

## Malaysia

**HOLD** (no change)

Consensus ratings\*: Buy 0 Hold 4 Sell 3

|                         |            |
|-------------------------|------------|
| Current price:          | RM2.22     |
| Target price:           | RM2.43     |
| Previous target:        | RM2.10     |
| Up/downside:            | 9.5%       |
| CGS-CIMB / Consensus:   | 9.8%       |
| Reuters:                | LOTT.KL    |
| Bloomberg:              | TTNP MK    |
| Market cap:             | US\$1,159m |
|                         | RM5,056m   |
| Average daily turnover: | US\$0.96m  |
|                         | RM4.04m    |
| Current shares o/s:     | 2,278m     |
| Free float:             | 24.0%      |
| *Source: Bloomberg      |            |

### Key changes in this note

- FY22-24F core EPS forecasts raised 49-71% from very low bases, as we factor in higher average petrochemical selling prices.



Source: Bloomberg

| Price performance | 1M  | 3M   | 12M   |
|-------------------|-----|------|-------|
| Absolute (%)      | 2.8 | -1.8 | -25.8 |
| Relative (%)      | 2.9 | -6.9 | -25.1 |

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

### Analyst(s)


**Raymond YAP, CFA**

T (60) 3 2635 9250

E raymond.yap@cgs-cimb.com

# Lotte Chemical Titan

## Very risky and volatile earnings

- 1Q22 core net profit of RM41m outperformed our very suppressed forecast of only RM103m for FY22F but only made up 13% of consensus's full year.
- Naphtha cost hikes in 1Q22 caused the quarterly performance to be very weak but naphtha prices have moderated in Apr, which has helped spreads.
- Reiterate Hold, with a higher TP of RM2.43, based on EV/EBITDA multiple of 1.8x (-1 s.d. from mean since 2019), as we raise our core EPS forecasts.

### In 1Q22, weakest earnings in seven consecutive quarters

LCT delivered 1Q22 core net profit of only RM41m, which was 91% lower than 1Q21's RM440m and 55% lower than the already-low 4Q21 core net profit of RM90m. While 1Q22 revenue rose yoy and qoq from higher average selling prices, naphtha feedstock costs rose even faster, causing a sharp squeeze in spreads between selling prices and naphtha costs. The rise in naphtha costs was driven by higher crude oil prices, which began rising from 3Q21 as OPEC+ crude oil production increases lagged behind oil demand improvements, and which caused oil stocks globally to decline. The onset of the Russia-Ukraine war from 24 Feb 2022 pushed up oil and naphtha prices further in 1Q22, due to the incorporation of a 'war premium', and efforts by US allies and Europe to avoid purchases of Russian crude oil and oil products such as naphtha. While polymer selling prices rose due to cost-push factors, it was not sufficient to offset the higher naphtha costs, leading to a decline in LCT's price spreads. On the US associate side, LCT's share of profits rose qoq in 1Q22 despite the decline in MEG-US ethane spreads, as the US MEG plant underwent a 40-day turnaround during 4Q21, which had suppressed profits. At the reported profit level, LCT's 1Q22 was RM104m vs. its core net profit of RM41m; the difference was due to RM46m in gains from the disposal of a 3.23% stake in the US ethane cracker, and RM17m reversal of the 4Q21 write-down of inventories to net realisable value (which we consistently classify as an exceptional item).

### Outlook hinges on direction of naphtha prices

Naphtha prices have moderated slightly in Apr to US\$905/tonne, vs. US\$993/tonne in Mar; this has allowed polymer-naphtha spreads to improve on a mom basis. We think that it is too early to celebrate, as the Apr naphtha price is still higher than the 1Q21 average of US\$864/tonne. Also, since LCT's naphtha actual cost of sales typically lags by 1-2 months against spot prices, the high Mar naphtha prices may only hit LCT in Apr or May. As Europe moves towards an embargo on Russian crude and oil product imports, and if the Russia-Ukraine war drags on, we think that risk premiums embedded in oil and naphtha prices may remain high; the downside risk is that if these premiums escalate, crude oil prices may be higher than our average forecast of US\$98/bbl for FY22F. With Petronas Chemicals likely to start up its Pengerang plants by mid-2022F, domestic and regional competition could intensify, leading to potentially weaker polymer selling prices. Upside risks include a potential resolution of the Ukrainian conflict, and a potential US-Iran nuclear deal that will allow a swift upswing in Iranian oil exports.

| Financial Summary              | Dec-20A | Dec-21A | Dec-22F | Dec-23F | Dec-24F |
|--------------------------------|---------|---------|---------|---------|---------|
| Revenue (RMm)                  | 6,901   | 9,831   | 10,123  | 9,196   | 8,996   |
| Operating EBITDA (RMm)         | 779     | 1,632   | 654     | 613     | 725     |
| Net Profit (RMm)               | 149     | 1,058   | 229     | 133     | 210     |
| Core EPS (RM)                  | 0.05    | 0.42    | 0.07    | 0.06    | 0.09    |
| Core EPS Growth                | (47%)   | 685%    | (83%)   | (20%)   | 58%     |
| FD Core P/E (x)                | 41.14   | 5.24    | 30.44   | 38.05   | 24.02   |
| DPS (RM)                       | 0.03    | 0.39    | 0.05    | 0.03    | 0.05    |
| Dividend Yield                 | 1.5%    | 17.6%   | 2.3%    | 1.3%    | 2.1%    |
| EV/EBITDA (x)                  | -0.94   | -0.80   | 4.47    | 14.39   | 20.64   |
| P/FCFE (x)                     | 14.15   | 5.63    | NA      | 21.02   | 44.49   |
| Net Gearing                    | (33.9%) | (34.5%) | (17.6%) | 11.8%   | 49.3%   |
| P/BV (x)                       | 0.43    | 0.40    | 0.42    | 0.42    | 0.41    |
| ROE                            | 1.03%   | 7.87%   | 1.34%   | 1.10%   | 1.73%   |
| % Change In Core EPS Estimates |         |         | 60.7%   | 48.6%   | 71.1%   |
| CGS-CIMB/Consensus EPS (x)     |         |         | 0.63    | 0.36    | 0.44    |

