tpa methanol plant at Assaluyeh, and the 2019 start-up of Kaveh’s 2.3m tpa Iranian facility in Dayyar.

Urea markets >

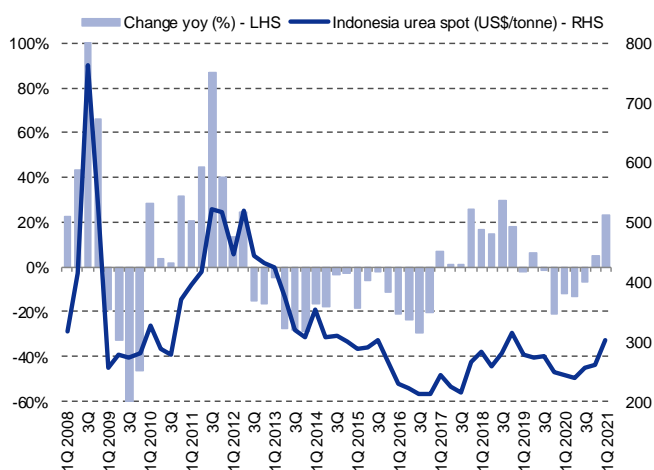
Recent developments

In Indonesia, urea prices surged in late-January and early-February to close at US\$366/tonne on 5 February, up 32% from US\$278/tonne on 22 January, which are the highest prices since 2014. The price surge was the result of synchronised purchasing by both US and European buyers ahead of the peak spring planting season, with European buyers having waited too long to start purchasing, according to ICIS. To put this in context, urea prices disappointed ICIS's expectations during 2H20 as buyers held back, but this had also set the stage for the intense buying from late-January.

To add fuel to the fire, China, which is a large producer of urea, has had production crimped by the surge in coal prices and the winter-related shortages of coal (which we explained in more detail in our section on MEG). As a result, coal-fed urea plants in China saw operating rates of only 49-50% in the winter, according to ICIS. Methane gas supply shortages in southwest China (Sichuan and Yunnan provinces) in early-December 2020 also affected several urea plants, according to Argus Media, impacting about 6% of China's urea production.

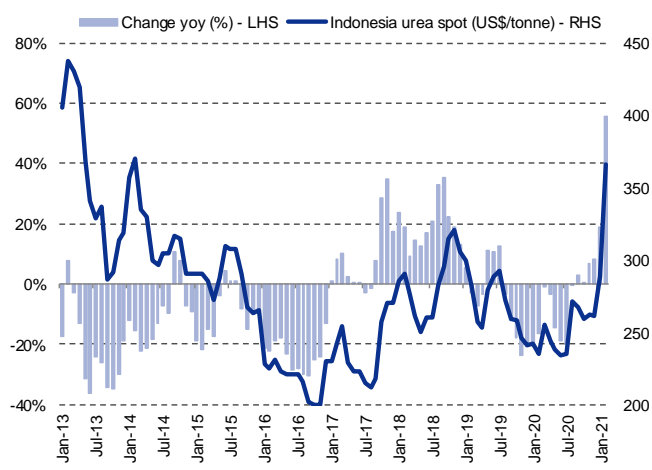
In addition, ICIS noted that several urea plants in China, Egypt, Indonesia and Saudi Arabia are undergoing plant turnaround and maintenance currently, as maintenance activities were delayed from 2020 due to Covid-19 social distancing and travel restrictions; these activities have acted to reduce available supplies just as US and European buyers have entered the market in force.

Figure 35: Indonesia urea spot (US\$/tonne)



SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Figure 36: Indonesia urea spot (US\$/tonne)



SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Outlook

ICIS expressed concern about the sharp spike in urea prices, noting that historically, sharp spikes have been followed by sharp price drops. For now, however, the urea price levels will likely hold until the urea buying for the spring planting season in the US and Europe actually ends, and until Chinese coal supply tightness eases as spring rolls in and temperatures begin to rise. ICIS also noted new urea plants in Nigeria being commissioned in 2Q21F, which could lengthen global supplies. As such, current high urea prices are unlikely to be sustained and may begin to correct from April onwards, in our view.

For 2021F as a whole, urea demand in India could decline relative to its 2020 level due to the record rainfall in the country last year, which enabled its planting area to increase. India alone accounts for about 18-20% of the global urea market in 2020. Assuming that Indian rainfall levels normalise in 2021F, Argus Media projects Indian urea consumption to decline 2.2% from 36.2m tonnes in 2020 to 35.4m tonnes in 2021F. However, Argus Media expects that Indian urea imports will decline by a much sharper 18% from a record of 11m tonnes in 2020,

to 9m tonnes in 2021F, given that several new domestic urea plants will be commissioned in India this year.

The impact of lower Indian urea imports may be partially offset by lower export supply from China, according to Argus Media, as a result of the potential increase in Chinese domestic demand. Higher energy prices may also provide some support for urea prices this year. In summary, the contemporaneous urea buying from the US and Europe, coupled with coal and natural gas shortages in China and plant maintenance and turnaround activities in several countries, have worked together to push urea prices to 7-year highs, but this is unlikely to be sustainable and potentially lower Indian imports this year could result in more tepid average urea pricing for 2021F as a whole.

APPENDIX

Petrochemical price tables ►

Figure 37: Quarterly average prices of polyethylene (PE) (US\$/tonne)

| | HDPE Spot SEA, CFR (US\$/tonne) | | | | | LDPE Spot SEA, CFR (US\$/tonne) | | | | | LLDPE Spot SEA, CFR (US\$/tonne) | | | | |
|--------------------------------|---------------------------------|-------|-------|-------|-----------|---------------------------------|-------|-------|-------|-----------|----------------------------------|-------|-------|-------|-----------|
| | 1Q | 2Q | 3Q | 4Q | Full year | 1Q | 2Q | 3Q | 4Q | Full year | 1Q | 2Q | 3Q | 4Q | Full year |
| 2008 | 1,637 | 1,687 | 1,732 | 958 | 1,504 | 1,731 | 1,821 | 1,870 | 1,048 | 1,618 | 1,630 | 1,707 | 1,759 | 960 | 1,514 |
| 2009 | 934 | 1,198 | 1,283 | 1,222 | 1,159 | 951 | 1,171 | 1,285 | 1,323 | 1,183 | 951 | 1,155 | 1,273 | 1,256 | 1,159 |
| 2010 | 1,313 | 1,234 | 1,118 | 1,261 | 1,232 | 1,527 | 1,442 | 1,332 | 1,606 | 1,477 | 1,403 | 1,297 | 1,145 | 1,337 | 1,295 |
| 2011 | 1,339 | 1,371 | 1,382 | 1,324 | 1,354 | 1,713 | 1,640 | 1,544 | 1,386 | 1,571 | 1,422 | 1,350 | 1,325 | 1,204 | 1,325 |
| 2012 | 1,386 | 1,355 | 1,330 | 1,362 | 1,358 | 1,382 | 1,336 | 1,283 | 1,344 | 1,336 | 1,303 | 1,329 | 1,310 | 1,362 | 1,326 |
| 2013 | 1,479 | 1,430 | 1,478 | 1,529 | 1,479 | 1,463 | 1,419 | 1,559 | 1,675 | 1,529 | 1,474 | 1,406 | 1,473 | 1,534 | 1,472 |
| 2014 | 1,542 | 1,579 | 1,609 | 1,453 | 1,546 | 1,660 | 1,603 | 1,605 | 1,443 | 1,578 | 1,555 | 1,570 | 1,603 | 1,439 | 1,542 |
| 2015 | 1,202 | 1,371 | 1,234 | 1,145 | 1,238 | 1,218 | 1,418 | 1,240 | 1,146 | 1,256 | 1,201 | 1,361 | 1,210 | 1,135 | 1,227 |
| 2016 | 1,111 | 1,166 | 1,150 | 1,150 | 1,144 | 1,129 | 1,194 | 1,189 | 1,258 | 1,193 | 1,106 | 1,163 | 1,164 | 1,173 | 1,151 |
| 2017 | 1,181 | 1,128 | 1,151 | 1,260 | 1,180 | 1,317 | 1,235 | 1,212 | 1,257 | 1,255 | 1,202 | 1,135 | 1,141 | 1,191 | 1,167 |
| 2018 | 1,356 | 1,358 | 1,308 | 1,179 | 1,300 | 1,247 | 1,218 | 1,160 | 1,092 | 1,179 | 1,220 | 1,181 | 1,122 | 1,072 | 1,149 |
| 2019 | 1,081 | 1,061 | 968 | 864 | 993 | 1,053 | 1,045 | 975 | 918 | 998 | 1,030 | 1,005 | 922 | 843 | 950 |
| 2020 | 843 | 763 | 925 | 1,011 | 886 | 913 | 842 | 1,014 | 1,255 | 1,006 | 839 | 751 | 872 | 977 | 860 |
| 2021 | 1,039 | | | | 1,039 | 1,428 | | | | 1,428 | 977 | | | | 977 |
| <i>Change yoy (US\$/tonne)</i> | | | | | | | | | | | | | | | |
| 2009 | -703 | -490 | -449 | 264 | -344 | -780 | -650 | -584 | 275 | -435 | -678 | -552 | -486 | 296 | -355 |
| 2010 | 379 | 37 | -165 | 40 | 73 | 576 | 271 | 47 | 283 | 294 | 452 | 142 | -128 | 81 | 137 |
| 2011 | 26 | 137 | 263 | 63 | 122 | 186 | 198 | 212 | -220 | 94 | 19 | 53 | 180 | -133 | 30 |
| 2012 | 47 | -16 | -52 | 38 | 4 | -331 | -305 | -260 | -42 | -234 | -119 | -21 | -15 | 157 | 1 |
| 2013 | 93 | 75 | 148 | 167 | 121 | 82 | 83 | 276 | 330 | 193 | 171 | 77 | 164 | 173 | 146 |
| 2014 | 63 | 149 | 132 | -76 | 67 | 197 | 184 | 46 | -232 | 49 | 81 | 163 | 130 | -95 | 70 |
| 2015 | -340 | -208 | -375 | -308 | -308 | -442 | -185 | -365 | -297 | -322 | -354 | -209 | -393 | -304 | -315 |
| 2016 | -91 | -205 | -84 | 5 | -94 | -90 | -224 | -51 | 113 | -63 | -95 | -198 | -46 | 38 | -75 |
| 2017 | 70 | -38 | 0 | 110 | 35 | 188 | 40 | 23 | -1 | 63 | 96 | -28 | -23 | 18 | 16 |
| 2018 | 175 | 230 | 157 | -81 | 120 | -70 | -16 | -52 | -166 | -76 | 18 | 47 | -19 | -119 | -18 |
| 2019 | -275 | -297 | -340 | -315 | -307 | -194 | -173 | -185 | -173 | -182 | -191 | -177 | -200 | -229 | -199 |
| 2020 | -237 | -298 | -44 | 147 | -108 | -140 | -203 | 39 | 337 | 8 | -191 | -254 | -50 | 134 | -90 |
| 2021 | 196 | | | | 153 | 515 | | | | 422 | 138 | | | | 117 |

SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Figure 38: Quarterly average prices of aromatics (US\$/tonne)

| | Benzene Spot Japan, CFR (US\$/tonne) | | | | | Toluene Spot SEA, CFR (US\$/tonne) | | | | | Paraxylene Spot SEA, FOB (US\$/tonne) | | | | |
|-------------------------|--------------------------------------|-------|-------|-------|-----------|------------------------------------|-------|-------|-------|-----------|---------------------------------------|-------|-------|-------|-----------|
| | 1Q | 2Q | 3Q | 4Q | Full year | 1Q | 2Q | 3Q | 4Q | Full year | 1Q | 2Q | 3Q | 4Q | Full year |
| 2008 | 1,058 | 1,232 | 1,205 | 453 | 987 | 963 | 1,160 | 1,103 | 520 | 937 | 1,107 | 1,347 | 1,342 | 643 | 1,110 |
| 2009 | 412 | 671 | 823 | 866 | 693 | 537 | 679 | 775 | 811 | 701 | 755 | 948 | 913 | 922 | 885 |
| 2010 | 971 | 910 | 838 | 963 | 921 | 884 | 822 | 761 | 903 | 843 | 1,014 | 980 | 927 | 1,194 | 1,029 |
| 2011 | 1,153 | 1,153 | 1,126 | 1,005 | 1,109 | 1,012 | 1,103 | 1,132 | 1,115 | 1,090 | 1,689 | 1,558 | 1,540 | 1,353 | 1,535 |
| 2012 | 1,188 | 1,115 | 1,188 | 1,372 | 1,215 | 1,209 | 1,128 | 1,145 | 1,303 | 1,196 | 1,513 | 1,354 | 1,358 | 1,498 | 1,431 |
| 2013 | 1,380 | 1,292 | 1,266 | 1,293 | 1,308 | 1,288 | 1,152 | 1,157 | 1,171 | 1,192 | 1,628 | 1,445 | 1,482 | 1,425 | 1,495 |
| 2014 | 1,306 | 1,302 | 1,308 | 960 | 1,219 | 1,132 | 1,107 | 1,168 | 852 | 1,065 | 1,285 | 1,261 | 1,353 | 995 | 1,224 |
| 2015 | 686 | 817 | 677 | 604 | 696 | 653 | 804 | 675 | 648 | 695 | 831 | 935 | 828 | 786 | 845 |
| 2016 | 574 | 629 | 642 | 732 | 644 | 606 | 632 | 598 | 681 | 629 | 743 | 802 | 799 | 814 | 789 |
| 2017 | 916 | 768 | 763 | 843 | 823 | 720 | 650 | 667 | 720 | 689 | 878 | 800 | 820 | 880 | 845 |
| 2018 | 890 | 846 | 866 | 711 | 828 | 756 | 796 | 825 | 731 | 777 | 950 | 980 | 1,179 | 1,128 | 1,059 |
| 2019 | 603 | 614 | 680 | 684 | 645 | 654 | 694 | 692 | 698 | 685 | 1,073 | 895 | 802 | 793 | 891 |
| 2020 | 637 | 385 | 434 | 522 | 494 | 624 | 381 | 435 | 469 | 477 | 706 | 481 | 532 | 547 | 566 |
| 2021 | 649 | | | | 649 | 564 | | | | 564 | 679 | | | | 679 |
| Change yoy (US\$/tonne) | | | | | | | | | | | | | | | |
| 2009 | -646 | -561 | -381 | 413 | -294 | -426 | -481 | -328 | 291 | -236 | -352 | -399 | -428 | 279 | -225 |
| 2010 | 560 | 239 | 15 | 97 | 228 | 347 | 143 | -14 | 92 | 142 | 258 | 32 | 13 | 272 | 144 |
| 2011 | 181 | 243 | 288 | 43 | 189 | 128 | 281 | 371 | 212 | 248 | 675 | 578 | 614 | 160 | 507 |
| 2012 | 35 | -39 | 62 | 366 | 106 | 197 | 24 | 13 | 188 | 105 | -176 | -204 | -182 | 144 | -104 |
| 2013 | 192 | 178 | 78 | -78 | 92 | 79 | 24 | 12 | -132 | -4 | 115 | 90 | 123 | -73 | 64 |
| 2014 | -74 | 9 | 43 | -334 | -89 | -156 | -45 | 11 | -319 | -127 | -343 | -183 | -129 | -430 | -271 |
| 2015 | -620 | -485 | -632 | -356 | -523 | -479 | -302 | -493 | -204 | -370 | -455 | -326 | -525 | -209 | -379 |
| 2016 | -112 | -188 | -35 | 128 | -52 | -47 | -173 | -77 | 33 | -66 | -87 | -133 | -29 | 28 | -55 |
| 2017 | 342 | 139 | 122 | 111 | 178 | 115 | 18 | 68 | 39 | 60 | 135 | -2 | 21 | 67 | 55 |
| 2018 | -26 | 78 | 103 | -132 | 6 | 36 | 147 | 158 | 11 | 88 | 72 | 180 | 359 | 247 | 215 |
| 2019 | -287 | -232 | -186 | -27 | -183 | -102 | -102 | -133 | -32 | -92 | 123 | -85 | -377 | -335 | -169 |
| 2020 | 33 | -230 | -246 | -163 | -151 | -30 | -313 | -257 | -229 | -207 | -367 | -414 | -270 | -246 | -324 |
| 2021 | 12 | | | | 155 | -60 | | | | 87 | -27 | | | | 113 |

SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Figure 39: Quarterly average prices of MEG, urea and methanol (US\$/tonne)

| | MEG Spot SEA, CFR (US\$/tonne) | | | | | Indonesia Urea Spot Bulk (US\$/tonne) | | | | | Methanol Spot SEA, CFR (US\$/tonne) | | | | |
|-------------------------|--------------------------------|-------|-------|-------|-----------|---------------------------------------|------|------|------|-----------|-------------------------------------|------|------|------|-----------|
| | 1Q | 2Q | 3Q | 4Q | Full year | 1Q | 2Q | 3Q | 4Q | Full year | 1Q | 2Q | 3Q | 4Q | Full year |
| 2008 | 1,186 | 1,106 | 933 | 518 | 936 | 316 | 413 | 762 | 526 | 504 | 435 | 381 | 420 | 232 | 367 |
| 2009 | 490 | 558 | 704 | 783 | 634 | 255 | 277 | 274 | 280 | 272 | 168 | 192 | 206 | 255 | 205 |
| 2010 | 966 | 818 | 759 | 1,000 | 886 | 327 | 287 | 279 | 370 | 316 | 315 | 260 | 263 | 359 | 299 |
| 2011 | 1,214 | 1,151 | 1,245 | 1,115 | 1,181 | 394 | 416 | 522 | 518 | 462 | 350 | 356 | 396 | 400 | 376 |
| 2012 | 1,068 | 937 | 1,013 | 1,093 | 1,028 | 446 | 519 | 443 | 431 | 460 | 383 | 395 | 369 | 372 | 380 |
| 2013 | 1,120 | 982 | 1,072 | 1,042 | 1,054 | 425 | 375 | 319 | 308 | 357 | 380 | 407 | 425 | 539 | 438 |
| 2014 | 968 | 947 | 978 | 832 | 931 | 354 | 308 | 308 | 300 | 318 | 552 | 397 | 397 | 376 | 430 |
| 2015 | 795 | 953 | 773 | 615 | 784 | 289 | 290 | 303 | 265 | 287 | 300 | 327 | 291 | 255 | 293 |
| 2016 | 638 | 642 | 629 | 750 | 665 | 228 | 222 | 213 | 212 | 218 | 218 | 236 | 236 | 300 | 248 |
| 2017 | 870 | 746 | 887 | 913 | 854 | 244 | 224 | 215 | 266 | 237 | 365 | 291 | 311 | 382 | 337 |
| 2018 | 985 | 979 | 944 | 762 | 918 | 284 | 258 | 279 | 314 | 284 | 398 | 422 | 432 | 391 | 411 |
| 2019 | 637 | 563 | 553 | 562 | 579 | 278 | 274 | 274 | 248 | 269 | 317 | 322 | 264 | 252 | 289 |
| 2020 | 528 | 414 | 453 | 492 | 472 | 244 | 239 | 256 | 261 | 250 | 268 | 178 | 233 | 288 | 242 |
| 2021 | 596 | | | | 596 | 301 | | | | 301 | 380 | | | | 380 |
| Change yoy (US\$/tonne) | | | | | | | | | | | | | | | |
| 2009 | -696 | -548 | -229 | 265 | -302 | -61 | -136 | -488 | -245 | -233 | -268 | -190 | -214 | 23 | -162 |
| 2010 | 476 | 260 | 55 | 218 | 252 | 72 | 10 | 5 | 89 | 44 | 147 | 68 | 58 | 103 | 94 |
| 2011 | 248 | 333 | 487 | 115 | 296 | 67 | 129 | 243 | 148 | 147 | 35 | 96 | 133 | 41 | 76 |
| 2012 | -146 | -215 | -232 | -22 | -154 | 53 | 103 | -79 | -86 | -2 | 32 | 39 | -28 | -28 | 4 |
| 2013 | 52 | 45 | 58 | -51 | 26 | -22 | -143 | -124 | -123 | -103 | -3 | 12 | 57 | 167 | 58 |
| 2014 | -153 | -35 | -93 | -210 | -123 | -70 | -67 | -10 | -9 | -39 | 173 | -9 | -29 | -163 | -7 |
| 2015 | -173 | 7 | -205 | -217 | -147 | -66 | -18 | -6 | -34 | -31 | -252 | -70 | -105 | -120 | -137 |
| 2016 | -156 | -312 | -144 | 136 | -119 | -61 | -68 | -90 | -54 | -68 | -82 | -91 | -55 | 45 | -46 |
| 2017 | 231 | 104 | 257 | 163 | 189 | 16 | 3 | 3 | 55 | 19 | 147 | 55 | 75 | 82 | 90 |
| 2018 | 115 | 233 | 58 | -151 | 64 | 40 | 33 | 64 | 48 | 46 | 33 | 131 | 121 | 10 | 74 |
| 2019 | -347 | -417 | -391 | -201 | -339 | -6 | 16 | -5 | -66 | -15 | -80 | -100 | -168 | -140 | -122 |
| 2020 | -109 | -148 | -100 | -69 | -107 | -34 | -35 | -19 | 13 | -19 | -49 | -144 | -31 | 36 | -47 |
| 2021 | 68 | | | | 124 | 57 | | | | 51 | 112 | | | | 138 |

SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Petrochemical price spreads against feedstock cost ►

Figure 40: Olefin (spot SEA CFR) spreads against naphtha (Singapore FOB) - US\$/tonne

| | Ethylene-naphtha spreads (US\$/tonne) | | | | | Propylene-naphtha spreads (US\$/tonne) | | | | | Butadiene-naphtha spreads (US\$/tonne) | | | | |
|--------------------------------|---------------------------------------|------|------|------|-----------|--|------|------|------|-----------|--|------|------|-------|-----------|
| | 1Q | 2Q | 3Q | 4Q | Full year | 1Q | 2Q | 3Q | 4Q | Full year | 1Q | 2Q | 3Q | 4Q | Full year |
| 2008 | 489 | 440 | 413 | 230 | 393 | 353 | 484 | 495 | 169 | 375 | | | | | |
| 2009 | 216 | 239 | 443 | 395 | 323 | 240 | 330 | 416 | 363 | 337 | | | | | |
| 2010 | 562 | 401 | 243 | 254 | 365 | 509 | 486 | 453 | 395 | 461 | | | | | |
| 2011 | 315 | 302 | 207 | 171 | 249 | 500 | 534 | 543 | 355 | 483 | | | | | |
| 2012 | 253 | 288 | 292 | 355 | 297 | 352 | 439 | 396 | 308 | 374 | | | | | |
| 2013 | 453 | 425 | 420 | 502 | 450 | 409 | 487 | 428 | 458 | 445 | 858 | 539 | 236 | 624 | 564 |
| 2014 | 518 | 512 | 585 | 594 | 552 | 421 | 371 | 383 | 378 | 388 | 458 | 305 | 537 | 423 | 431 |
| 2015 | 545 | 869 | 516 | 586 | 629 | 356 | 443 | 311 | 142 | 313 | 243 | 586 | 532 | 286 | 412 |
| 2016 | 693 | 715 | 683 | 536 | 657 | 340 | 324 | 376 | 295 | 334 | 540 | 600 | 689 | 1,192 | 755 |
| 2017 | 582 | 543 | 603 | 617 | 586 | 426 | 329 | 347 | 274 | 344 | 2,113 | 641 | 740 | 492 | 997 |
| 2018 | 671 | 600 | 582 | 342 | 549 | 398 | 350 | 364 | 379 | 373 | 775 | 935 | 935 | 546 | 798 |
| 2019 | 442 | 314 | 307 | 252 | 329 | 359 | 283 | 391 | 381 | 353 | 569 | 452 | 700 | 453 | 543 |
| 2020 | 244 | 284 | 343 | 451 | 330 | 402 | 408 | 405 | 496 | 428 | 361 | 38 | 123 | 715 | 309 |
| 2021 | 419 | | | | 419 | 421 | | | | 421 | 266 | | | | 266 |
| <i>Change yoy (US\$/tonne)</i> | | | | | | | | | | | | | | | |
| 2009 | -273 | -201 | 30 | 165 | -70 | -112 | -154 | -79 | 194 | -38 | 0 | 0 | 0 | 0 | 0 |
| 2010 | 346 | 162 | -200 | -141 | 42 | 269 | 156 | 37 | 32 | 123 | 0 | 0 | 0 | 0 | 0 |
| 2011 | -246 | -99 | -36 | -83 | -116 | -9 | 48 | 90 | -40 | 22 | 0 | 0 | 0 | 0 | 0 |
| 2012 | -62 | -14 | 84 | 184 | 48 | -148 | -95 | -147 | -48 | -109 | 0 | 0 | 0 | 0 | 0 |
| 2013 | 200 | 137 | 128 | 148 | 153 | 57 | 48 | 32 | 150 | 72 | 858 | 539 | 236 | 624 | 564 |
| 2014 | 65 | 86 | 165 | 92 | 102 | 13 | -117 | -45 | -80 | -57 | -400 | -234 | 301 | -201 | -133 |
| 2015 | 27 | 358 | -69 | -8 | 77 | -65 | 72 | -72 | -236 | -75 | -215 | 282 | -4 | -137 | -19 |
| 2016 | 148 | -154 | 168 | -50 | 28 | -17 | -119 | 65 | 154 | 21 | 297 | 13 | 157 | 906 | 343 |
| 2017 | -111 | -172 | -81 | 81 | -71 | 86 | 5 | -29 | -21 | 10 | 1,574 | 41 | 51 | -700 | 241 |
| 2018 | 89 | 57 | -21 | -275 | -38 | -28 | 21 | 17 | 105 | 29 | -1,338 | 294 | 195 | 53 | -199 |
| 2019 | -229 | -286 | -275 | -90 | -220 | -39 | -67 | 27 | 2 | -19 | -206 | -483 | -236 | -93 | -254 |
| 2020 | -199 | -29 | 35 | 198 | 1 | 43 | 125 | 14 | 115 | 74 | -208 | -414 | -577 | 262 | -234 |
| 2021 | 175 | | | | 89 | 19 | | | | -7 | -94 | | | | -43 |

SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Figure 41: Polyethylene (spot SEA CFR) spreads against naphtha (Singapore FOB) - US\$/tonne

| | HDPE-naphtha spreads (US\$/tonne) | | | | | LDPE-naphtha spreads (US\$/tonne) | | | | | LLDPE-naphtha spreads (US\$/tonne) | | | | |
|-------------------------|-----------------------------------|------|------|------|-----------|-----------------------------------|------|------|------|-----------|------------------------------------|------|------|------|-----------|
| | 1Q | 2Q | 3Q | 4Q | Full year | 1Q | 2Q | 3Q | 4Q | Full year | 1Q | 2Q | 3Q | 4Q | Full year |
| 2008 | 756 | 636 | 710 | 594 | 674 | 857 | 777 | 855 | 688 | 794 | 870 | 788 | 863 | 649 | 792 |
| 2009 | 522 | 674 | 663 | 537 | 599 | 542 | 651 | 671 | 645 | 627 | 595 | 699 | 747 | 667 | 677 |
| 2010 | 584 | 516 | 450 | 451 | 500 | 804 | 729 | 667 | 800 | 750 | 788 | 677 | 556 | 620 | 660 |
| 2011 | 413 | 371 | 425 | 432 | 410 | 792 | 646 | 593 | 499 | 633 | 605 | 465 | 471 | 406 | 487 |
| 2012 | 351 | 464 | 400 | 413 | 407 | 353 | 451 | 359 | 402 | 391 | 382 | 543 | 487 | 528 | 485 |
| 2013 | 511 | 568 | 546 | 568 | 548 | 502 | 563 | 634 | 720 | 605 | 631 | 658 | 661 | 702 | 663 |
| 2014 | 593 | 612 | 679 | 795 | 670 | 718 | 644 | 683 | 791 | 709 | 735 | 733 | 807 | 891 | 792 |
| 2015 | 699 | 798 | 772 | 692 | 740 | 721 | 852 | 782 | 698 | 763 | 791 | 915 | 834 | 774 | 829 |
| 2016 | 754 | 746 | 750 | 688 | 734 | 777 | 780 | 794 | 801 | 788 | 842 | 843 | 859 | 799 | 836 |
| 2017 | 675 | 677 | 671 | 674 | 674 | 817 | 789 | 738 | 677 | 755 | 792 | 772 | 756 | 711 | 758 |
| 2018 | 760 | 699 | 629 | 611 | 675 | 657 | 566 | 487 | 528 | 560 | 736 | 633 | 554 | 584 | 627 |
| 2019 | 555 | 518 | 480 | 340 | 473 | 532 | 506 | 491 | 398 | 482 | 589 | 537 | 504 | 388 | 504 |
| 2020 | 393 | 502 | 522 | 603 | 505 | 466 | 583 | 615 | 852 | 629 | 450 | 537 | 536 | 644 | 542 |
| 2021 | 518 | | | | 518 | 912 | | | | 912 | 598 | | | | 598 |
| Change yoy (US\$/tonne) | | | | | | | | | | | | | | | |
| 2009 | -234 | 38 | -47 | -57 | -75 | -315 | -126 | -184 | -43 | -167 | -275 | -89 | -117 | 18 | -116 |
| 2010 | 62 | -158 | -214 | -87 | -99 | 262 | 78 | -3 | 156 | 123 | 193 | -22 | -191 | -47 | -16 |
| 2011 | -171 | -145 | -25 | -18 | -90 | -11 | -82 | -75 | -301 | -117 | -183 | -213 | -85 | -214 | -174 |
| 2012 | -62 | 94 | -25 | -19 | -3 | -439 | -195 | -234 | -97 | -241 | -223 | 78 | 16 | 122 | -2 |
| 2013 | 160 | 104 | 146 | 154 | 141 | 149 | 112 | 275 | 318 | 214 | 249 | 115 | 174 | 174 | 178 |
| 2014 | 81 | 44 | 134 | 227 | 122 | 216 | 80 | 49 | 70 | 104 | 104 | 76 | 146 | 189 | 129 |
| 2015 | 107 | 186 | 92 | -103 | 70 | 3 | 209 | 99 | -93 | 55 | 56 | 182 | 27 | -117 | 37 |
| 2016 | 54 | -52 | -22 | -4 | -6 | 55 | -72 | 12 | 104 | 25 | 50 | -72 | 25 | 25 | 7 |
| 2017 | -79 | -69 | -79 | -14 | -60 | 40 | 9 | -56 | -124 | -33 | -49 | -71 | -103 | -88 | -78 |
| 2018 | 85 | 22 | -42 | -63 | 1 | -159 | -223 | -251 | -149 | -196 | -56 | -139 | -202 | -127 | -131 |
| 2019 | -205 | -181 | -149 | -271 | -201 | -125 | -60 | 4 | -130 | -78 | -147 | -97 | -50 | -196 | -122 |
| 2020 | -162 | -16 | 42 | 263 | 32 | -66 | 77 | 124 | 453 | 147 | -140 | 1 | 32 | 257 | 37 |
| 2021 | 125 | | | | 13 | 445 | | | | 283 | 149 | | | | 57 |

SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Figure 42: Polypropylene (spot SEA CFR) spreads against naphtha (Singapore FOB) - US\$/tonne

| | PP (film)-naphtha spreads (US\$/tonne) | | | | | PP (injection grade)-naphtha spreads (US\$/tonne) | | | | | PP (biaxial)-naphtha spreads (US\$/tonne) | | | | |
|-------------------------|--|------|------|------|-----------|---|------|------|------|-----------|---|------|-----|------|-----------|
| | 1Q | 2Q | 3Q | 4Q | Full year | 1Q | 2Q | 3Q | 4Q | Full year | 1Q | 2Q | 3Q | 4Q | Full year |
| 2008 | 648 | 701 | 802 | 578 | 682 | 628 | 671 | 762 | 541 | 650 | | | | | |
| 2009 | 467 | 626 | 596 | 474 | 541 | 436 | 566 | 542 | 456 | 500 | | | | | |
| 2010 | 594 | 614 | 573 | 596 | 594 | 578 | 581 | 553 | 576 | 572 | | | | | |
| 2011 | 671 | 646 | 584 | 481 | 595 | 651 | 628 | 573 | 474 | 582 | | | | | |
| 2012 | 362 | 519 | 474 | 476 | 458 | 351 | 504 | 464 | 465 | 446 | | | | | |
| 2013 | 552 | 594 | 573 | 581 | 575 | 534 | 575 | 553 | 562 | 556 | 550 | 585 | 565 | 575 | 569 |
| 2014 | 607 | 595 | 644 | 749 | 649 | 591 | 576 | 615 | 722 | 626 | 606 | 591 | 641 | 747 | 646 |
| 2015 | 617 | 776 | 648 | 515 | 639 | 597 | 752 | 629 | 493 | 618 | 615 | 770 | 641 | 512 | 635 |
| 2016 | 551 | 621 | 640 | 585 | 600 | 530 | 596 | 620 | 564 | 578 | 551 | 621 | 639 | 585 | 599 |
| 2017 | 606 | 631 | 655 | 596 | 622 | 586 | 611 | 635 | 579 | 603 | 606 | 631 | 655 | 596 | 622 |
| 2018 | 686 | 631 | 590 | 629 | 634 | 668 | 616 | 568 | 608 | 615 | 684 | 632 | 593 | 631 | 635 |
| 2019 | 596 | 596 | 573 | 484 | 562 | 576 | 578 | 557 | 465 | 544 | 596 | 599 | 579 | 484 | 564 |
| 2020 | 499 | 576 | 530 | 689 | 574 | 487 | 562 | 520 | 665 | 559 | 501 | 579 | 535 | 685 | 575 |
| 2021 | 695 | | | | 695 | 679 | | | | 679 | 686 | | | | 686 |
| Change yoy (US\$/tonne) | | | | | | | | | | | | | | | |
| 2009 | -181 | -75 | -207 | -104 | -142 | -193 | -105 | -220 | -85 | -151 | | | | | |
| 2010 | 127 | -13 | -23 | 122 | 53 | 143 | 15 | 11 | 120 | 72 | | | | | |
| 2011 | 77 | 32 | 11 | -115 | 1 | 73 | 48 | 20 | -102 | 10 | | | | | |
| 2012 | -309 | -127 | -109 | -5 | -138 | -300 | -125 | -109 | -9 | -136 | | | | | |
| 2013 | 190 | 75 | 99 | 105 | 117 | 182 | 72 | 88 | 97 | 110 | | | | | |
| 2014 | 55 | 2 | 71 | 168 | 74 | 57 | 1 | 62 | 160 | 70 | 56 | 6 | 76 | 172 | 78 |
| 2015 | 10 | 181 | 4 | -234 | -10 | 6 | 175 | 14 | -229 | -8 | 8 | 179 | 0 | -235 | -12 |
| 2016 | -65 | -155 | -8 | 70 | -39 | -67 | -156 | -9 | 72 | -40 | -63 | -149 | -2 | 73 | -35 |
| 2017 | 54 | 9 | 15 | 10 | 22 | 56 | 15 | 15 | 14 | 25 | 54 | 9 | 15 | 10 | 22 |
| 2018 | 80 | 0 | -65 | 33 | 12 | 82 | 5 | -67 | 30 | 13 | 78 | 1 | -62 | 36 | 13 |
| 2019 | -90 | -35 | -17 | -145 | -72 | -92 | -38 | -11 | -143 | -71 | -88 | -33 | -15 | -148 | -71 |
| 2020 | -97 | -20 | -43 | 205 | 11 | -88 | -16 | -37 | 200 | 15 | -95 | -19 | -43 | 202 | 11 |
| 2021 | 196 | | | | 122 | 191 | | | | 120 | 185 | | | | 111 |

SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Figure 43: Benzene (spot Japan CFR), toluene (SEA FOB) and paraxylene (SEA FOB) spreads against naphtha (Singapore FOB) - US\$/tonne

| | Benzene-naphtha spreads (US\$/tonne) | | | | | Toluene-naphtha spreads (US\$/tonne) | | | | | Paraxylene-naphtha spreads (US\$/tonne) | | | | |
|--------------------------------|--------------------------------------|------|------|------|-----------|--------------------------------------|------|------|------|-----------|---|------|------|------|-----------|
| | 1Q | 2Q | 3Q | 4Q | Full year | 1Q | 2Q | 3Q | 4Q | Full year | 1Q | 2Q | 3Q | 4Q | Full year |
| 2008 | 204 | 211 | 211 | 101 | 181 | 109 | 139 | 109 | 168 | 131 | | | | | |
| 2009 | 12 | 162 | 224 | 203 | 150 | 138 | 170 | 176 | 148 | 158 | | | | | |
| 2010 | 267 | 213 | 187 | 173 | 210 | 180 | 126 | 110 | 113 | 132 | | | | | |
| 2011 | 251 | 179 | 192 | 134 | 189 | 110 | 129 | 198 | 244 | 170 | | | | | |
| 2012 | 179 | 247 | 282 | 449 | 289 | 200 | 260 | 238 | 380 | 270 | | | | | |
| 2013 | 440 | 455 | 360 | 361 | 404 | 348 | 315 | 251 | 238 | 288 | 688 | 608 | 576 | 492 | 591 |
| 2014 | 385 | 364 | 408 | 326 | 371 | 212 | 169 | 268 | 218 | 216 | 365 | 323 | 453 | 362 | 376 |
| 2015 | 204 | 272 | 233 | 171 | 220 | 171 | 260 | 232 | 215 | 219 | 349 | 391 | 384 | 354 | 369 |
| 2016 | 238 | 231 | 263 | 290 | 255 | 269 | 234 | 219 | 238 | 240 | 407 | 404 | 419 | 372 | 401 |
| 2017 | 431 | 337 | 305 | 281 | 339 | 236 | 219 | 208 | 157 | 205 | 393 | 369 | 361 | 318 | 360 |
| 2018 | 319 | 212 | 212 | 161 | 226 | 185 | 162 | 171 | 181 | 175 | 379 | 346 | 524 | 578 | 457 |
| 2019 | 97 | 87 | 205 | 176 | 141 | 147 | 167 | 216 | 190 | 180 | 566 | 368 | 327 | 284 | 386 |
| 2020 | 200 | 134 | 46 | 131 | 128 | 187 | 130 | 47 | 78 | 111 | 269 | 230 | 144 | 156 | 200 |
| 2021 | 146 | | | | 146 | 61 | | | | 61 | 176 | | | | 176 |
| <i>Change yoy (US\$/tonne)</i> | | | | | | | | | | | | | | | |
| 2009 | -192 | -48 | 14 | 102 | -31 | 28 | 32 | 67 | -20 | 27 | | | | | |
| 2010 | 255 | 51 | -37 | -30 | 60 | 43 | -45 | -66 | -35 | -26 | | | | | |
| 2011 | -16 | -35 | 5 | -39 | -21 | -70 | 3 | 88 | 131 | 38 | | | | | |
| 2012 | -72 | 68 | 90 | 314 | 100 | 89 | 132 | 41 | 136 | 99 | | | | | |
| 2013 | 261 | 208 | 79 | -88 | 115 | 148 | 55 | 13 | -142 | 19 | | | | | |
| 2014 | -55 | -92 | 48 | -35 | -33 | -136 | -146 | 16 | -20 | -72 | -323 | -284 | -124 | -131 | -216 |
| 2015 | -181 | -91 | -175 | -155 | -150 | -40 | 91 | -36 | -3 | 3 | -16 | 67 | -69 | -8 | -6 |
| 2016 | 33 | -41 | 29 | 119 | 35 | 98 | -26 | -13 | 23 | 21 | 58 | 14 | 35 | 18 | 31 |
| 2017 | 194 | 106 | 42 | -9 | 83 | -34 | -15 | -11 | -81 | -35 | -14 | -35 | -58 | -53 | -40 |
| 2018 | -112 | -126 | -93 | -120 | -113 | -51 | -57 | -37 | 23 | -30 | -15 | -23 | 163 | 259 | 96 |
| 2019 | -223 | -124 | -7 | 15 | -85 | -38 | 5 | 46 | 9 | 6 | 187 | 22 | -198 | -293 | -70 |
| 2020 | 103 | 46 | -159 | -45 | -14 | 40 | -38 | -169 | -112 | -70 | -297 | -138 | -183 | -128 | -187 |
| 2021 | -54 | | | | 19 | -126 | | | | -49 | -92 | | | | -23 |

SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

Figure 44: MEG (spot SEA CFR) spreads against naphtha (Singapore FOB), against ethylene (spot SEA CFR), and against US ethane - US\$/tonne

| | MEG-Singapore naphtha spreads (US\$/tonne) | | | | | MEG-SEA ethylene spreads (US\$/tonne) | | | | | MEG-US ethane spreads (US\$/tonne) | | | | |
|--------------------------------|--|------|------|------|-----------|---------------------------------------|------|------|------|-----------|------------------------------------|------|------|------|-----------|
| | 1Q | 2Q | 3Q | 4Q | Full year | 1Q | 2Q | 3Q | 4Q | Full year | 1Q | 2Q | 3Q | 4Q | Full year |
| 2008 | 869 | 669 | 502 | 399 | 610 | 380 | 229 | 89 | 169 | 217 | 825 | 732 | 539 | 374 | 617 |
| 2009 | 337 | 348 | 522 | 543 | 437 | 121 | 109 | 79 | 148 | 114 | 366 | 404 | 536 | 548 | 463 |
| 2010 | 768 | 561 | 466 | 628 | 606 | 207 | 159 | 222 | 374 | 241 | 707 | 622 | 592 | 777 | 674 |
| 2011 | 799 | 687 | 768 | 661 | 729 | 484 | 385 | 561 | 490 | 480 | 980 | 878 | 970 | 812 | 910 |
| 2012 | 564 | 531 | 586 | 682 | 591 | 311 | 243 | 294 | 327 | 294 | 867 | 796 | 891 | 993 | 887 |
| 2013 | 737 | 650 | 696 | 684 | 692 | 285 | 225 | 276 | 181 | 242 | 1,028 | 885 | 983 | 949 | 961 |
| 2014 | 623 | 589 | 672 | 689 | 643 | 105 | 77 | 88 | 95 | 91 | 847 | 843 | 893 | 757 | 835 |
| 2015 | 724 | 975 | 713 | 589 | 750 | 179 | 105 | 198 | 4 | 121 | 728 | 889 | 706 | 552 | 719 |
| 2016 | 714 | 690 | 675 | 699 | 694 | 21 | -26 | -8 | 164 | 38 | 583 | 570 | 562 | 666 | 595 |
| 2017 | 812 | 705 | 852 | 823 | 798 | 229 | 162 | 250 | 206 | 212 | 786 | 658 | 794 | 825 | 766 |
| 2018 | 910 | 839 | 784 | 569 | 776 | 239 | 239 | 202 | 227 | 227 | 894 | 877 | 793 | 642 | 801 |
| 2019 | 510 | 372 | 392 | 357 | 408 | 68 | 58 | 83 | 105 | 79 | 533 | 489 | 494 | 495 | 503 |
| 2020 | 363 | 377 | 357 | 438 | 384 | 120 | 93 | 15 | -13 | 54 | 480 | 349 | 376 | 418 | 406 |
| 2021 | 462 | | | | 462 | 43 | | | | 43 | 511 | | | | 511 |
| <i>Change yoy (US\$/tonne)</i> | | | | | | | | | | | | | | | |
| 2009 | -532 | -321 | 20 | 144 | -173 | -260 | -120 | -10 | -21 | -103 | -459 | -328 | -3 | 174 | -154 |
| 2010 | 432 | 213 | -56 | 85 | 168 | 86 | 50 | 143 | 226 | 126 | 341 | 218 | 56 | 229 | 211 |
| 2011 | 31 | 127 | 302 | 33 | 123 | 277 | 226 | 338 | 116 | 239 | 274 | 255 | 378 | 34 | 235 |
| 2012 | -235 | -156 | -182 | 21 | -138 | -173 | -142 | -266 | -163 | -186 | -114 | -82 | -79 | 181 | -23 |
| 2013 | 174 | 119 | 110 | 2 | 101 | -26 | -19 | -18 | -146 | -52 | 161 | 89 | 92 | -44 | 75 |
| 2014 | -115 | -61 | -24 | 6 | -49 | -180 | -148 | -189 | -86 | -151 | -181 | -42 | -90 | -191 | -126 |
| 2015 | 101 | 386 | 41 | -100 | 107 | 74 | 28 | 110 | -92 | 30 | -119 | 45 | -187 | -205 | -117 |
| 2016 | -10 | -285 | -38 | 110 | -56 | -158 | -131 | -206 | 160 | -84 | -145 | -318 | -144 | 113 | -124 |
| 2017 | 98 | 15 | 177 | 123 | 103 | 209 | 188 | 258 | 42 | 174 | 204 | 87 | 232 | 159 | 171 |
| 2018 | 99 | 134 | -68 | -254 | -22 | 10 | 77 | -47 | 22 | 15 | 108 | 219 | -1 | -182 | 36 |
| 2019 | -400 | -467 | -392 | -212 | -368 | -171 | -180 | -119 | -122 | -148 | -361 | -387 | -299 | -147 | -299 |
| 2020 | -147 | 5 | -34 | 81 | -24 | 52 | 35 | -68 | -118 | -25 | -53 | -140 | -118 | -77 | -97 |
| 2021 | 98 | | | | 78 | -77 | | | | -11 | 31 | | | | 105 |

SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

A horizontal bar consisting of a red segment on the left and a blue segment on the right.

Sector, Company Briefs OR Appendices...