SOURCES: CGS-CIMB RESEARCH, COMPANY REPORTS

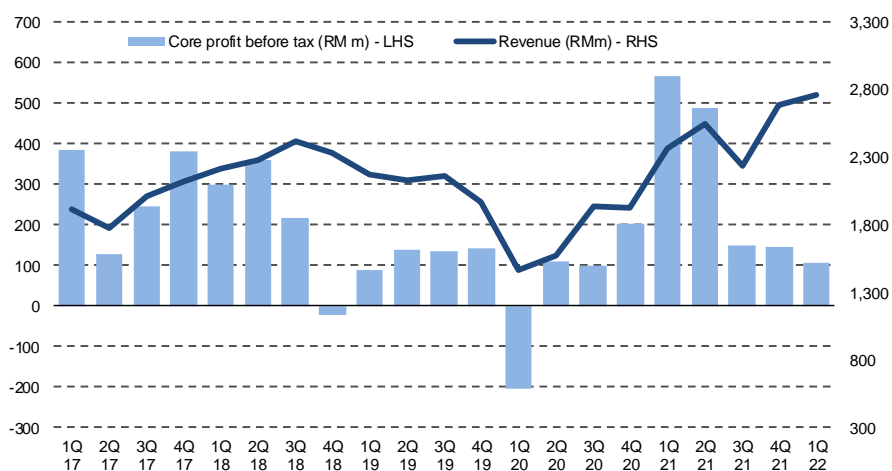
## Results comparison table ➤

**Figure 1: Results comparison**

| FYE Dec (RM m)         | 1QFY22     | 1QFY21     | yoy %         | 4QFY21     | qoq %         | Prev.      |   |
|------------------------|------------|------------|---------------|------------|---------------|------------|---|
|                        |            |            | chg           |            | chg           | FY22F      | Comments  |
| Revenue                | 2,759      | 2,367      | 16.6          | 2,685      | 2.8           | 9,380      | 1Q22 rev rose yoy and qoq due to higher selling prices.     |
| Operating costs        | -2,616     | -1,725     | 51.7          | -2,512     | 4.2           | -8,840     |   |
| EBITDA                 | 143        | 642        | (77.7)        | 173        | (17.0)        | 540        | 1Q22 EBITDA fell yoy and qoq due to squeeze in spreads      |
| EBITDA margin (%)      | 5.2        | 27.1       |               | 6.4        |               | 5.8        | due to rise in naphtha costs. Plant utilisation fell to 85% |
| Depn & amort.          | -136       | -139       | (1.9)         | -140       | (2.6)         | -567       | in 1Q22, from 88% in both 1Q21 and 4Q21.                    |
| EBIT                   | 7          | 504        | (98.6)        | 33         | (78.0)        | -28        | Share of associate profits fell to zero in 4Q21 due to the  |
| Interest expense       | -3         | -3         | 4.4           | -3         | (1.8)         | -16        | 40-day statutory shutdown at the US MEG plant.              |
| Interest & invt inc    | 11         | 12         | (3.1)         | 14         | (18.3)        | 39         | feedstock prices in the US. Share of associate profits in   |
| Other income           | 5          | 5          | (7.2)         | 7          | (24.8)        | 25         | 1Q22 fell yoy due to the narrower spreads between MEG       |
| Associates' contrib    | 22         | 50         | (55.2)        | 0          | nm            | 93         | prices and ethane feedstock costs in the US.                |
| Exceptionals           | 63         | -0         | nm            | 97         | (34.7)        | 0          | Exceptionals include gain from partial disposal of stake in |
| <b>Pretax profit</b>   | <b>106</b> | <b>567</b> | <b>(81.3)</b> | <b>147</b> | <b>(28.0)</b> | <b>113</b> | the US ethane cracker of RM101m in 4Q21 and RM46m           |
| Tax                    | -3         | -126       | (97.7)        | 39         | (107.4)       | -5         | in 1Q22. There was also a writedown of inventory to NRV     |
| Tax rate (%)           | 2.7        | 22.2       |               | -26.5      |               | 4.3        | of RM14m in 4Q21 and writeback of RM17m in 1Q22.            |
| Minority interests     | 1          | -1         | 184.6         | 1          | 19.3          | -5         | Tax credit in 4Q21 due to writeback of 3Q21 overprovision.  |
| <b>Net profit</b>      | <b>104</b> | <b>440</b> | <b>(76.4)</b> | <b>187</b> | <b>(44.3)</b> | <b>103</b> |   |
| <b>Core net profit</b> | <b>41</b>  | <b>440</b> | <b>(90.8)</b> | <b>90</b>  | <b>(54.8)</b> | <b>103</b> | 1Q22 core net profit fell yoy and qoq due to squeeze in     |
| EPS (sen)              | 4.57       | 19.36      | (76.4)        | 8.20       | (44.3)        | 4.54       | spreads from the rise in naphtha costs.                     |
| Core EPS (sen)         | 1.79       | 19.37      | (90.8)        | 3.94       | (54.7)        | 4.54       |   |

SOURCE: CGS-CIMB RESEARCH, COMPANY REPORTS

**Figure 2: Lotte Chemical Titan revenue and core pretax profit (RM m)**

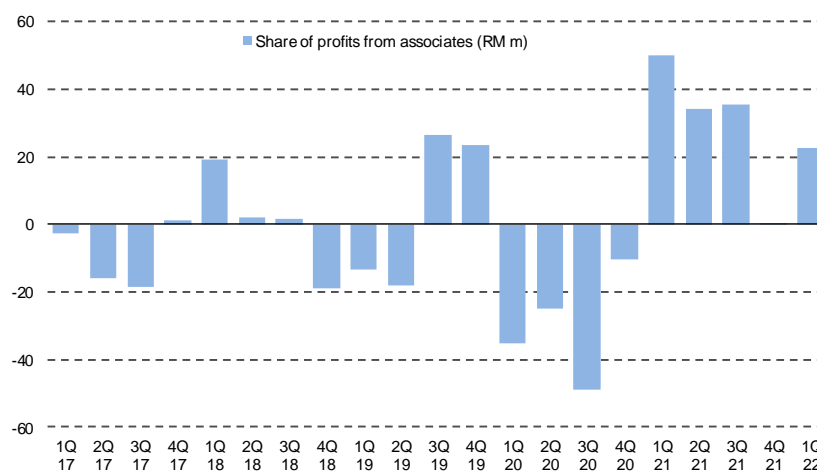


SOURCES: CGS-CIMB RESEARCH, COMPANY REPORTS

### Abbreviations

PE: Polyethylene  
HDPE: High-density polyethylene  
LDPE: Low-density polyethylene  
LLDPE: Linear low-density polyethylene  
PP: Polypropylene  
MEG: Monoethylene glycol  
BZ: Benzene; TL: Toluene; BD: Butadiene

**Figure 3: Lotte Chemical Titan's share of associate profits (RM m) - includes 40% interest in Lotte Chemical USA which started operations in Aug 2019; LCT has a 20% effective interest in the US ethane cracker and a 40% effective interest in the US MEG plant**



SOURCES: CGS-CIMB RESEARCH, COMPANY REPORTS

## Earnings revisions ➤

**Figure 4: Earnings revision**

| RM m                | 2021A | 2022F |        |      | 2023F |       |     | 2024F |       |     |
|---------------------|-------|-------|--------|------|-------|-------|-----|-------|-------|-----|
|                     |       | Old   | New    | chg  | Old   | New   | chg | Old   | New   | chg |
| Revenue             | 9,831 | 9,380 | 10,123 | 8%   | 9,237 | 9,196 | 0%  | 9,237 | 8,996 | -3% |
| EBITDA              | 1,632 | 540   | 654    | 21%  | 549   | 613   | 11% | 606   | 725   | 20% |
| Reported PBT        | 1,351 | 113   | 295    | 161% | 95    | 168   | 78% | 139   | 270   | 94% |
| Core pretax profit  | 1,231 | 113   | 212    | 87%  | 95    | 168   | 78% | 139   | 270   | 94% |
| Reported net profit | 1,058 | 103   | 229    | 122% | 89    | 133   | 49% | 123   | 210   | 71% |
| Reported EPS        | 0.46  | 0.05  | 0.10   | 122% | 0.04  | 0.06  | 49% | 0.05  | 0.09  | 71% |
| Core net profit     | 964   | 103   | 166    | 61%  | 89    | 133   | 49% | 123   | 210   | 71% |
| Core EPS            | 0.42  | 0.05  | 0.07   | 61%  | 0.04  | 0.06  | 49% | 0.05  | 0.09  | 71% |

SOURCES: CGS-CIMB RESEARCH ESTIMATES, COMPANY REPORTS

## Further information on the results ➤

**Figure 5: Segmental breakdown**

| FYE Dec (RM m)                                   | 1QFY22       | 1QFY21       | yoy %<br>chg  | 4QFY21       | qoq %<br>chg  | Comments  |
|--|--------------|--------------|---------------|--------------|---------------|---|
| <b>Revenue (RM m)</b>                            | <b>2,759</b> | <b>2,367</b> | <b>16.6</b>   | <b>2,685</b> | <b>2.8</b>    | 1Q22 rev rose qoq due to higher average selling prices,   |
| - Olefins and derivative products                | 572          | 426          | 34.3          | 582          | (1.7)         | partially offset by a 2% qoq fall in sales volume.  |
| - Polyolefin product                             | 2,187        | 1,941        | 12.7          | 2,103        | 4.0           |   |
| <b>EBITDA (RM m)</b>                             | <b>143</b>   | <b>642</b>   | <b>(77.7)</b> | <b>173</b>   | <b>(17.0)</b> | 1Q22 EBITDA fell qoq despite higher selling prices due to   |
| - Olefins and derivative products                | 101          | 137          | (26.8)        | 73           | 38.0          | squeeze in spreads due to rise in naphtha costs. Average  |
| - Polyolefin product                             | 47           | 462          | (89.7)        | 116          | (59.1)        | plant utilisation also fell to 85% in 1Q22, from 88% in both  |
| - Others   | -5           | 43           |               | -16          |               | 4Q21 and 1Q21.  |
| <b>EBITDA margin (%)</b>                         | <b>5.2%</b>  | <b>27.1%</b> |               | <b>6.4%</b>  |               |   |
| - Olefins and derivative products                | 17.6%        | 32.2%        |               | 12.5%        |               |   |
| - Polyolefin product                             | 2.2%         | 23.8%        |               | 5.5%         |               |   |
| <b>Profit before tax (RM m)</b>                  | <b>106</b>   | <b>567</b>   | <b>(81.3)</b> | <b>147</b>   | <b>(28.0)</b> | 1Q22 core PBT fell qoq due to higher naphtha costs which  |
| - Olefins and derivative products                | 18           | 43           | (57.9)        | -23          | 177.7         | caused a squeeze in spreads, and also due to the lower  |
| - Polyolefin product                             | 13           | 418          | (96.9)        | 61           | (78.9)        | qoq plant utilisation.  |
| - Others   | 75           | 106          |               | 109          |               |   |
| <b>PBT margin (%)</b>                            | <b>3.8%</b>  | <b>24.0%</b> |               | <b>5.5%</b>  |               |   |
| - Olefins and derivative products                | 3.2%         | 10.2%        |               | -4.0%        |               |   |
| - Polyolefin product                             | 0.6%         | 21.5%        |               | 2.9%         |               |   |
| <b>OPERATING STATISTICS</b>                      |              |              |               |              |               |   |
| <b>Annual plant capacity (000 mt)</b>            | <b>3,568</b> | <b>3,568</b> | -             | <b>3,568</b> | -             | Plant capacity remain unchanged.  |
| - Malaysia                                       | 3,118        | 3,118        | -             | 3,118        | -             |   |
| - Indonesia                                      | 450          | 450          | -             | 450          | -             |   |
| <b>Plant utilisation rate (%)</b>                | <b>85.0%</b> | <b>88.0%</b> |               | <b>88.0%</b> |               | 1Q22 plant utilisation fell yoy and qoq due to deliberate   |
| - Malaysia                                       | 83.1%        | 88.8%        |               | 90.4%        |               | efforts by LCT to dial down utilisation due to the lower  |
| - Indonesia                                      | 87.1%        | 73.8%        |               | 72.9%        |               | spreads.  |
| <b>Production (000 mt)</b>                       | <b>746</b>   | <b>775</b>   | <b>(3.7)</b>  | <b>787</b>   | <b>(5.2)</b>  | 1Q22 production in Malaysia fell yoy and qoq due to   |
| - Malaysia                                       | 648          | 692          | (6.4)         | 705          | (8.1)         | efforts to dial down utilisation due to the lower spreads.  |
| - Indonesia                                      | 98           | 83           | 18.1          | 82           | 19.5          |   |
| Sales volume (000 mt)                            | 521          | 518          | 0.6           | 532          | (2.1)         | 1Q22 sales volume fell qoq.   |
| Unit revenue (RM/mt)                             | 5,297        | 4,570        | 15.9          | 5,046        | 5.0           | 1Q22 unit revenues were higher yoy and qoq due to the   |
| Unit revenue (US\$/mt)                           | 1,264        | 1,124        | 12.4          | 1,206        | 4.8           | influence from higher feedstock costs.  |
| <b>MARKET INFORMATION</b>                        |              |              |               |              |               |   |
| <b>Benchmark spot selling prices (US\$/mt)</b>   |              |              |               |              |               |   |
| - HDPE   | 1,247        | 1,119        | 11.4          | 1,198        | 4.1           | 1Q22 benchmark spot selling prices rose yoy and qoq.  |
| - LDPE   | 1,572        | 1,492        | 5.4           | 1,553        | 1.2           |   |
| - PP   | 1,255        | 1,302        | (3.6)         | 1,234        | 1.8           |   |
| - Butadiene                                      | 1,010        | 858          | 17.7          | 686          | 47.2          |   |
| - Benzene  | 1,098        | 748          | 46.7          | 978          | 12.2          |   |
| <b>Average spot purchase prices (US\$/tonne)</b> |              |              |               |              |               |   |
| - Naphtha  | 864          | 545          | 58.5          | 733          | 17.8          | 2Q22 naphtha prices rose yoy & qoq due to higher crude oil.   |
| - Ethylene                                       | 1,160        | 962          | 20.5          | 1,059        | 9.6           | LCT relies on naphtha for most of its feedstock, but also purchases some ethylene for its PE plants in Indonesia. |
| <b>Spreads vs. naphtha (US\$/mt)</b>             |              |              |               |              |               |   |
| - HDPE-Naphtha                                   | 384          | 574          | (33.2)        | 465          | (17.5)        | 1Q22 benchmark spreads vs. naphtha fell yoy and qoq for   |
| - LDPE-Naphtha                                   | 709          | 947          | (25.2)        | 820          | (13.6)        | polymers. Benzene spreads rose yoy; butadiene spreads   |
| - PP-Naphtha                                     | 392          | 757          | (48.2)        | 501          | (21.8)        | improved qoq but were still lower yoy.  |
| - Butadiene-Naphtha                              | 146          | 313          | (53.3)        | -47          | 407.5         |   |
| - Benzene-Naphtha                                | 234          | 203          | 15.2          | 245          | (4.6)         |   |
| Average RM:US\$1                                 | 4.19         | 4.07         | 3.1           | 4.19         | 0.2           | The US\$ strengthened against the RM yoy and qoq.   |
| Ending RM:US\$1                                  | 4.20         | 4.15         | 1.4           | 4.17         | 0.9           |   |

SOURCE: CGS-CIMB RESEARCH, COMPANY REPORTS

## Valuation of Lotte Chemical Titan ►

**Figure 6: Valuation of Lotte Chemical Titan**

|   | As at end-FY22F | RM/share    |
|---|-----------------|-------------|
| EBITDA (RM m) - FY23F   | 612.5           |             |
| EV/EBITDA target multiple (x)   | 1.8             |             |
| <b>EV (RM m) - FY22F</b>  | <b>1,102.5</b>  | <b>0.49</b> |
| Less: Debt (RM m) - FY22F   | 0.0             | 0.00        |
| Add: Cash (RM m) - FY22F  | 2,659.1         | 1.17        |
| Add: 40% stake in Lotte Chemical USA at forward P/BV of 0.7x (RM m) - FY22F | 1,763.7         | 0.78        |
| <b>Equity market value (RM m) - FY22F</b>                                   | <b>5,525.3</b>  | <b>2.43</b> |
| No of shares (m)  | 2,273           |             |
| <b>Target price (RM) - end-FY22F</b>  | <b>2.43</b>     |             |

SOURCES: CGS-CIMB RESEARCH, COMPANY REPORTS

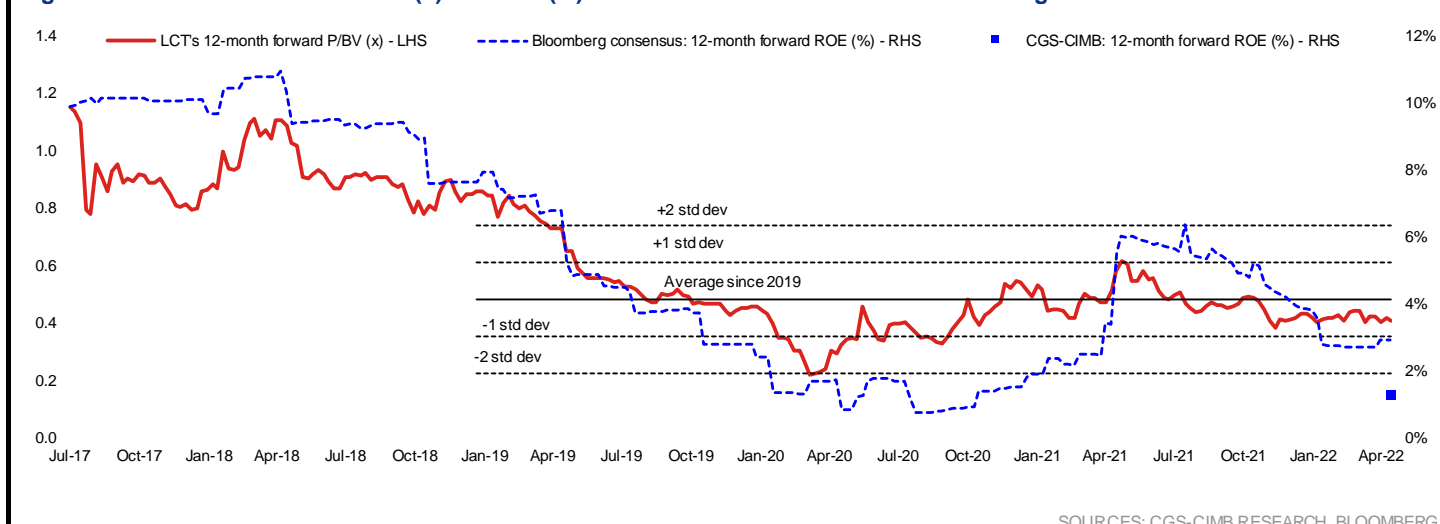
We raise our target price from RM2.10 to RM2.43, due to our higher core earnings forecasts for LCT. We tweak our valuation methodology by reducing our EV/EBITDA multiple from 5x (30% discount to the sector average multiple) to 1.8x (-1 standard deviation against LCT's average EV/EBITDA multiple since 2019), applied against CY23F EBITDA. We believe that a +1 s.d. EV/EBITDA multiple is reasonable because of our expectations of highly-suppressed earnings in the forecast period. In exchange for the sharp reduction in our target EV/EBITDA multiple, we no longer deduct the cash that LCT has set aside for the Indonesian naphtha cracker project, otherwise known as the Lotte Chemical Indonesia New Ethylene (LINE) project.