Malaysia

REDUCE (no change)

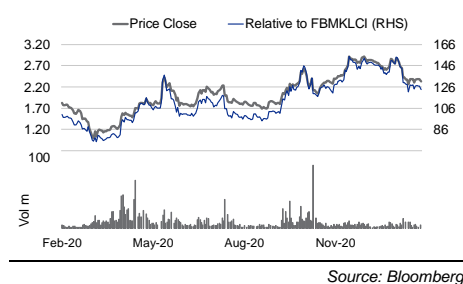
Consensus ratings*: Buy 4 Hold 2 Sell 3

| | |
|-------------------------|------------|
| Current price: | RM2.33 |
| Target price: | RM2.26 |
| Previous target: | RM2.26 |
| Up/downside: | -3.0% |
| CGS-CIMB / Consensus: | -18.9% |
| Reuters: | LOTT.KL |
| Bloomberg: | TTNP MK |
| Market cap: | US\$1,313m |
| | RM5,296m |
| Average daily turnover: | US\$2.79m |
| | RM11.33m |
| Current shares o/s: | 2,273m |
| Free float: | 24.0% |

*Source: Bloomberg

Key changes in this note

➤ No change.



| Price performance | 1M | 3M | 12M |
|-------------------|-------|------|------|
| Absolute (%) | -18.3 | 0.4 | 28.7 |
| Relative (%) | -17.1 | -0.8 | 24.6 |

| Major shareholders | % held |
|----------------------------|--------|
| Lotte Chemical Corporation | 76.0 |
| EPF | 4.3 |
| KWAP | 3.0 |

Analyst(s)



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Lotte Chemical Titan

More expensive naphtha may hurt earnings

- LCT has enjoyed rising core earnings since the core losses suffered in 1Q20, and strong spot petchem prices in 4Q20 will likely result in a good 1Q21F too.
- However, spreads between petchem prices and naphtha costs are now being squeezed as oil and naphtha prices rally – a harbinger of a weaker 2Q21F.
- Reiterate Reduce as we believe that petchem prices will peak in 2Q21F; our TP of RM2.26 is based on a CY22F EV/EBITDA multiple of 7x.

Strong spot petchem prices in 4Q20 to benefit LCT's 1Q21F...

Petchem selling prices have done very well in 2H20 due to strong demand, supply disruptions in the US and Asia, and low inventories, and have benefitted LCT's financial performance, with its quarterly core net earnings improving sequentially in 2Q, 3Q and 4Q20, after bottoming in 1Q20. The complexity for LCT is that its profitability depends not on absolute selling prices alone, but on the spread between revenues and naphtha feedstock costs. Falling petchem prices during 2Q20 triggered by the collapse in oil prices actually foretold an increase in LCT's profitability in subsequent quarters because naphtha prices fell faster than petchem prices. LCT continued to benefit from stronger profitability in 2H20, as naphtha costs stabilised after recovering from the 2Q20 lows, while petchem selling prices continued to increase; we expect the strong 4Q20 spot market dynamics to benefit LCT's 1Q21F core net profit.

...but pricier naphtha in 1Q21F may hurt LCT's 2Q21F performance

Unfortunately, the naphtha price uptrend in 1Q21F has squeezed the spreads of several of LCT's key petchem products, like that of PE and PP, which is typically a forward indicator of lower profits for LCT. Butadiene prices have also collapsed after peaking in mid-Nov. Only benzene and MEG spreads have done better of late, due to the recent price strength for both products as a result of various supply disruptions. Given that LCT's naphtha cost of sales reflects spot naphtha prices with a 2-month lag, the squeeze in spot price spreads for PE and PP in 1Q21F will only be reflected in lower profitability in 2Q21F, in our calculations. The current trends suggest that LCT's share price may de-rate, as the squeeze in spreads becomes more intense as oil and naphtha prices rise.

Petchem selling prices may weaken from 2Q21F onwards

We expect petchem prices to weaken sequentially from 2Q21F onwards, as winter-related supply disruptions are resolved and substantial new capacities are commissioned. On the balance of probabilities, LCT's core net profits should also be negatively impacted, if naphtha costs remain stable or continue to increase. In the latter scenario, LCT may see margin compression from the pincer action of lower revenues and higher costs. On the other hand, if OPEC+ fails to maintain production discipline and oil and naphtha costs drop, spreads may increase despite lower selling prices, in our view.

Financial Summary

| | Dec-19A | Dec-20A | Dec-21F | Dec-22F | Dec-23F |
|--------------------------------|---------|---------|---------|---------|---------|
| Revenue (RMm) | 8,438 | 6,901 | 7,437 | 7,428 | 7,428 |
| Operating EBITDA (RMm) | 797 | 779 | 1,159 | 559 | 559 |
| Net Profit (RMm) | 439.7 | 148.6 | 327.2 | (73.1) | (94.9) |
| Core EPS (RM) | 0.11 | 0.06 | 0.14 | (0.03) | (0.04) |
| Core EPS Growth | (68%) | (50%) | 154% | (122%) | 30% |
| FD Core P/E (x) | 20.70 | 41.05 | 16.19 | NA | NA |
| DPS (RM) | 0.070 | 0.030 | 0.070 | - | - |
| Dividend Yield | 3.00% | 1.29% | 3.00% | 0.00% | 0.00% |
| EV/EBITDA (x) | (0.66) | (0.62) | (0.85) | 5.27 | 16.45 |
| P/FCFE (x) | 5.93 | 14.86 | 7.65 | NA | NA |
| Net Gearing | (31.9%) | (33.9%) | (38.2%) | (20.5%) | 12.3% |
| P/BV (x) | 0.44 | 0.45 | 0.44 | 0.45 | 0.45 |
| ROE | 2.14% | 1.09% | 2.74% | (0.61%) | (0.81%) |
| % Change In Core EPS Estimates | | | 0% | 0% | 0% |
| CGS-CIMB/Consensus EPS (x) | | | 1.05 | (0.25) | (0.34) |

SOURCES: CGS-CIMB RESEARCH, COMPANY REPORTS

Target price computation >

We reiterate Reduce on LCT, and our target price is set at RM2.26, based on a CY22F EV/EBITDA multiple of 7x, on a 30% discount to PCG's target valuation multiple to reflect the higher net profit volatility and risk for LCT and its lower institutional following. We have excluded the cash set aside for the Indonesia naphtha cracker project from our target price, because this project will not be completed until 2025F or beyond, and LCT has indicated that the cash will not be returned to shareholders.

The target CY22F EV/EBITDA multiple of 7x is more than 2 standard deviations above LCT's EV/EBITDA mean since 2017. Our target price of RM2.26 implies a CY21F P/BV of 0.43x, which is 1 standard deviation below the P/BV mean since 2017. We believe this is a reasonable P/BV target multiple as we forecast LCT's FY21F ROE at 2.7%, falling to -0.6% in FY22F, which are historically very low ROEs for LCT (Figure 4).

Potential de-rating catalysts include the potential peaking of petrochemical selling prices in 1Q21F, and subsequent weakening. Competition with PCG may increase once the Pengerang plants are commissioned by PCG's 50%-owned PRefChem, in our view, with LCT to lose its status as a monopoly PP producer in Malaysia.

Upside risks include the possibility that the commissioning of new capacities may be delayed, and the demand growth for petrochemicals is better than expected due to improving global GDP growth. A potential deal by the US in 2022F under the new president Joe Biden with Iran that will allow Iran to resume oil exports could be negative for oil and naphtha prices, and may raise petrochemical price spreads against naphtha, which is positive for LCT.

Figure 1: Valuation of Lotte Chemical Titan

| | RM m | RM/share |
|---|----------------|-------------|
| EBITDA (RM m) - FY22F | 559.1 | |
| EV/EBITDA target multiple (x) | 7 | |
| EV (RM m) - FY21F | 3,914.0 | 1.72 |
| Less: Debt (RM m) - FY21F | 0.0 | 0.00 |
| Add: Cash (RM m) - FY21F | 4,782.3 | 2.10 |
| Less: Cash allocated to the Integrated Petrochemical Facility project in Indonesia (RM m) - FY21F | -3,568.0 | -1.57 |
| Equity market value (RM m) - FY21F | 5,128.3 | 2.26 |
| No of shares (m) | 2,273 | |
| Target price (RM) | 2.26 | |

SOURCES: CGS-CIMB RESEARCH ESTIMATES, COMPANY REPORTS

Valuation charts >

Figure 2: Lotte Chemical Titan P/E - 12-month forward (x) - based on Bloomberg consensus

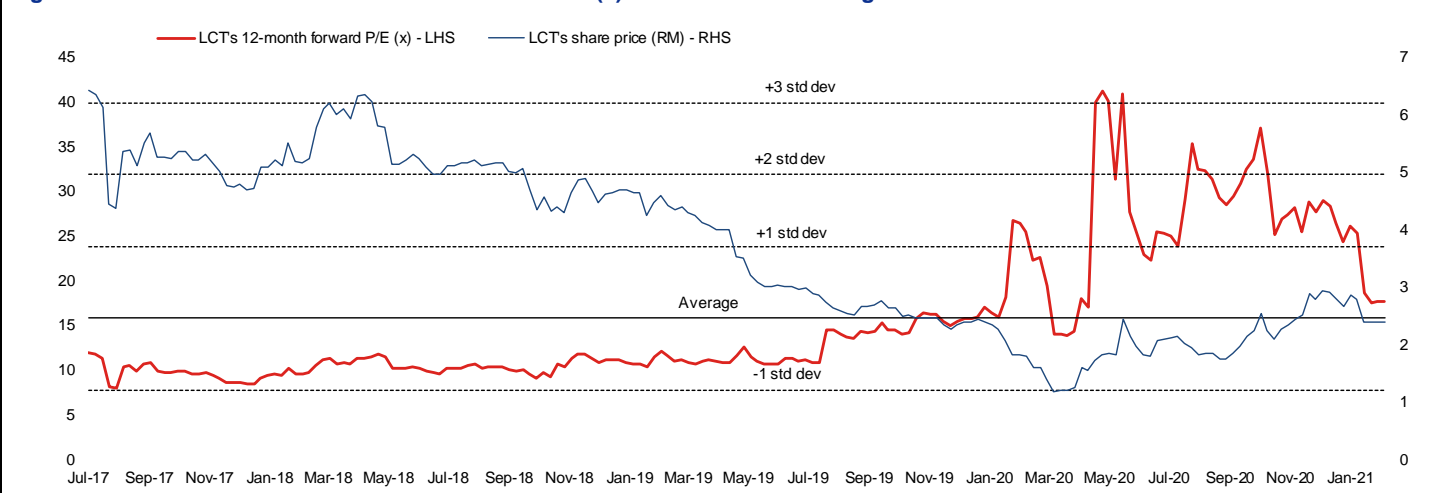


Figure 3: Lotte Chemical Titan EV/EBITDA - 12-month forward (x) - based on Bloomberg consensus

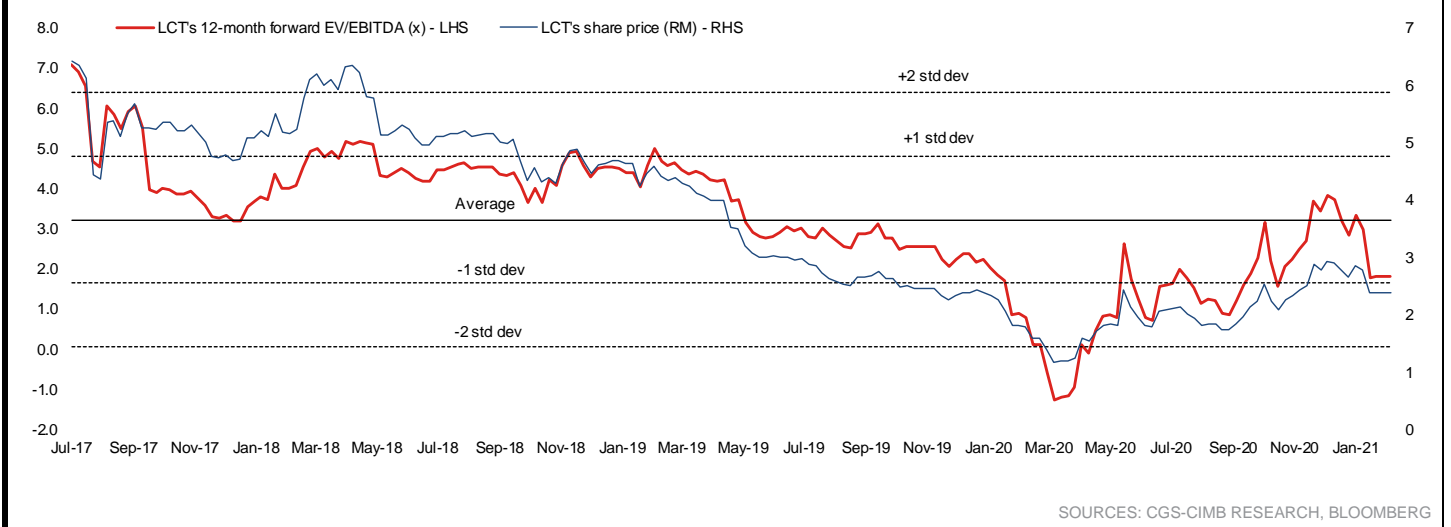
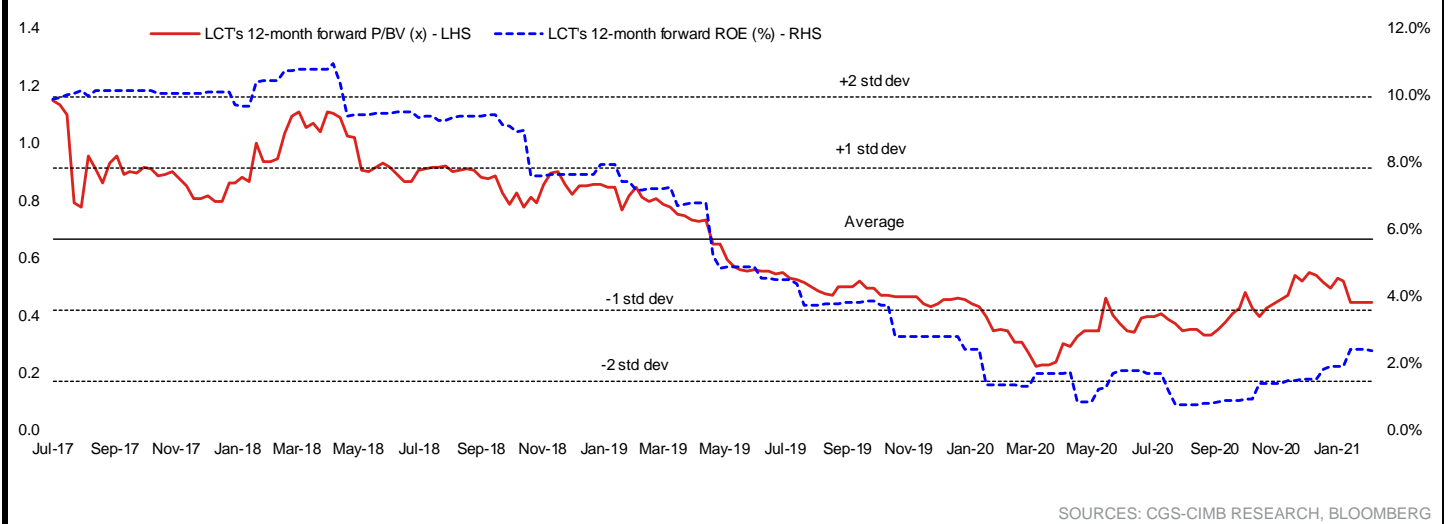


Figure 4: Lotte Chemical Titan P/BV (x) and ROE (%) - 12-month forward - based on Bloomberg consensus

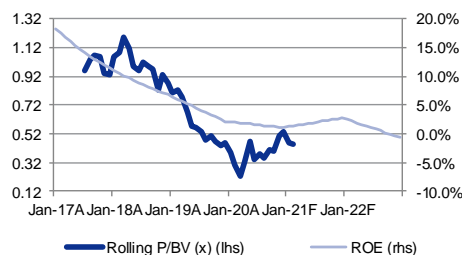
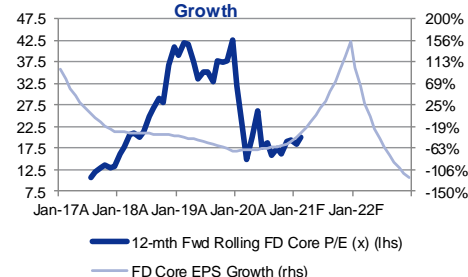


Key assumptions ►

Figure 5: Key assumptions

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021F | 2022F | 2023F |
|---|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Revenue (RM m) | 8,148 | 8,137 | 7,824 | 9,245 | 8,438 | 6,901 | 7,437 | 7,428 | 7,428 |
| - Olefins and derivative products | 1,648 | 1,657 | 1,528 | 2,322 | 1,830 | 1,178 | 1,598 | 1,937 | 1,937 |
| - Polyolefin product | 6,500 | 6,479 | 6,296 | 6,922 | 6,608 | 5,724 | 5,839 | 5,491 | 5,491 |
| EBITDA (RM m) | 1,449 | 2,161 | 1,595 | 1,258 | 797 | 779 | 1,159 | 559 | 559 |
| - Olefins and derivative products | | 531 | 480 | 441 | 422 | | | | |
| - Polyolefin product | | 1,615 | 1,113 | 809 | 477 | | | | |
| - Others | | 15 | 2 | 8 | (103) | | | | |
| EBITDA margin (%) | 18% | 27% | 20% | 14% | 9% | 11% | 16% | 8% | 8% |
| - Olefins and derivative products | | 32% | 31% | 19% | 23% | | | | |
| - Polyolefin product | | 25% | 18% | 12% | 7% | | | | |
| Profit before tax (RM m) | 1,050 | 1,710 | 1,141 | 852 | 503 | 204 | 541 | (47) | (78) |
| - Olefins and derivative products | 131 | 305 | 232 | 82 | 42 | | | | |
| - Polyolefin product | 929 | 1,432 | 913 | 622 | 262 | | | | |
| - Others | (10) | (27) | (4) | 149 | 199 | | | | |
| PBT margin (%) | 13% | 21% | 15% | 9% | 6% | 3% | 7% | -1% | -1% |
| - Olefins and derivative products | 8% | 18% | 15% | 4% | 2% | | | | |
| - Polyolefin product | 14% | 22% | 14% | 9% | 4% | | | | |
| OPERATING STATISTICS | | | | | | | | | |
| Annual plant capacity (tonnes) | 2,849,000 | 2,899,000 | 2,919,559 | 3,434,667 | 3,568,000 | 3,568,000 | 3,568,000 | 3,568,000 | 3,568,000 |
| - Malaysia | 2,399,000 | 2,449,000 | 2,469,559 | 2,984,667 | 3,118,000 | 3,118,000 | 3,118,000 | 3,118,000 | 3,118,000 |
| - Indonesia | 450,000 | 450,000 | 450,000 | 450,000 | 450,000 | 450,000 | 450,000 | 450,000 | 450,000 |
| Plant utilisation rate (%) | 91% | 91% | 73% | 83% | 88% | 82% | 88% | 91% | 91% |
| - Malaysia | 95% | 94% | 76% | 86% | 92% | 83% | 90% | 95% | 95% |
| - Indonesia | 71% | 76% | 75% | 68% | 65% | 73% | 75% | 65% | 65% |
| Production (tonnes) | 2,701,000 | 2,703,000 | 2,213,000 | 2,859,290 | 3,145,000 | 2,921,000 | 3,143,700 | 3,254,600 | 3,254,600 |
| - Malaysia | 2,386,250 | 2,357,500 | 1,877,000 | 2,552,290 | 2,853,000 | 2,592,000 | 2,806,200 | 2,962,100 | 2,962,100 |
| - Indonesia | 314,750 | 345,500 | 336,000 | 307,000 | 292,000 | 329,000 | 337,500 | 292,500 | 292,500 |
| Sales volume (tonnes) | 1,984,929 | 1,993,478 | 1,635,201 | 1,917,000 | 2,087,000 | 1,970,000 | 1,917,100 | 1,963,050 | 1,963,050 |
| Average selling price (US\$/tonne) | 1,052 | 986 | 1,113 | 1,164 | 976 | 834 | 970 | 946 | 946 |
| MARKET INFORMATION | | | | | | | | | |
| Benchmark spot selling prices (US\$/tonne) | | | | | | | | | |
| - HDPE | 1,208 | 1,121 | 1,130 | 1,273 | 946 | 852 | 937 | 909 | 909 |
| - LDPE | 1,219 | 1,160 | 1,233 | 1,156 | 967 | 983 | 1,179 | 1,014 | 1,014 |
| - PP | 1,088 | 960 | 1,077 | 1,206 | 1,034 | 924 | 1,035 | 983 | 983 |
| - Butadiene | 876 | 1,126 | 1,500 | 1,409 | 1,051 | 677 | 982 | 1,080 | 1,080 |
| - Benzene | 689 | 644 | 823 | 821 | 620 | 492 | 542 | 596 | 596 |
| Average spot purchase prices (US\$/tonne) | | | | | | | | | |
| - Naphtha | 518 | 394 | 497 | 615 | 504 | 364 | 410 | 483 | 483 |
| - Ethylene | 1,084 | 1,037 | 1,080 | 1,133 | 785 | 672 | 761 | 861 | 861 |
| Spreads vs. naphtha (US\$/mt) | | | | | | | | | |
| - HDPE-Naphtha | 690 | 727 | 633 | 658 | 443 | 487 | 527 | 425 | 425 |
| - LDPE-Naphtha | 701 | 766 | 737 | 541 | 464 | 618 | 769 | 531 | 531 |
| - PP-Naphtha | 570 | 566 | 581 | 591 | 530 | 559 | 624 | 500 | 500 |
| - Butadiene-Naphtha | 358 | 732 | 1,004 | 794 | 548 | 313 | 572 | 597 | 597 |
| - Benzene-Naphtha | 171 | 250 | 327 | 206 | 116 | 128 | 131 | 112 | 112 |
| Average RM:US\$1 | 3.9023 | 4.1400 | 4.2994 | 4.0351 | 4.1422 | 4.2013 | 4.0000 | 4.0000 | 4.0000 |
| Ending RM:US\$1 | 4.2943 | 4.4862 | 4.0465 | 4.1335 | 4.0910 | 4.0203 | 4.0000 | 4.0000 | 4.0000 |

SOURCE: CGS-CIMB RESEARCH ESTIMATES, COMPANY REPORTS

BY THE NUMBERS
P/BV vs ROE

12-mth Fwd FD Core P/E vs FD Core EPS Growth

Profit & Loss

| (RMm) | Dec-19A | Dec-20A | Dec-21F | Dec-22F | Dec-23F |
|---|--------------|--------------|--------------|--------------|--------------|
| Total Net Revenues | 8,438 | 6,901 | 7,437 | 7,428 | 7,428 |
| Gross Profit | 1,100 | 1,058 | 1,430 | 835 | 835 |
| Operating EBITDA | 797 | 779 | 1,159 | 559 | 559 |
| Depreciation And Amortisation | (631) | (558) | (578) | (591) | (603) |
| Operating EBIT | 166 | 221 | 582 | (32) | (44) |
| Financial Income/(Expense) | 85 | 51 | 73 | 61 | 42 |
| Pretax Income/(Loss) from Assoc. | 19 | (119) | (139) | (101) | (101) |
| Non-Operating Income/(Expense) | 25 | 25 | 25 | 25 | 25 |
| Profit Before Tax (pre-EI) | 294 | 178 | 541 | (47) | (78) |
| Exceptional Items | 209 | 26 | 0 | 0 | 0 |
| Pre-tax Profit | 503 | 204 | 541 | (47) | (78) |
| Taxation | (61) | (50) | (204) | (16) | (7) |
| Exceptional Income - post-tax | | | | | |
| Profit After Tax | 443 | 154 | 337 | (63) | (85) |
| Minority Interests | (3) | (5) | (10) | (10) | (10) |
| Preferred Dividends | | | | | |
| FX Gain/(Loss) - post tax | | | | | |
| Other Adjustments - post-tax | | | | | |
| Net Profit | 440 | 149 | 327 | (73) | (95) |
| Recurring Net Profit | 256 | 129 | 327 | (73) | (95) |
| Fully Diluted Recurring Net Profit | 256 | 129 | 327 | (73) | (95) |

Cash Flow

| (RMm) | Dec-19A | Dec-20A | Dec-21F | Dec-22F | Dec-23F |
|----------------------------------|--------------|--------------|--------------|----------------|----------------|
| EBITDA | 797 | 779 | 1,159 | 559 | 559 |
| Cash Flow from Inv. & Assoc. | | | | | |
| Change In Working Capital | 207 | 259 | (69) | (46) | 0 |
| (Incr)/Decr in Total Provisions | | | | | |
| Other Non-Cash (Income)/Expense | | | | | |
| Other Operating Cashflow | 105 | 59 | 25 | 25 | 25 |
| Net Interest (Paid)/Received | (4) | (4) | (8) | (8) | (128) |
| Tax Paid | (19) | (16) | (204) | (16) | (7) |
| Cashflow From Operations | 1,086 | 1,077 | 903 | 514 | 449 |
| Capex | (543) | (826) | (300) | (2,290) | (5,333) |
| Disposals Of FAs/subsidiaries | 256 | 27 | 0 | 0 | 0 |
| Acq. Of Subsidiaries/investments | (7) | 0 | 0 | 0 | 0 |
| Other Investing Cashflow | 102 | 79 | 89 | 77 | 58 |
| Cash Flow From Investing | (192) | (720) | (211) | (2,213) | (5,274) |
| Debt Raised/(repaid) | 0 | 0 | 0 | 0 | 4,800 |
| Proceeds From Issue Of Shares | 0 | 162 | 0 | 0 | 0 |
| Shares Repurchased | 0 | 0 | 0 | 0 | 0 |
| Dividends Paid | (386) | (159) | (68) | (159) | 0 |
| Preferred Dividends | | | | | |
| Other Financing Cashflow | 41 | (15) | 0 | 0 | 0 |
| Cash Flow From Financing | (345) | (12) | (68) | (159) | 4,800 |
| Total Cash Generated | 549 | 344 | 624 | (1,858) | (26) |
| Free Cashflow To Equity | 894 | 357 | 692 | (1,699) | (26) |
| Free Cashflow To Firm | 898 | 361 | 700 | (1,691) | (4,697) |

SOURCES: CGS-CIMB RESEARCH, COMPANY REPORTS

BY THE NUMBERS... cont'd
Balance Sheet

| (RMm) | Dec-19A | Dec-20A | Dec-21F | Dec-22F | Dec-23F |
|--------------------------------------|---------------|---------------|---------------|---------------|---------------|
| Total Cash And Equivalents | 3,916 | 4,158 | 4,782 | 2,924 | 2,899 |
| Total Debtors | 901 | 777 | 834 | 833 | 833 |
| Inventories | 1,325 | 1,294 | 1,327 | 1,452 | 1,452 |
| Total Other Current Assets | 0 | 0 | 0 | 0 | 0 |
| Total Current Assets | 6,141 | 6,229 | 6,943 | 5,209 | 5,183 |
| Fixed Assets | 5,485 | 5,586 | 5,290 | 8,949 | 15,116 |
| Total Investments | 2,233 | 2,093 | 1,954 | 1,853 | 1,752 |
| Intangible Assets | 0 | 0 | 0 | 0 | 0 |
| Total Other Non-Current Assets | 0 | 0 | 0 | 0 | 0 |
| Total Non-current Assets | 7,717 | 7,679 | 7,244 | 10,802 | 16,868 |
| Short-term Debt | 0 | 0 | 0 | 0 | 0 |
| Current Portion of Long-Term Debt | | | | | |
| Total Creditors | 768 | 819 | 840 | 918 | 918 |
| Other Current Liabilities | 3 | 0 | 0 | 0 | 0 |
| Total Current Liabilities | 771 | 819 | 840 | 918 | 918 |
| Total Long-term Debt | 0 | 0 | 0 | 0 | 4,800 |
| Hybrid Debt - Debt Component | | | | | |
| Total Other Non-Current Liabilities | 393 | 389 | 397 | 406 | 414 |
| Total Non-current Liabilities | 393 | 389 | 397 | 406 | 5,213 |
| Total Provisions | 416 | 431 | 431 | 431 | 431 |
| Total Liabilities | 1,579 | 1,640 | 1,668 | 1,754 | 6,562 |
| Shareholders' Equity | 11,956 | 11,799 | 12,058 | 11,826 | 11,731 |
| Minority Interests | 323 | 469 | 458 | 2,428 | 3,755 |
| Total Equity | 12,279 | 12,268 | 12,516 | 14,254 | 15,486 |

Key Ratios

| | Dec-19A | Dec-20A | Dec-21F | Dec-22F | Dec-23F |
|---------------------------|---------|---------|---------|---------|---------|
| Revenue Growth | (8.7%) | (18.2%) | 7.8% | (0.1%) | 0.0% |
| Operating EBITDA Growth | (36.7%) | (2.2%) | 48.8% | (51.8%) | 0.0% |
| Operating EBITDA Margin | 9.4% | 11.3% | 15.6% | 7.5% | 7.5% |
| Net Cash Per Share (RM) | 1.72 | 1.83 | 2.10 | 1.29 | (0.84) |
| BVPS (RM) | 5.26 | 5.19 | 5.31 | 5.20 | 5.16 |
| Gross Interest Cover | 9.78 | 15.38 | 36.56 | (1.97) | (2.68) |
| Effective Tax Rate | 12.1% | 24.5% | 37.7% | 0.0% | 0.0% |
| Net Dividend Payout Ratio | 69.0% | 55.6% | 48.6% | NA | NA |
| Accounts Receivables Days | 40.32 | 42.19 | 37.42 | 38.84 | 38.81 |
| Inventory Days | 70.45 | 82.01 | 79.63 | 76.92 | 80.38 |
| Accounts Payables Days | 39.46 | 48.80 | 49.59 | 47.90 | 50.06 |
| ROIC (%) | 2.31% | 3.18% | 8.51% | (0.48%) | (0.43%) |
| ROCE (%) | 2.13% | 2.26% | 5.23% | 0.33% | 0.08% |
| Return On Average Assets | 1.08% | 0.55% | 1.88% | (0.82%) | (0.67%) |

Key Drivers

| | Dec-19A | Dec-20A | Dec-21F | Dec-22F | Dec-23F |
|---|---------|---------|---------|---------|---------|
| Plant utilisation (%) | 88.1% | 81.9% | 88.1% | 91.2% | 91.2% |
| Production volume (m tonnes) | 3.1 | 2.9 | 3.1 | 3.3 | 3.3 |
| Sales volume (m tonnes) | 2.1 | 2.0 | 1.9 | 2.0 | 2.0 |
| Average selling price (US\$/tonne) | 976.1 | 833.8 | 969.8 | 945.9 | 945.9 |
| Average naphtha price (US\$/tonne) | 503.6 | 364.4 | 410.3 | 483.3 | 483.3 |
| Average price-naphtha spread (US\$/tonne) | 472.5 | 469.4 | 559.5 | 462.6 | 462.6 |

SOURCES: CGS-CIMB RESEARCH, COMPANY REPORTS

Malaysia

REDUCE (no change)

Consensus ratings*: Buy 6 Hold 10 Sell 6

| | |
|-------------------------|-------------|
| Current price: | RM7.56 |
| Target price: | RM6.95 |
| Previous target: | RM6.95 |
| Up/downside: | -8.1% |
| CGS-CIMB / Consensus: | -1.3% |
| Reuters: | PCGB.KL |
| Bloomberg: | PCHEM MK |
| Market cap: | US\$14,992m |
| | RM60,480m |
| Average daily turnover: | US\$5.22m |
| | RM21.15m |
| Current shares o/s: | 8,000m |
| Free float: | 25.0% |

*Source: Bloomberg

Key changes in this note

No change.