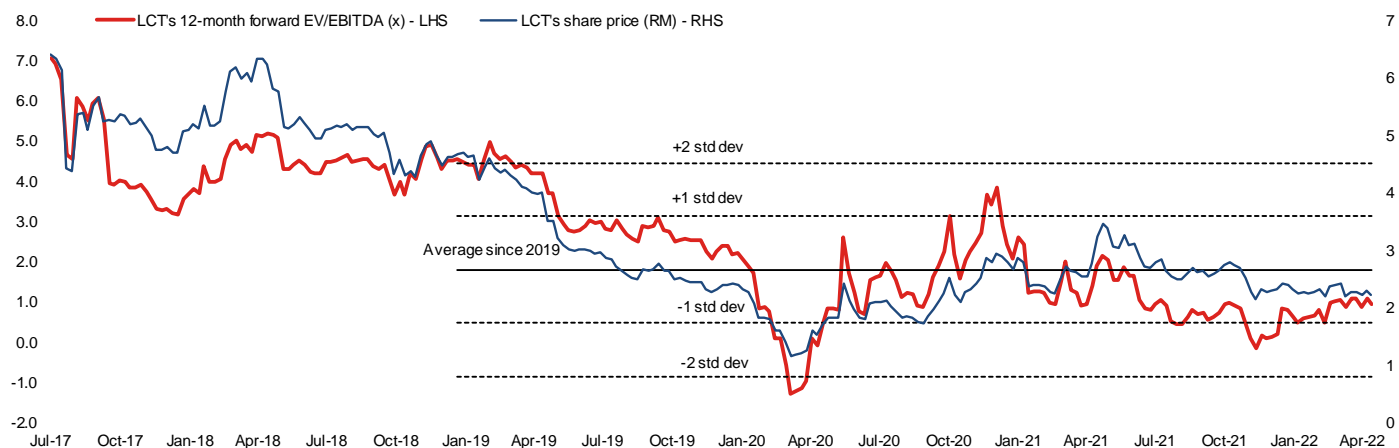
Our target price of RM2.43 implies a valuation of 0.46x CY22F BVPS of RM5.31, which is slightly lower than LCT's 12-month forward P/BV mean of 0.48x since 2019.

Upside risks include potentially lower naphtha feedstock prices if global crude oil production rises faster than demand growth in the months ahead, possible delays in the commissioning of new global petrochemical capacities, and strong demand growth for petrochemicals.

Downside risks include continued compression in polymer price spreads against naphtha due to the strong upward movement in crude oil prices since the start of 2022, while petrochemical capacity additions in 2022F may exceed demand growth and prevent petrochemical selling prices from rising sufficiently to cover the higher naphtha feedstock costs. Competition with Petronas Chemicals Group (PCG) may increase once the Pengerang plants are commissioned by PCG's 50%-owned PRefChem sometime in mid-2022F, which may result in LCT losing its Malaysian polymer selling price premium of US\$50-100/tonne relative to broader SE Asian price benchmarks.

**Figure 7: Lotte Chemical Titan P/BV (x) and ROE (%) - 12-month forward - based on Bloomberg consensus**



**Figure 8: Lotte Chemical Titan EV/EBITDA - 12-month forward (x) - based on Bloomberg consensus**


SOURCES: CGS-CIMB RESEARCH, BLOOMBERG

**Figure 9: Sector Comparisons**

| Company                      | Bloomberg Ticker | Recom.    | Price        | Target Price | Market Cap<br>(US\$ m) | Core P/E (x) |             | 3-year<br>EPS<br>CAGR (%) | P/BV (x)   |            | Recurring ROE (%) |              | EV/EBITDA (x) |            | Dividend Yield (%) |             |
|------------------------------|------------------|-----------|--------------|--------------|------------------------|--------------|-------------|---------------------------|------------|------------|-------------------|--------------|---------------|------------|--------------------|-------------|
|                              |                  |           | (local curr) | (local curr) |                        | CY22F        | CY23F       |                           | CY22F      | CY23F      | CY22F             | CY23F        | CY22F         | CY23F      | CY22F              | CY23F       |
| Petronas Chemicals Group     | PCHEM MK         | Add       | RM10.10      | RM10.76      | 18,515                 | 12.8         | 12.8        | -6.3%                     | 2.2        | 2.0        | 17.5%             | 16.2%        | 8.4           | 7.6        | 4.7%               | 4.7%        |
| Lotte Chemical Titan         | TTNP MK          | Hold      | RM2.22       | RM2.43       | 1,159                  | 30.4         | 38.1        | -40.1%                    | 0.4        | 0.4        | 1.3%              | 1.1%         | 4.5           | 14.4       | 2.3%               | 1.3%        |
| Indorama Ventures            | IVL TB           | Hold      | THB45.00     | THB48.00     | 7,330                  | 11.0         | 10.2        | -2.7%                     | 1.4        | 1.3        | 13.6%             | 13.1%        | 8.6           | 8.1        | 2.2%               | 2.1%        |
| Siam Cement                  | SCC TB           | Reduce    | THB360.00    | THB346.00    | 12,533                 | 12.4         | 10.2        | -2.9%                     | 1.1        | 1.1        | 9.3%              | 10.8%        | 12.4          | 10.3       | 4.0%               | 4.9%        |
| PTT Global Chemical          | PTTGC TB         | Reduce    | THB48.75     | THB47.00     | 6,377                  | 9.9          | 8.4         | -3.5%                     | 0.7        | 0.7        | 7.0%              | 7.9%         | 7.8           | 6.2        | 5.1%               | 5.9%        |
| IRPC                         | IRPC TB          | Hold      | THB3.42      | THB3.80      | 2,027                  | 14.6         | 12.1        | -24.4%                    | 0.8        | 0.7        | 5.4%              | 6.3%         | 7.4           | 6.2        | 3.1%               | 3.7%        |
| Lotte Chemical               | 011170 KS        | Add       | W194,500     | W380,000     | 5,239                  | 4.7          | 4.5         | na                        | 0.4        | 0.4        | 9.4%              | 9.2%         | 1.4           | 1.3        | 4.1%               | 4.1%        |
| LG Chem                      | 051910 KS        | Add       | W502,000     | W900,000     | 27,849                 | 12.0         | 10.2        | na                        | 1.5        | 1.3        | 12.9%             | 13.8%        | 5.7           | 5.1        | 2.4%               | 2.4%        |
| Kumho Petrochemical          | 011780 KS        | Add       | W150,500     | W340,000     | 3,583                  | 3.8          | 4.7         | na                        | 0.8        | 0.7        | 23.3%             | 16.4%        | 1.9           | 1.8        | 6.0%               | 5.3%        |
| OCI                          | 010060 KS        | Add       | W97,400      | W190,000     | 1,825                  | 3.9          | 4.0         | na                        | 0.6        | 0.6        | 17.6%             | 14.7%        | 3.2           | 2.7        | 0.4%               | 0.4%        |
| Posco Chemical               | 003670 KS        | Hold      | W134,000     | W150,000     | 8,157                  | 67.1         | 53.6        | na                        | 4.2        | 3.9        | 6.3%              | 7.5%         | 27.1          | 23.5       | 0.3%               | 0.3%        |
| Chandra Asri                 | TPIA IJ          | Not Rated | Rp10,050.00  | n.a.         | 14,988                 | 99.9         | 53.3        | na                        | na         | na         | 11.1%             | na           | 0.0           | 0.0        | 0.4%               | 0.4%        |
| Wanhua Chemical Group        | 600309 CH        | Not Rated | Rmb79.97     | n.a.         | 37,973                 | 10.6         | 9.0         | 7.1%                      | 2.8        | 2.3        | 31.3%             | 27.9%        | 7.8           | 6.7        | 3.5%               | 3.5%        |
| Formosa Plastics             | 1301 TT          | Not Rated | TWD104.50    | n.a.         | 22,528                 | 11.6         | 11.5        | -2.7%                     | 1.6        | 1.6        | 14.4%             | 14.0%        | 13.0          | 13.3       | 7.7%               | 7.7%        |
| Formosa Chemicals &          | 1326 TT          | Not Rated | TWD79.90     | n.a.         | 15,860                 | 16.3         | 16.5        | -9.4%                     | 1.2        | 1.1        | 7.4%              | 7.0%         | 13.2          | 13.0       | 6.8%               | 6.8%        |
| Nan Ya Plastics              | 1303 TT          | Not Rated | TWD85.50     | n.a.         | 22,964                 | 11.4         | 11.2        | -3.1%                     | 1.6        | 1.6        | 14.7%             | 14.3%        | 9.2           | 8.9        | 8.4%               | 8.4%        |
| Formosa Petrochemical        | 6505 TT          | Not Rated | TWD89.20     | n.a.         | 28,777                 | 18.6         | 18.3        | 1.5%                      | 2.3        | 2.2        | 12.8%             | 12.4%        | 11.3          | 11.0       | 4.5%               | 4.5%        |
| <b>Petrochemical average</b> |                  |           |              |              |                        | <b>12.2</b>  | <b>11.3</b> | <b>nm</b>                 | <b>1.5</b> | <b>1.4</b> | <b>13.1%</b>      | <b>13.2%</b> | <b>6.9</b>    | <b>6.3</b> | <b>4.3%</b>        | <b>4.4%</b> |