Source: Bloomberg

| Price performance | 1M | 3M | 12M |
|-------------------|-----|------|------|
| Absolute (%) | 0.7 | 11.5 | 16.3 |
| Relative (%) | 1.9 | 10.3 | 12.2 |

| Major shareholders | % held |
|--------------------------|--------|
| Petronas | 64.4 |
| Employees Provident Fund | 7.3 |

Analyst(s)

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Petronas Chemicals Group

Petchem price momentum to support earnings

- Strong petchem price momentum in 4Q20 and 1Q21F amid strong demand and cost-push factors may grow PCG's net profit qoq until 2Q21F in our view.
- Still, we reiterate Reduce as beyond the next 3-6 months, petchem prices may come under pressure from large supply-side capacity additions.
- Our TP of RM6.95 is based on a CY22F EV/EBITDA multiple of 10x, which is 2 standard deviations above the mean since 2010.

Strong spot petchem prices in 1Q21F to benefit PCG

Petchem selling prices have done very well so far in 1Q21F, in part due to cost-push factors like higher naphtha feedstock prices, but more fundamentally, due to strong demand, limited supplies, and low inventories. PE and MEG prices benefitted from the curtailment of US exports due to the hurricanes in Aug and Oct 2020, from which US suppliers have still not fully recovered. Coal and natural gas in China were diverted to power generation due to the cold winter, limiting supplies to MEG, methanol and urea plants. PX prices benefitted from economic and unscheduled shutdowns. In addition to supply-side issues, strong demand for consumer goods, fabrics and Covid-19-related medical supplies bolstered plastics and polyester demand in 2020 to levels much higher than what we had initially expected at the start of the pandemic. Rolling into 1Q21F, Saudi Arabia's voluntary 1 mbpd production cut in Feb and Mar pushed oil prices above US\$62/bbl and naphtha prices followed suit. These cost-push factors might now combine with underlying demand strength and various supply disruptions to push up petchem selling prices further. This will benefit PCG's Olefins & Derivatives (O&D) division as its ethane feedstock is purchased at fixed, long-term prices. PCG's Fertiliser & Methanol (F&M) division also benefits, although less so, since the price it pays for methane feedstock varies directly with the selling prices it secures for methanol and urea (thus ensuring spread protection).

4Q20F core net profit likely stronger yoy and qoq

PCG's 4Q20F results will be announced on 23 Feb, and we estimate PCG's core net profit will likely be stronger than 4Q19's, as average PE, methanol and urea prices in 4Q20F were higher yoy. 4Q20F core net profit will also likely be higher against the 3Q20 due to the sequential rise in the selling prices of virtually all of PCG's petchem products. However, the 4Q20F reported net profit will be hit by a RM232m impairment charge for the closure of PCG's 40%-owned butanediol plant, according to PCG. We expect petchem prices to peak in 1Q21F as winter-related supply disruptions are resolved, but the lagged effect of the strong 1Q21F should flow through to PCG's 2Q21F.

Petchem selling prices may weaken from 2Q21F onwards

We expect petchem prices to weaken sequentially from 2Q21F onwards, as substantial new capacities are commissioned. This is the rationale for our Reduce rating. For ethane-based products, the potential negative impact to PCG's topline could flow through directly to the bottom line, and its share price may de-rate accordingly.

Financial Summary

| | Dec-18A | Dec-19A | Dec-20F | Dec-21F | Dec-22F |
|--------------------------------|---------|---------|---------|---------|---------|
| Revenue (RMm) | 19,576 | 16,370 | 14,656 | 16,550 | 18,063 |
| Operating EBITDA (RMm) | 6,943 | 4,376 | 3,339 | 4,435 | 4,263 |
| Net Profit (RMm) | 4,788 | 2,792 | 1,611 | 2,485 | 2,099 |
| Core EPS (RM) | 0.62 | 0.35 | 0.23 | 0.31 | 0.26 |
| Core EPS Growth | 18.2% | (43.6%) | (34.0%) | 34.9% | (15.5%) |
| FD Core P/E (x) | 12.22 | 21.66 | 32.82 | 24.33 | 28.81 |
| DPS (RM) | 0.32 | 0.18 | 0.11 | 0.16 | 0.14 |
| Dividend Yield | 4.23% | 2.38% | 1.46% | 2.12% | 1.85% |
| EV/EBITDA (x) | 7.15 | 11.39 | 14.71 | 10.84 | 11.09 |
| P/FCFE (x) | 6.98 | 27.18 | 32.03 | 37.77 | 32.36 |
| Net Gearing | (33.9%) | (33.3%) | (35.0%) | (36.2%) | (37.6%) |
| P/BV (x) | 2.05 | 2.02 | 1.98 | 1.88 | 1.83 |
| ROE | 17.2% | 9.4% | 6.1% | 7.9% | 6.4% |
| % Change In Core EPS Estimates | | | 0% | (0%) | (0%) |
| CGS-CIMB/Consensus EPS (x) | | | 0.94 | 0.92 | 0.65 |

SOURCES: CGS-CIMB RESEARCH, COMPANY REPORTS

Target price computation >

We reiterate Reduce on PCG, with an unchanged target price of RM6.95, based on a CY22F EV/EBITDA multiple of 10x, which is 2 standard deviations above the EV/EBITDA mean since 2010, on account of the overall market re-rating of the sector (including PCG's comparables in the petrochemical space).

Our target price of RM6.95 implies a CY21F P/BV of 1.7x, which is 1 standard deviation below the P/BV mean since 2010. We believe this is a reasonable P/BV target multiple as we forecast PCG's FY21F ROE at 7.9%, falling to 6.4% in FY22F, which are historically very low ROEs for PCG (Figure 4).

Potential de-rating catalysts include the potential peaking of petrochemical selling prices in 1Q21F, and subsequent weakening. Competition with LCT in the domestic space and proximate SE Asian markets may increase once the Pengerang plants are commissioned by PCG's 50%-owned PRefChem, in our view.

Upside risks include the possibility that the commissioning of new capacity in China, SE Asia and NE Asia may be delayed, demand growth for petrochemicals is better than expected due to improving global GDP growth, and the potential for the Pengerang plants to be commissioned smoothly and ramp up to full utilisation quickly so as to minimise start-up losses for PCG.

Looking forward into 2022F, a potential deal by the US under the new president Joe Biden with Iran that will allow Iran to resume oil exports may be negative for oil, naphtha and petrochemical selling prices, and is an additional potential de-rating catalyst for PCG, in our view. As PCG's Kertih facility is reliant on fixed-price ethane feedstock, it will not benefit from lower naphtha costs under this scenario; conversely, Kertih may be directly hurt by lower selling prices. While PCG's Pengerang facility may benefit from an expansion in its price spreads against naphtha, the positive financial impact will not likely be sufficient to compensate for the negative topline impact to Kertih's profitability.

Figure 1: Valuation of Petronas Chemicals Group

| | As at end-2021F |
|--|-----------------|
| One-year forward EBITDA (RM m) - FY22F | 4,262.6 |
| EV/EBITDA target multiple (x) | 10.0 |
| EV (RM m) - end-FY21F | 42,626.0 |
| Less: Debt (RM m) - end-FY21F | -1,833.6 |
| Add: Cash (RM m) - end-FY21F | 13,694.3 |
| Add: Book value of associates and JVs (RM m) - end-FY21F | 1,088.0 |
| Equity market value (RM m) - end-FY21F | 55,574.7 |
| No of shares (m) | 8,000 |
| Target price (RM/share) - end-FY21F | 6.95 |

SOURCES: CGS-CIMB RESEARCH ESTIMATES, COMPANY REPORTS

Valuation charts >

Figure 2: Petronas Chemicals P/E - 12-month forward (x) - based on Bloomberg consensus

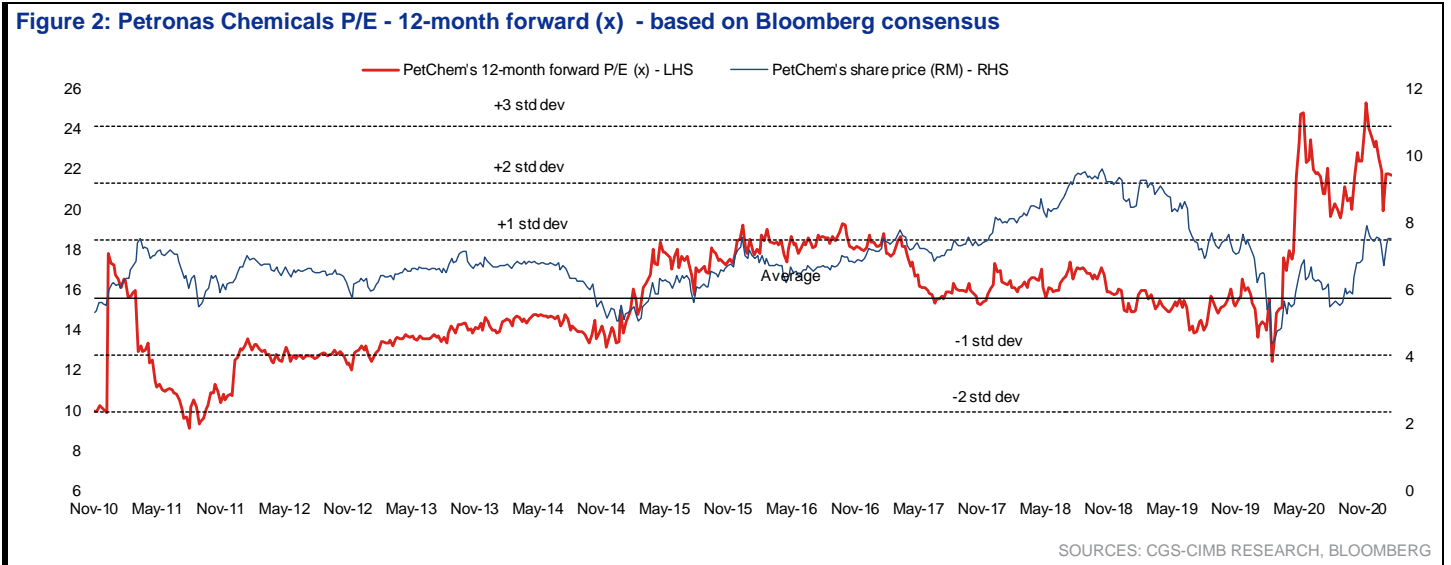


Figure 3: Petronas Chemicals EV/EBITDA - 12-month forward (x) - based on Bloomberg consensus

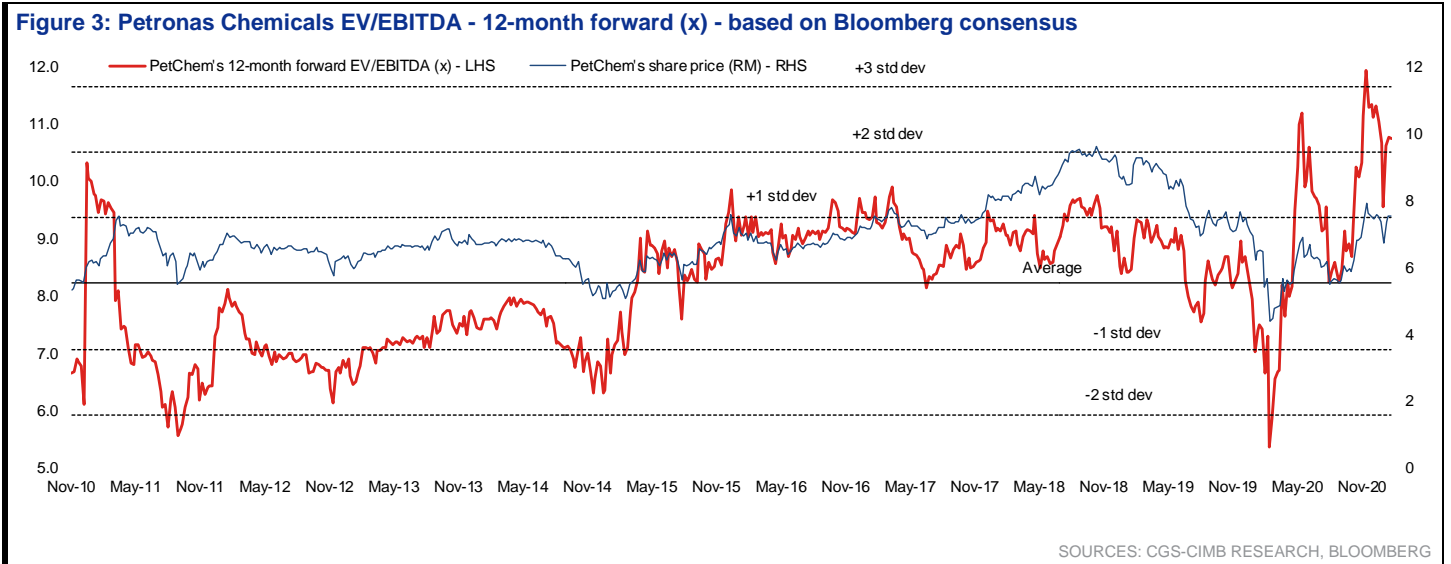
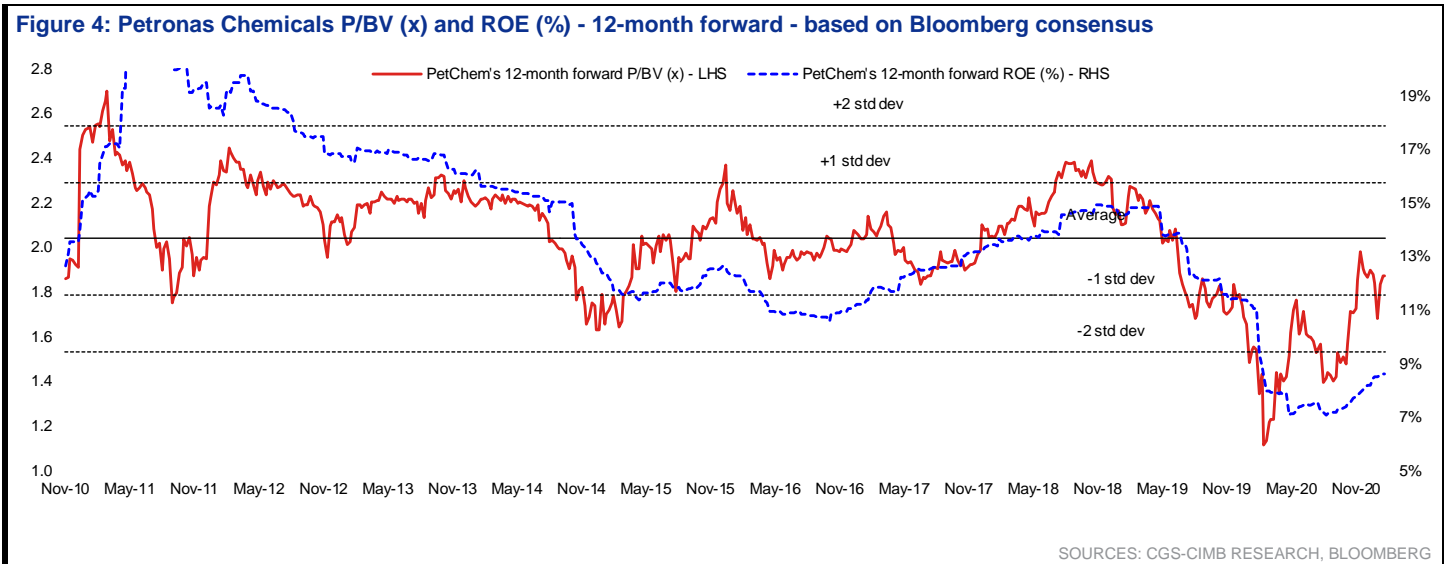