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

## Sequential quarterly tables ➤

**Figure 10: Results comparison**

| FYE Dec (RM m)         | 1QFY20       | 2QFY20      | 3QFY20    | 4QFY20     | 1QFY21     | 2QFY21     | 3QFY21     | 4QFY21     | 1QFY22     |
|------------------------|--------------|-------------|-----------|------------|------------|------------|------------|------------|------------|
| Revenue                | 1,462        | 1,576       | 1,941     | 1,923      | 2,367      | 2,543      | 2,237      | 2,685      | 2,759      |
| Operating costs        | (1,447)      | (1,422)     | (1,674)   | (1,580)    | (1,725)    | (1,961)    | (2,001)    | (2,512)    | (2,616)    |
| EBITDA                 | 14           | 155         | 267       | 343        | 642        | 581        | 236        | 173        | 143        |
| EBITDA margin (%)      | 1.0          | 9.8         | 13.8      | 17.8       | 27.1       | 22.9       | 10.6       | 6.4        | 5.2        |
| Depn & amort.          | (135)        | (143)       | (141)     | (140)      | (139)      | (140)      | (138)      | (140)      | (136)      |
| EBIT                   | (120)        | 12          | 126       | 203        | 504        | 441        | 98         | 33         | 7          |
| Interest expense       | (4)          | (4)         | (3)       | (3)        | (3)        | (3)        | (4)        | (3)        | (3)        |
| Interest & invt inc    | 24           | 18          | 13        | 11         | 12         | 13         | 14         | 14         | 11         |
| Other income           | 8            | 6           | 5         | 6          | 5          | 5          | 6          | 7          | 5          |
| Associates' contrib    | (35)         | (25)        | (49)      | (10)       | 50         | 34         | 36         | 0          | 22         |
| Exceptionals           | (78)         | 101         | 7         | (5)        | (0)        | (1)        | (2)        | 97         | 63         |
| <b>Pretax profit</b>   | <b>(206)</b> | <b>109</b>  | <b>98</b> | <b>202</b> | <b>567</b> | <b>489</b> | <b>148</b> | <b>147</b> | <b>106</b> |
| Tax                    | 36           | (13)        | (20)      | (52)       | (126)      | (105)      | (100)      | 39         | (3)        |
| Tax rate (%)           | 17.6         | 12.2        | 20.8      | 25.9       | 22.2       | 21.5       | 67.5       | (26.5)     | 2.7        |
| Minority interests     | (1)          | (7)         | 1         | 1          | (1)        | (1)        | 1          | 1          | 1          |
| <b>Net profit</b>      | <b>(170)</b> | <b>89</b>   | <b>79</b> | <b>151</b> | <b>440</b> | <b>382</b> | <b>49</b>  | <b>187</b> | <b>104</b> |
| <b>Core net profit</b> | <b>(92)</b>  | <b>(13)</b> | <b>71</b> | <b>156</b> | <b>440</b> | <b>383</b> | <b>51</b>  | <b>90</b>  | <b>41</b>  |
| EPS (sen)              | (7.48)       | 3.90        | 3.47      | 6.65       | 19.36      | 16.81      | 2.15       | 8.20       | 4.57       |
| Core EPS (sen)         | (4.05)       | (0.55)      | 3.15      | 6.85       | 19.37      | 16.85      | 2.25       | 3.94       | 1.79       |

SOURCE: CGS-CIMB RESEARCH, COMPANY REPORTS

**Figure 11: Segmental breakdown**

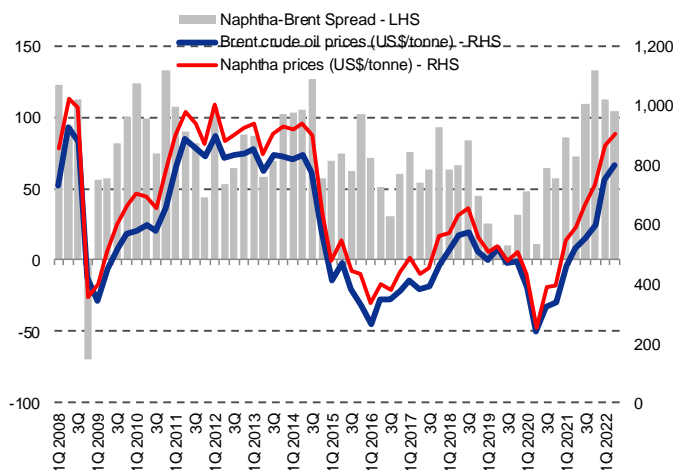
|  | 1QFY20       | 2QFY20       | 3QFY20       | 4QFY20       | 1QFY21       | 2QFY21       | 3QFY21       | 4QFY21       | 1QFY22       |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Revenue (RM m)</b>                            | <b>1,462</b> | <b>1,576</b> | <b>1,941</b> | <b>1,923</b> | <b>2,367</b> | <b>2,543</b> | <b>2,237</b> | <b>2,685</b> | <b>2,759</b> |
| - Olefins and derivative products                | 247          | 270          | 328          | 333          | 426          | 521          | 400          | 582          | 572          |
| - Polyolefin product                             | 1,215        | 1,306        | 1,612        | 1,590        | 1,941        | 2,022        | 1,836        | 2,103        | 2,187        |
| <b>EBITDA (RM m)</b>                             | <b>14</b>    | <b>155</b>   | <b>267</b>   | <b>343</b>   | <b>642</b>   | <b>581</b>   | <b>236</b>   | <b>173</b>   | <b>143</b>   |
| - Olefins and derivative products                | 14           | 56           | 73           | 69           | 137          | 157          | 126          | 73           | 101          |
| - Polyolefin product                             | -58          | 117          | 268          | 327          | 462          | 431          | 105          | 116          | 47           |
| - Others   | 59           | -18          | -75          | -53          | 43           | -6           | 5            | -16          | -5           |
| <b>EBITDA margin (%)</b>                         | <b>1%</b>    | <b>10%</b>   | <b>14%</b>   | <b>18%</b>   | <b>27%</b>   | <b>23%</b>   | <b>11%</b>   | <b>6%</b>    | <b>5%</b>    |
| - Olefins and derivative products                | 6%           | 21%          | 22%          | 21%          | 32%          | 30%          | 31%          | 13%          | 18%          |
| - Polyolefin product                             | -5%          | 9%           | 17%          | 21%          | 24%          | 21%          | 6%           | 6%           | 2%           |
| <b>Profit before tax (RM m)</b>                  | <b>-206</b>  | <b>109</b>   | <b>98</b>    | <b>202</b>   | <b>567</b>   | <b>489</b>   | <b>148</b>   | <b>147</b>   | <b>106</b>   |
| - Olefins and derivative products                | -131         | 30           | -18          | -17          | 43           | 64           | 35           | -23          | 18           |
| - Polyolefin product                             | -128         | 103          | 216          | 277          | 418          | 385          | 59           | 61           | 13           |
| - Others   | 53           | -23          | -100         | -57          | 106          | 40           | 54           | 109          | 75           |
| <b>PBT margin (%)</b>                            | <b>-14%</b>  | <b>7%</b>    | <b>5%</b>    | <b>11%</b>   | <b>24%</b>   | <b>19%</b>   | <b>7%</b>    | <b>5%</b>    | <b>4%</b>    |
| - Olefins and derivative products                | -53%         | 11%          | -5%          | -5%          | 10%          | 12%          | 9%           | -4%          | 3%           |
| - Polyolefin product                             | -11%         | 8%           | 13%          | 17%          | 22%          | 19%          | 3%           | 3%           | 1%           |
| <b>OPERATING STATISTICS</b>                      |              |              |              |              |              |              |              |              |              |
| <b>Annual plant capacity (000 mt)</b>            | <b>3,568</b> | <b>3,568</b> | <b>3,568</b> | <b>3,568</b> | <b>3,568</b> | <b>3,568</b> | <b>3,568</b> | <b>3,568</b> | <b>3,568</b> |
| - Malaysia                                       | 3,118        | 3,118        | 3,118        | 3,118        | 3,118        | 3,118        | 3,118        | 3,118        | 3,118        |
| - Indonesia                                      | 450          | 450          | 450          | 450          | 450          | 450          | 450          | 450          | 450          |
| <b>Plant utilisation rate (%)</b>                | <b>66%</b>   | <b>86%</b>   | <b>90%</b>   | <b>85%</b>   | <b>88%</b>   | <b>86%</b>   | <b>76%</b>   | <b>88%</b>   | <b>85%</b>   |
| - Malaysia                                       | 66%          | 86%          | 93%          | 88%          | 89%          | 88%          | 78%          | 90%          | 83%          |
| - Indonesia                                      | 64%          | 82%          | 77%          | 69%          | 74%          | 70%          | 67%          | 73%          | 87%          |
| <b>Production (000 mt)</b>                       | <b>585</b>   | <b>766</b>   | <b>809</b>   | <b>761</b>   | <b>775</b>   | <b>765</b>   | <b>680</b>   | <b>787</b>   | <b>746</b>   |
| - Malaysia                                       | 513          | 674          | 722          | 683          | 692          | 686          | 605          | 705          | 648          |
| - Indonesia                                      | 72           | 92           | 87           | 78           | 83           | 79           | 75           | 82           | 98           |
| Sales volume (000 mt)                            | 400          | 517          | 560          | 493          | 518          | 494          | 443          | 532          | 521          |
| Unit revenue (RM/mt)                             | 3,655        | 3,049        | 3,465        | 3,900        | 4,570        | 5,147        | 5,049        | 5,046        | 5,297        |
| Unit revenue (US\$/mt)                           | 875          | 705          | 825          | 950          | 1,124        | 1,247        | 1,212        | 1,206        | 1,264        |
| <b>MARKET INFORMATION</b>                        |              |              |              |              |              |              |              |              |              |
| <b>Benchmark spot selling prices (US\$/mt)</b>   |              |              |              |              |              |              |              |              |              |
| - HDPE   | 801          | 739          | 882          | 983          | 1,119        | 1,136        | 1,113        | 1,198        | 1,247        |
| - LDPE   | 883          | 822          | 959          | 1,271        | 1,492        | 1,489        | 1,372        | 1,553        | 1,572        |
| - PP   | 914          | 806          | 899          | 1,081        | 1,302        | 1,246        | 1,184        | 1,234        | 1,255        |
| - Butadiene                                      | 798          | 289          | 511          | 1,106        | 858          | 1,007        | 1,323        | 686          | 1,010        |
| - Benzene  | 637          | 385          | 434          | 522          | 748          | 972          | 1,027        | 978          | 1,098        |
| <b>Average spot purchase prices (US\$/tonne)</b> |              |              |              |              |              |              |              |              |              |
| - Naphtha  | 432          | 251          | 387          | 391          | 545          | 592          | 662          | 733          | 864          |
| - Ethylene                                       | 680          | 535          | 730          | 842          | 962          | 994          | 987          | 1,059        | 1,160        |
| <b>Spreads vs. naphtha (US\$/mt)</b>             |              |              |              |              |              |              |              |              |              |
| - HDPE-Naphtha                                   | 369          | 488          | 495          | 592          | 574          | 544          | 451          | 465          | 384          |
| - LDPE-Naphtha                                   | 451          | 571          | 572          | 880          | 947          | 897          | 711          | 820          | 709          |
| - PP-Naphtha                                     | 482          | 555          | 512          | 690          | 757          | 654          | 522          | 501          | 392          |
| - Benzene-Naphtha                                | 204          | 134          | 47           | 131          | 203          | 380          | 365          | 245          | 234          |
| - Butadiene-Naphtha                              | 365          | 39           | 124          | 715          | 313          | 415          | 661          | -47          | 146          |
| Average RM:US\$1                                 | 4.1774       | 4.3220       | 4.2012       | 4.1059       | 4.0654       | 4.1275       | 4.1661       | 4.1852       | 4.1918       |
| Ending RM:US\$1                                  | 4.3212       | 4.2863       | 4.1515       | 4.0203       | 4.1450       | 4.1490       | 4.1862       | 4.1665       | 4.2040       |

SOURCE: CGS-CIMB RESEARCH, COMPANY REPORTS



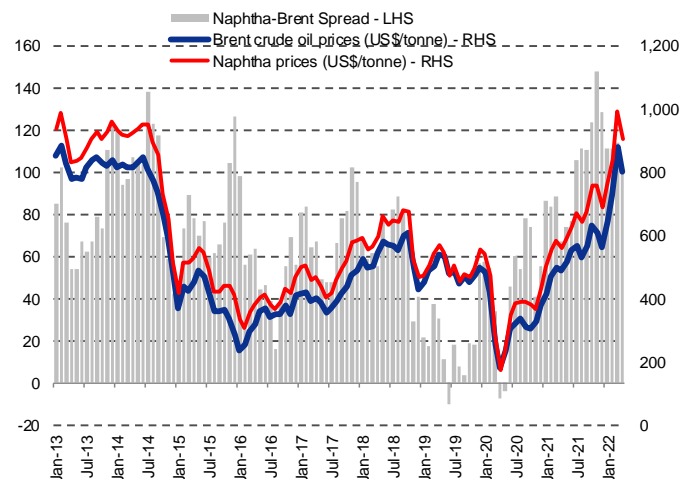
## Petrochemical price charts ►

**Figure 12: Brent crude and naphtha(Singapore FOB) quarterly prices vs. Naphtha-Brent spread**



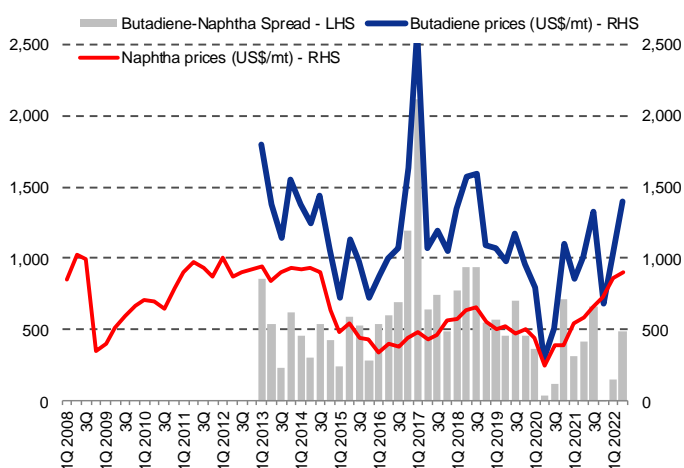
SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 13: Brent crude and naphtha(Singapore FOB) monthly prices vs. Naphtha-Brent spread**