Figure 4: Petronas Chemicals P/BV (x) and ROE (%) - 12-month forward - based on Bloomberg consensus



Key assumptions ►

Figure 5: Olefins & Derivatives: Profit and Loss Statement (YE Dec) - RM m

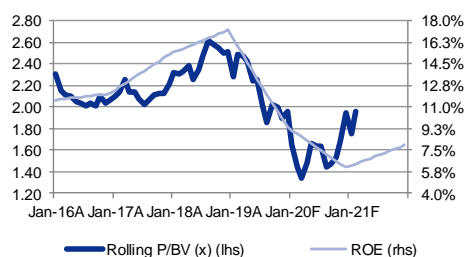
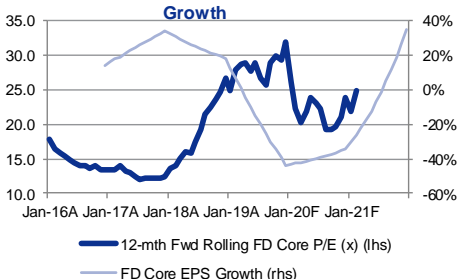
| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020F | 2021F | 2022F |
|--|---------------|---------------|---------------|---------------|--------------|--------------|---------------|---------------|--------------|--------------|--------------|---------------|
| Revenue (RM m) | 12,080 | 11,965 | 11,232 | 10,518 | 9,507 | 9,757 | 11,362 | 12,297 | 9,960 | 8,346 | 9,920 | 11,480 |
| - External revenue | 12,075 | 11,958 | 11,222 | 10,510 | 9,495 | 9,744 | 11,350 | 12,280 | 9,947 | 8,346 | 9,920 | 11,480 |
| - Internal revenue | 5 | 7 | 10 | 8 | 12 | 13 | 12 | 17 | 13 | 0 | 0 | 0 |
| Less: Direct costs | -7,587 | -8,283 | -7,843 | -7,285 | -6,298 | -5,946 | -7,263 | -8,249 | -7,866 | -6,888 | -7,497 | -9,210 |
| EBITDA (RM m) | 4,493 | 3,682 | 3,389 | 3,233 | 3,209 | 3,811 | 4,099 | 4,048 | 2,099 | 1,459 | 2,423 | 2,270 |
| EBITDA margin (%) | 37.2% | 30.8% | 30.2% | 30.7% | 33.8% | 39.1% | 36.1% | 32.9% | 21.1% | 17.5% | 24.4% | 19.8% |
| Less: Depreciation and amortisation | -770 | -751 | -693 | -811 | -800 | -804 | -817 | -812 | -794 | -797 | -1,011 | -1,225 |
| EBIT (RM m) | 3,723 | 2,931 | 2,696 | 2,422 | 2,409 | 3,007 | 3,282 | 3,308 | 1,300 | 662 | 1,412 | 1,044 |
| Add: Interest income | 84 | 87 | 128 | 163 | 158 | 148 | 122 | 78 | 106 | 53 | 56 | 59 |
| Less: Interest expense | -29 | -26 | -12 | -45 | -25 | -19 | -14 | -9 | -12 | -12 | -39 | -53 |
| Profit before associates (RM m) | 3,778 | 2,992 | 2,812 | 2,540 | 2,542 | 3,136 | 3,390 | 3,377 | 1,394 | 702 | 1,429 | 1,050 |
| Add: Share of JV and associates | 320 | 253 | 163 | 115 | 32 | -30 | -45 | -34 | -115 | -90 | 10 | 10 |
| Add/less: Exceptionals | 0 | -363 | 0 | -262 | 64 | -193 | 0 | -2 | 0 | 0 | 0 | 0 |
| Profit before tax (RM m) | 4,098 | 2,882 | 2,975 | 2,393 | 2,638 | 2,913 | 3,345 | 3,341 | 1,279 | 612 | 1,439 | 1,060 |
| Less: Tax expense | -659 | -801 | -653 | -580 | -645 | -754 | -574 | -436 | -166 | -100 | -216 | -106 |
| Effective tax rate (%) | -17.4% | -30.5% | -23.2% | -25.5% | -24.8% | -25.6% | -16.9% | -12.9% | -13.0% | -16.3% | -15.0% | -10.0% |
| Profit after tax (RM m) | 3,439 | 2,081 | 2,322 | 1,813 | 1,993 | 2,159 | 2,771 | 2,905 | 1,176 | 512 | 1,222 | 954 |
| Total O&D production (m tonnes) | | | 3.300 | 3.500 | 3.800 | 4.000 | 3.800 | 3.922 | 3.760 | 3.960 | 4.413 | 5.375 |
| - Kertih | | | | | | | | 3.922 | 3.760 | 3.960 | 3.800 | 3.800 |
| * Ethylene | | | | | | 1.059 | 1.009 | 0.990 | 0.977 | | | |
| - Pengerang | | | | | | | | | | | 0.613 | 1.575 |
| Total O&D plant utilisation (%) | 88% | 91% | 83% | 86% | 93% | 100% | 94% | 97% | 93% | 99% | 91% | 93% |
| - Kertih | | | | | | | | | 93% | 99% | 95% | 95% |
| - Pengerang | | | | | | | | | | | 70% | 90% |
| Effective total O&D plant capacity (m tonnes) | | | | 4.070 | 4.086 | 4.000 | 4.060 | 4.043 | 4.043 | 4.000 | 4.875 | 5.750 |
| - Kertih | | | | | | | | | 4.043 | 4.000 | 4.000 | 4.000 |
| - Pengerang | | | | | | | | | | | 0.875 | 1.750 |
| Total O&D sales volume (m tonne) | 3.137 | 3.200 | 2.848 | | | | | 3.200 | 3.100 | 3.247 | 3.618 | 4.408 |
| - Kertih | 3.137 | 3.200 | 2.848 | | | | | 3.200 | 3.100 | 3.247 | 3.116 | 3.116 |
| - Pengerang | | | | | | | | | | | 0.502 | 1.292 |
| Sales-to-production ratio (x) | | | 0.86 | | | | | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Total O&D avg selling price (US\$/tonne) | | | | | | | | 951 | 775 | 612 | 685 | 651 |
| - Kertih | | | | | | | | | 775 | 612 | 685 | 651 |
| - Pengerang | | | | | | | | | | | 685 | 651 |
| Change (%) | | | | | | | | | -18.5% | -21.0% | 12.0% | -5.0% |
| Total O&D avg cost of production (US\$/tonne) | | | | 636 | 425 | 359 | 445 | 521 | 505 | 414 | 425 | 428 |
| - Kertih | | | | 636 | 425 | 359 | 445 | 514 | 505 | 414 | 414 | 414 |
| - Pengerang | | | | | | | | | | | 491 | 463 |
| Change (%) | | | | -33.2% | -15.5% | 23.8% | 17.3% | -3.1% | -18.0% | 2.6% | 0.9% | |

SOURCES: CGS-CIMB RESEARCH ESTIMATES, COMPANY REPORTS

Figure 6: Fertilisers and Methanol: Profit and Loss Statement (YE Dec) - RM m

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020F | 2021F | 2022F |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Revenue (RM m) | 4,303 | 4,839 | 4,176 | 4,243 | 4,187 | 4,228 | 6,168 | 7,369 | 6,165 | 5,309 | 5,629 | 5,583 |
| - External revenue | 4,124 | 4,598 | 3,941 | 4,046 | 3,995 | 4,063 | 6,013 | 7,241 | 6,165 | 5,309 | 5,629 | 5,583 |
| - Internal revenue | 179 | 241 | 235 | 197 | 192 | 165 | 155 | 128 | 0 | 0 | 0 | 0 |
| Less: Direct costs | -2,672 | -2,978 | -2,442 | -2,827 | -2,701 | -2,702 | -3,597 | -4,348 | -3,645 | -3,129 | -3,317 | -3,290 |
| EBITDA (RM m) | 1,631 | 1,861 | 1,734 | 1,416 | 1,486 | 1,526 | 2,571 | 3,021 | 2,520 | 2,181 | 2,312 | 2,293 |
| EBITDA margin (%) | 37.9% | 38.5% | 41.5% | 33.4% | 35.5% | 36.1% | 41.7% | 41.0% | 40.9% | 41.1% | 41.1% | 41.1% |
| Less: Depreciation and amortisation | -357 | -355 | -371 | -393 | -459 | -514 | -750 | -785 | -830 | -836 | -893 | -950 |
| EBIT (RM m) | 1,274 | 1,506 | 1,363 | 1,023 | 1,027 | 1,012 | 1,821 | 1,979 | 1,740 | 1,345 | 1,419 | 1,343 |
| Add: Interest income | 40 | 66 | 77 | 90 | 98 | 46 | 33 | 62 | 107 | 53 | 57 | 60 |
| Less: Interest expense | 0 | 0 | -2 | -4 | -4 | -3 | -56 | -6 | -12 | -12 | -12 | -12 |
| Profit before associates (RM m) | 1,314 | 1,572 | 1,438 | 1,109 | 1,121 | 1,055 | 1,798 | 2,035 | 1,835 | 1,386 | 1,463 | 1,390 |
| Add: Share of JV and associates | 0 | -11 | -7 | 12 | 13 | 15 | 16 | 96 | 14 | 10 | 10 | 10 |
| Add/less: Exceptionals | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -2 | 0 | 0 | 0 | 0 |
| Profit before tax (RM m) | 1,314 | 1,561 | 1,431 | 1,121 | 1,134 | 1,070 | 1,814 | 2,129 | 1,849 | 1,396 | 1,473 | 1,400 |
| Less: Tax expense | -324 | 135 | -363 | -223 | -75 | -71 | -205 | -128 | -159 | -166 | -132 | -125 |
| Effective tax rate (%) | -24.7% | 8.6% | -25.4% | -19.9% | -6.6% | -6.6% | -11.3% | -6.0% | -8.6% | -12.0% | -9.0% | -9.0% |
| Profit after tax (RM m) | 990 | 1,696 | 1,068 | 898 | 1,059 | 999 | 1,609 | 2,001 | 1,690 | 1,230 | 1,342 | 1,275 |
| F&M production (m tonnes) | | | 4,000 | 4,100 | 4,300 | 5,000 | 6,400 | 6,499 | 6,647 | 6,862 | 6,643 | 6,935 |
| * Urea | | | | | | 1,371 | 2,219 | 2,226 | 2,408 | | | |
| * Methanol | | | | | | 2,104 | 2,088 | 2,052 | 2,035 | | | |
| F&M plant utilisation (%) | 74.0% | 75.0% | 74.0% | 75.0% | 80.0% | 92.5% | 90.1% | 89.0% | 91.0% | 94.0% | 91.0% | 95.0% |
| Effective F&M plant capacity (m tonnes) | | | | 5,467 | 5,375 | 5,405 | 7,103 | 7,302 | 7,304 | 7,300 | 7,300 | 7,300 |
| F&M sales volume (m tonnes) | 3,303 | 3,600 | 3,151 | | | | | 5,200 | 5,300 | 5,490 | 5,314 | 5,548 |
| Sales-to-production ratio (x) | | | 0.79 | | | | | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| F&M avg selling price (US\$/tonne) | | | | | | | | 345 | 281 | 230 | 265 | 252 |
| Change (%) | | | | | | | | | -18.6% | -18.0% | 15.0% | -5.0% |
| F&M avg cost of production (US\$/tonne) | | | | 211 | 161 | 131 | 131 | 166 | 132 | 109 | 125 | 119 |
| Change (%) | | | | | -23.6% | -18.9% | 0.1% | 26.8% | -20.2% | -18.0% | 15.0% | -5.0% |

SOURCES: CGS-CIMB RESEARCH ESTIMATES, COMPANY REPORTS

BY THE NUMBERS
P/BV vs ROE

12-mth Fwd FD Core P/E vs FD Core EPS Growth

Profit & Loss

| (RMm) | Dec-18A | Dec-19A | Dec-20F | Dec-21F | Dec-22F |
|---|---------------|---------------|---------------|---------------|---------------|
| Total Net Revenues | 19,576 | 16,370 | 14,656 | 16,550 | 18,063 |
| Gross Profit | 8,493 | 6,115 | 5,167 | 6,160 | 6,184 |
| Operating EBITDA | 6,943 | 4,376 | 3,339 | 4,435 | 4,263 |
| Depreciation And Amortisation | (1,619) | (1,678) | (1,717) | (2,013) | (2,310) |
| Operating EBIT | 5,324 | 2,698 | 1,623 | 2,422 | 1,953 |
| Financial Income/(Expense) | 298 | 346 | 161 | 146 | 143 |
| Pretax Income/(Loss) from Assoc. | 108 | (54) | (35) | 65 | 65 |
| Non-Operating Income/(Expense) | 188 | 146 | 350 | 200 | 200 |
| Profit Before Tax (pre-EI) | 5,919 | 3,136 | 2,099 | 2,834 | 2,361 |
| Exceptional Items | (162) | 0 | (232) | 0 | 0 |
| Pre-tax Profit | 5,756 | 3,136 | 1,867 | 2,834 | 2,361 |
| Taxation | (882) | (360) | (296) | (348) | (261) |
| Exceptional Income - post-tax | | | | | |
| Profit After Tax | 4,874 | 2,776 | 1,571 | 2,485 | 2,099 |
| Minority Interests | (86) | 16 | 40 | 0 | 0 |
| Preferred Dividends | | | | | |
| FX Gain/(Loss) - post tax | | | | | |
| Other Adjustments - post-tax | | | | | |
| Net Profit | 4,788 | 2,792 | 1,611 | 2,485 | 2,099 |
| Recurring Net Profit | 4,950 | 2,792 | 1,843 | 2,485 | 2,099 |
| Fully Diluted Recurring Net Profit | 4,950 | 2,792 | 1,843 | 2,485 | 2,099 |