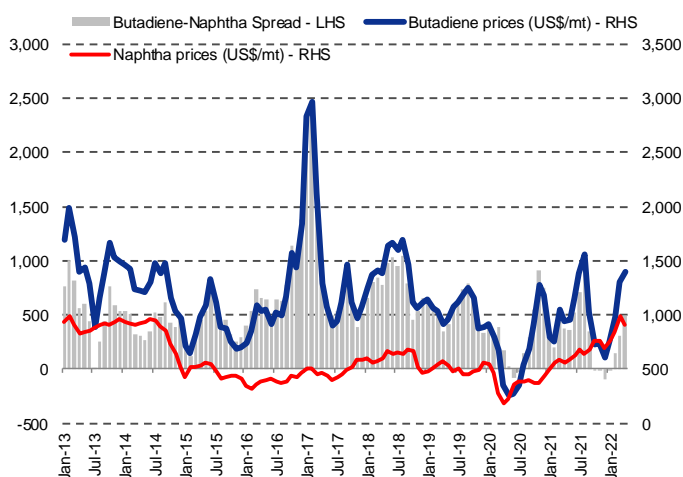
SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

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



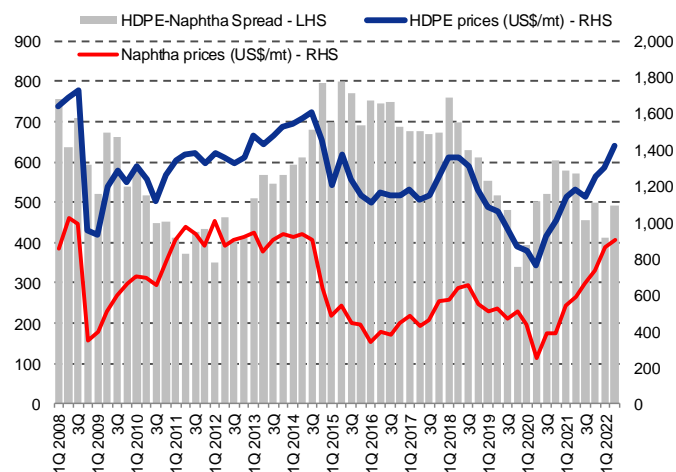
SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

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



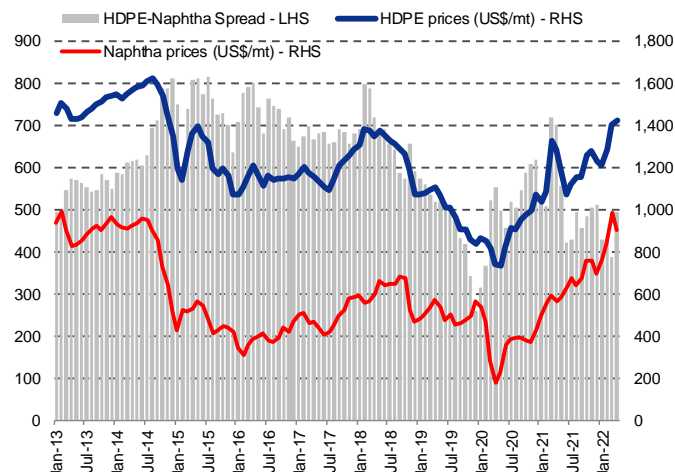
SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 16: HDPE (spot SEA CFR) and Naphtha (Singapore FOB) quarterly prices vs. HDPE-Naphtha spread**



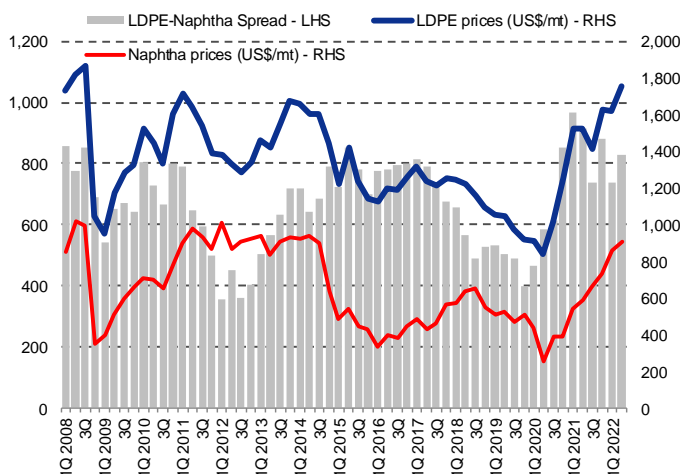
SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 17: HDPE (spot SEA CFR) and Naphtha (Singapore FOB) monthly prices vs. HDPE-Naphtha spread**



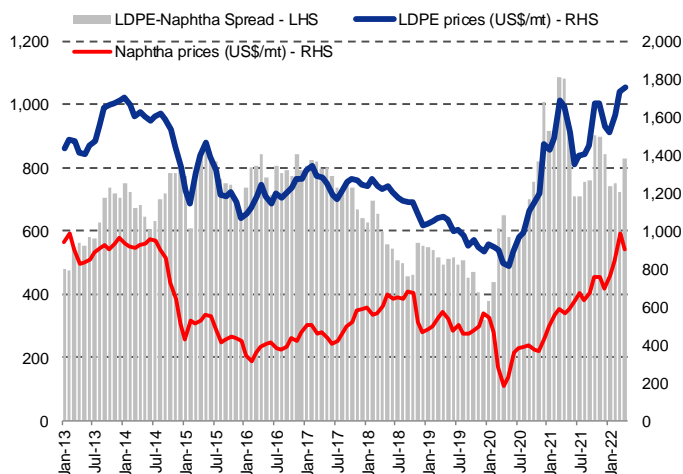
SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 18: LDPE (spot SEA CFR) and naphtha (Singapore FOB) quarterly prices vs. LDPE-Naphtha spread**



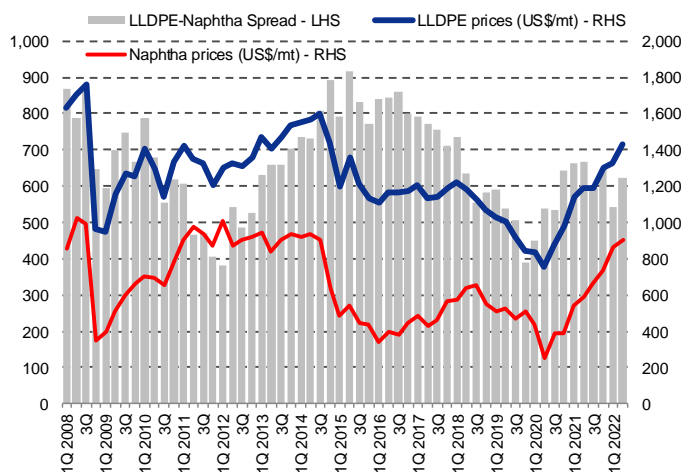
SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 19: LDPE (spot SEA CFR) and naphtha (Singapore FOB) monthly prices vs. LDPE-Naphtha spread**



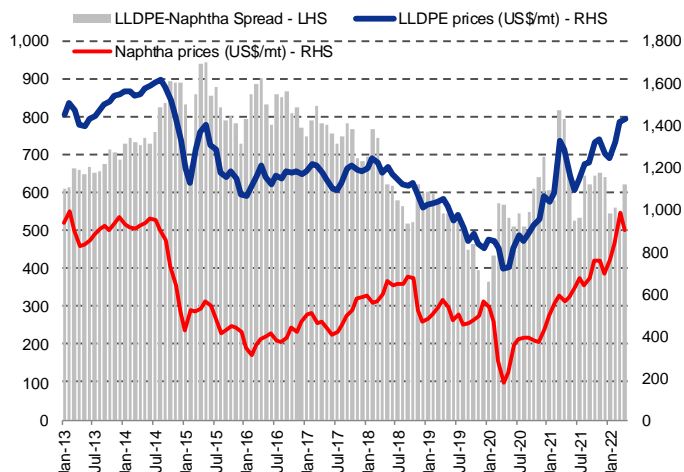
SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 20: LLDPE (spot SEA CFR) and naphtha (Singapore FOB) quarterly prices vs. LLDPE-Naphtha spread**