Cash Flow

| (RMm) | Dec-18A | Dec-19A | Dec-20F | Dec-21F | Dec-22F |
|----------------------------------|----------------|----------------|----------------|----------------|----------------|
| EBITDA | 6,943 | 4,376 | 3,339 | 4,435 | 4,263 |
| Cash Flow from Inv. & Assoc. | | | | | |
| Change In Working Capital | (224) | 1,010 | 245 | (313) | (26) |
| (Incr)/Decr in Total Provisions | | | | | |
| Other Non-Cash (Income)/Expense | | | | | |
| Other Operating Cashflow | 135 | 122 | 530 | 166 | 195 |
| Net Interest (Paid)/Received | 256 | 319 | 133 | 148 | 162 |
| Tax Paid | (443) | (341) | (281) | (333) | (246) |
| Cashflow From Operations | 6,667 | 5,486 | 3,966 | 4,103 | 4,348 |
| Capex | (2,913) | (2,351) | (2,168) | (2,188) | (2,205) |
| Disposals Of FAs/subsidiaries | 971 | 1 | 0 | 0 | 0 |
| Acq. Of Subsidiaries/investments | (21) | 0 | 0 | 0 | 0 |
| Other Investing Cashflow | 80 | (677) | 0 | 0 | 0 |
| Cash Flow From Investing | (1,883) | (3,027) | (2,168) | (2,188) | (2,205) |
| Debt Raised/(repaid) | 3,886 | (234) | 91 | (314) | (274) |
| Proceeds From Issue Of Shares | 0 | 0 | 0 | 0 | 0 |
| Shares Repurchased | | | | | |
| Dividends Paid | (2,320) | (2,388) | (960) | (880) | (1,280) |
| Preferred Dividends | | | | | |
| Other Financing Cashflow | (634) | (78) | 0 | 0 | 0 |
| Cash Flow From Financing | 932 | (2,700) | (869) | (1,194) | (1,554) |
| Total Cash Generated | 5,716 | (241) | 928 | 721 | 589 |
| Free Cashflow To Equity | 8,670 | 2,225 | 1,888 | 1,601 | 1,869 |
| Free Cashflow To Firm | 4,832 | 2,517 | 1,852 | 1,967 | 2,190 |

SOURCES: CGS-CIMB RESEARCH, COMPANY REPORTS

BY THE NUMBERS... cont'd
Balance Sheet

| (RMm) | Dec-18A | Dec-19A | Dec-20F | Dec-21F | Dec-22F |
|--------------------------------------|---------------|---------------|---------------|---------------|---------------|
| Total Cash And Equivalents | 12,329 | 12,045 | 12,973 | 13,694 | 14,283 |
| Total Debtors | 2,668 | 1,994 | 1,785 | 2,016 | 2,200 |
| Inventories | 1,698 | 1,658 | 1,742 | 1,645 | 1,832 |
| Total Other Current Assets | 64 | 71 | 71 | 71 | 71 |
| Total Current Assets | 16,759 | 15,768 | 16,572 | 17,426 | 18,387 |
| Fixed Assets | 19,080 | 20,482 | 20,738 | 20,930 | 20,826 |
| Total Investments | 1,232 | 1,058 | 1,023 | 1,088 | 1,153 |
| Intangible Assets | 0 | 584 | 584 | 584 | 584 |
| Total Other Non-Current Assets | 294 | 971 | 971 | 971 | 971 |
| Total Non-current Assets | 20,606 | 23,095 | 23,316 | 23,573 | 23,534 |
| Short-term Debt | 2,072 | 0 | 320 | 280 | 280 |
| Current Portion of Long-Term Debt | | | | | |
| Total Creditors | 3,142 | 3,140 | 3,296 | 3,115 | 3,461 |
| Other Current Liabilities | 0 | 78 | 78 | 78 | 78 |
| Total Current Liabilities | 5,214 | 3,218 | 3,694 | 3,473 | 3,819 |
| Total Long-term Debt | 0 | 1,875 | 1,743 | 1,554 | 1,394 |
| Hybrid Debt - Debt Component | | | | | |
| Total Other Non-Current Liabilities | 0 | 0 | 0 | 0 | 0 |
| Total Non-current Liabilities | 0 | 1,875 | 1,743 | 1,554 | 1,394 |
| Total Provisions | 1,903 | 3,232 | 3,301 | 3,215 | 3,129 |
| Total Liabilities | 7,117 | 8,325 | 8,738 | 8,242 | 8,342 |
| Shareholders' Equity | 29,564 | 29,933 | 30,584 | 32,189 | 33,009 |
| Minority Interests | 684 | 605 | 565 | 565 | 565 |
| Total Equity | 30,248 | 30,538 | 31,149 | 32,754 | 33,574 |

Key Ratios

| | Dec-18A | Dec-19A | Dec-20F | Dec-21F | Dec-22F |
|---------------------------|---------|---------|---------|---------|---------|
| Revenue Growth | 12.5% | (16.4%) | (10.5%) | 12.9% | 9.1% |
| Operating EBITDA Growth | 5.2% | (37.0%) | (23.7%) | 32.8% | (3.9%) |
| Operating EBITDA Margin | 35.5% | 26.7% | 22.8% | 26.8% | 23.6% |
| Net Cash Per Share (RM) | 1.28 | 1.27 | 1.36 | 1.48 | 1.58 |
| BVPS (RM) | 3.70 | 3.74 | 3.82 | 4.02 | 4.13 |
| Gross Interest Cover | 313.2 | 87.0 | 61.6 | 45.2 | 29.1 |
| Effective Tax Rate | 15.3% | 11.5% | 15.9% | 12.3% | 11.1% |
| Net Dividend Payout Ratio | 51.7% | 51.6% | 47.8% | 51.5% | 53.3% |
| Accounts Receivables Days | 46.97 | 51.97 | 47.19 | 41.92 | 42.60 |
| Inventory Days | 56.33 | 59.72 | 65.58 | 59.50 | 53.41 |
| Accounts Payables Days | 102.4 | 107.9 | 121.1 | 109.9 | 98.7 |
| ROIC (%) | 18.4% | 9.9% | 5.5% | 8.2% | 6.4% |
| ROCE (%) | 17.8% | 9.2% | 5.4% | 7.5% | 6.0% |
| Return On Average Assets | 13.6% | 6.6% | 4.3% | 5.9% | 4.8% |

Key Drivers

| | Dec-18A | Dec-19A | Dec-20F | Dec-21F | Dec-22F |
|--|---------|---------|---------|---------|---------|
| Total O&D production (m tonnes) | 3.9 | 3.8 | 4.0 | 4.4 | 5.4 |
| Total O&D plant utilisation (%) | 97.0% | 93.0% | 99.0% | 90.5% | 93.5% |
| Total O&D avg selling price (US\$/tonne) | 951.0 | 774.7 | 612.0 | 685.4 | 651.2 |
| Total F&M production (m tonnes) | 6.5 | 6.6 | 6.9 | 6.6 | 6.9 |
| Total F&M plant utilisation (%) | 89.0% | 91.0% | 94.0% | 91.0% | 95.0% |
| Total F&M avg selling price (US\$/tonne) | 345.1 | 280.8 | 230.3 | 264.8 | 251.6 |

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| | | | | | |
|---------------------|-----------|-----------|---------|-------------|------------------|
| Score Range: | 90 - 100 | 80 – 89 | 70 - 79 | Below 70 or | No Survey Result |
| Description: | Excellent | Very Good | Good | N/A | |

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| Distribution of stock ratings and investment banking clients for quarter ended on 31 December 2020 | | |
|--|-------------------------|--------------------------------|
| 688 companies under coverage for quarter ended on 31 December 2020 | | |
| | Rating Distribution (%) | Investment Banking clients (%) |
| Add | 67.0% | 0.9% |
| Hold | 21.7% | 0.0% |
| Reduce | 11.3% | 0.3% |

Corporate Governance Report of Thai Listed Companies (CGR). CG Rating by the Thai Institute of Directors Association (Thai IOD) in 2020, Anti-Corruption 2020

ADVANC – Excellent, Certified, **AEONTS** – Good, n/a, **AH** – Very Good, n/a, **AMATA** – Excellent, Declared, **ANAN** – Excellent, Declared, **AOT** – Excellent, n/a, **AP** – Excellent, Certified, **ASP** – Very Good, Certified, **AU** – Good, n/a, **BAM** – not available, n/a, **BANPU** – Excellent, Certified, **BAY** – Excellent, Certified, **BBL** – Very Good, Certified, **BCH** – Good, Certified, **BCP** – Excellent, Certified, **BCPG** – Excellent, Certified, **BDMS** – Very Good, n/a, **BEAUTY** – Good, n/a, **BEC** – Very Good, n/a, **BEM** – Excellent, n/a, **BGRIM** – Very Good, Certified, **BH** – Good, n/a, **BJC** – Very Good, n/a, **BJCHI** – Very Good, Certified, **BLA** – Very Good, Certified, **BPP** – Very Good, Certified, **BR** – Good, n/a, **BTS** – Excellent, Certified, **CBG** – Very Good, n/a, **CCET** – Good, n/a, **CENDEL** – Very Good, Certified, **CHAYO** – Good, n/a, **CHG** – Very Good, n/a, **CK** – Excellent, n/a, **COL** – Excellent, Certified, **CPALL** – Excellent, Certified, **CPF** – Excellent, Certified, **CPN** – Excellent, Certified, **CPNREIT** – not available, n/a, **CRC** – not available, n/a, **DELTA** – Excellent, Certified, **DEMCO** – Excellent, Certified, **DDD** – Very Good, Declared, **DIF** – not available, n/a, **DOHOME** – not available, n/a, **DREIT** – not available, n/a, **DTAC** – Excellent, Certified, **EA** – Excellent, Declared, **ECL** – Very Good, Certified, **EGCO** – Excellent, Certified, **EPG** – Very Good, n/a, **ERW** – Very Good, Declared, **GFPT** – Excellent, Certified, **GGC** – Excellent, Certified, **GLOBAL** – Very Good, n/a, **GPSC** – Excellent, Certified, **GULF** – Very Good, n/a, **GUNKUL** – Excellent, Certified, **HANA** – Excellent, Certified, **HMPRO** – Excellent, Certified, **HUMAN** – Good, n/a, **ICHI** – Excellent, Certified, **III** – Excellent, n/a, **INTUCH** – Excellent, Certified, **IRPC** – Excellent, Certified, **ITD** – Very Good, n/a, **IVL** – Excellent, Certified, **JASIF** – not available, n/a, **JKN** – Excellent, Declared, **KBANK** – Excellent, Certified, **KCE** – Excellent, Certified, **KEX** – not available, n/a, **KKP** – Excellent, Certified, **KSL** – Excellent, Certified, **KTB** – Excellent, Certified, **KTC** – Excellent, Certified, **LH** – Excellent, n/a, **LPN** – Excellent, Certified, **M** – Very Good, Certified, **MACO** – Very Good, n/a, **MAJOR** – Very Good, Declared, **MAKRO** – Excellent, Certified, **MALEE** – Excellent, Certified, **MC** – Excellent, Certified, **MEGA** – Very Good, n/a, **MINT** – Excellent, Certified, **MTC** – Excellent, Certified, **NETBAY** – Very Good, n/a, **NRF** – not available, n/a, **OSP** – Very Good, n/a, **PLANB** – Excellent, Certified, **PLAT** – Very Good, Certified, **PRINC** – Very Good, Certified, **PR9** – Excellent, n/a, **PSH** – Excellent, Certified, **PSTC** – Very Good, Certified, **PTT** – Excellent, Certified, **PTTEP** – Excellent, Certified, **PTTGC** – Excellent, Certified, **PTTOR** – not available, n/a, **QH** – Excellent, Certified, **RATCH** – Excellent, Certified, **RBF** – not available, n/a, **RS** – Excellent, n/a, **RSP** – not available, n/a, **S** – Excellent, n/a, **SAK** – not available, n/a, **SAPPE** – Very Good, Declared, **SAT** – Excellent, Certified, **SAWAD** – Very Good, n/a, **SC** – Excellent, Certified, **SCB** – Excellent, Certified, **SCC** – Excellent, Certified, **SCGP** – not available, n/a, **SCN** – Excellent, Certified, **SF** – Good, n/a, **SHR** – not available, n/a, **SIRI** – Very Good, Certified, **SPA** – Good, n/a, **SPALI** – Excellent, n/a, **SPRC** – Excellent, Certified, **SSP** – Good, Declared, **STA** – Very Good, Certified, **STEC** – Excellent, n/a, **SVI** – Excellent, Certified, **TASCO** – Excellent, Certified, **TCAP** – Excellent, Certified, **THANI** – Excellent, Certified, **THCOM** – Excellent, Certified, **TIPCO** – Very Good, Certified, **TISCO** – Excellent, Certified, **TKN** – Very Good, n/a, **TMB** – Excellent, Certified, **TNR** – Very Good, Certified, **TOP** – Excellent, Certified, **TPCH** – Good, n/a, **TIPIP** – not available, n/a, **TRUE** – Excellent, Certified, **TU** – Excellent, Certified, **TVO** – Excellent, Certified, **UNIQ** – not available, n/a, **VGI** – Excellent, Certified, **WHA** – Excellent, Certified, **WHART** – not available, n/a, **WICE** – Excellent, Certified, **WORK** – Good, n/a.

[1 CG Score 2020 from Thai Institute of Directors Association \(IOD\)](#)

2 AGM Level 2019 from Thai Investors Association

3 Companies participating in Thailand's Private Sector Collective Action Coalition Against Corruption programme (Thai CAC) under Thai Institute of Directors (as of June 24, 2019) are categorised into:

companies that have declared their intention to join CAC, and companies certified by CAC.

4 The Stock Exchange of Thailand : the record of listed companies with corporate sustainable development "Thai sustainability Investment 2019" included:

SET and mai listed companies passed the assessment conducted by the Stock Exchange of Thailand: THSI (SET) and THSI (mai)

SET listed companies passed the assessment conducted by the Dow Jones Sustainability Indices (DJSI)

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Recommendation Framework**Stock Ratings**

Definition:

- Add** The stock's total return is expected to exceed 10% over the next 12 months.
- Hold** The stock's total return is expected to be between 0% and positive 10% over the next 12 months.
- Reduce** The stock's total return is expected to fall below 0% or more over the next 12 months.

The total expected return of a stock is defined as the sum of the: (i) percentage difference between the target price and the current price and (ii) the forward net dividend yields of the stock. Stock price targets have an investment horizon of 12 months.

Sector Ratings

Definition:

- Overweight** An Overweight rating means stocks in the sector have, on a market cap-weighted basis, a positive absolute recommendation.
- Neutral** A Neutral rating means stocks in the sector have, on a market cap-weighted basis, a neutral absolute recommendation.
- Underweight** An Underweight rating means stocks in the sector have, on a market cap-weighted basis, a negative absolute recommendation.

Country Ratings

Definition:

- Overweight** An Overweight rating means investors should be positioned with an above-market weight in this country relative to benchmark.
- Neutral** A Neutral rating means investors should be positioned with a neutral weight in this country relative to benchmark.
- Underweight** An Underweight rating means investors should be positioned with a below-market weight in this country relative to benchmark.

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