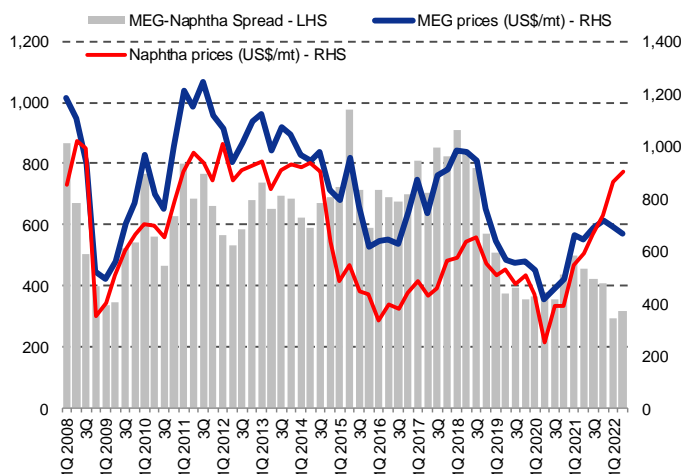
SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 21: LLDPE (spot SEA CFR) and naphtha (Singapore FOB) monthly prices vs. LDPE-Naphtha spread**



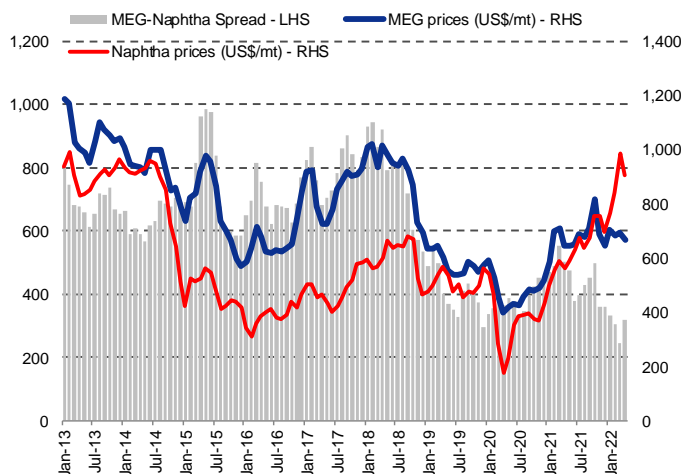
SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 22: MEG (spot SEA CFR) and naphtha (Singapore FOB) quarterly prices vs. MEG-Naphtha spread**



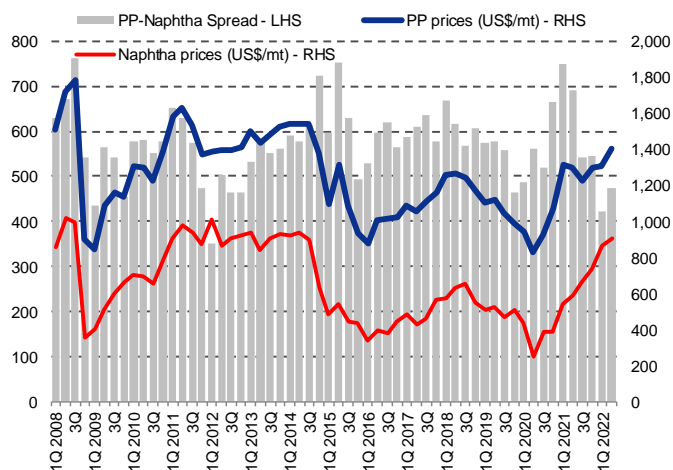
SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 23: MEG (spot SEA CFR) and naphtha (Singapore FOB) monthly prices vs. MEG-Naphtha spread**



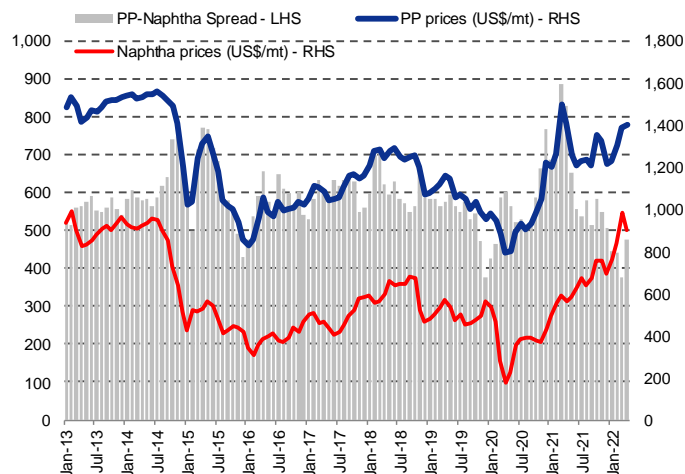
SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 24: PP (spot SEA CFR) and naphtha (Singapore FOB) quarterly prices vs. PP-Naphtha spread**



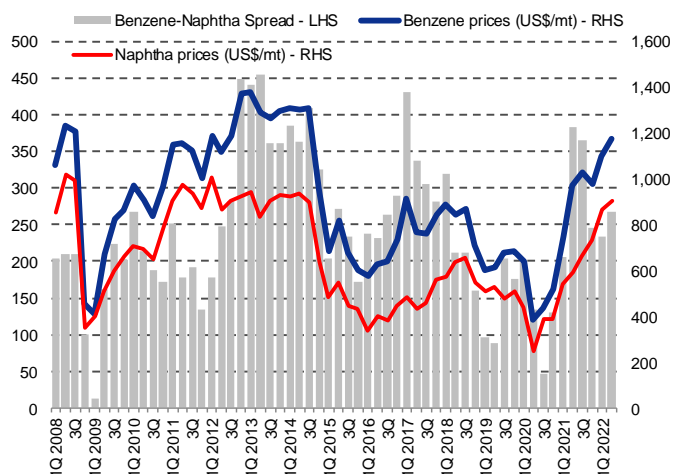
SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 25: PP (spot SEA CFR) and naphtha (Singapore FOB) monthly prices vs. PP-Naphtha spread**



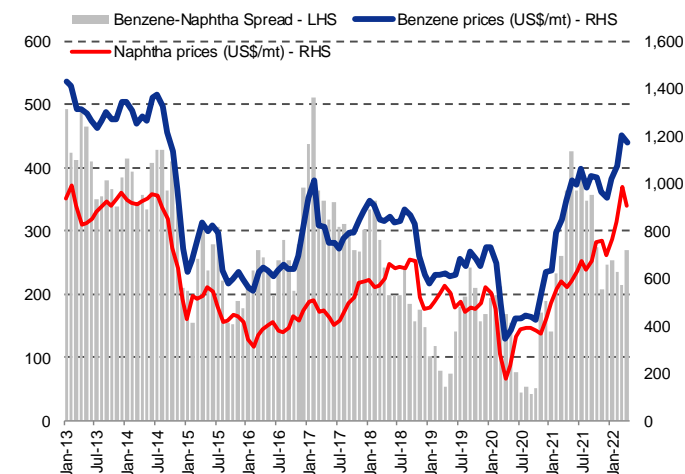
SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 26: Benzene (spot Japan CFR) and naphtha (Singapore FOB) quarterly prices vs. Benzene-Naphtha spread**

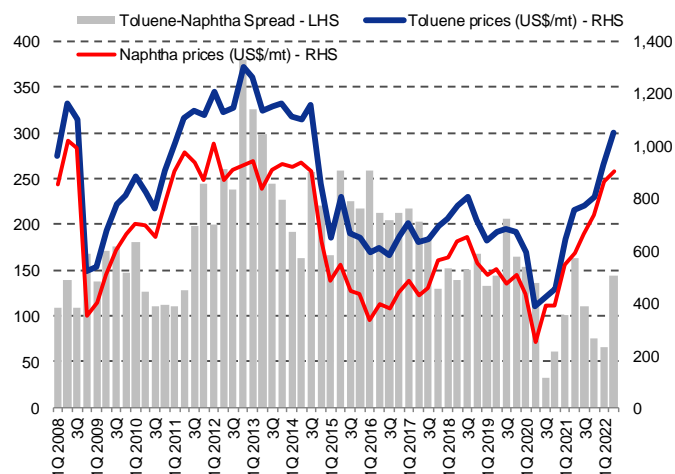


SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

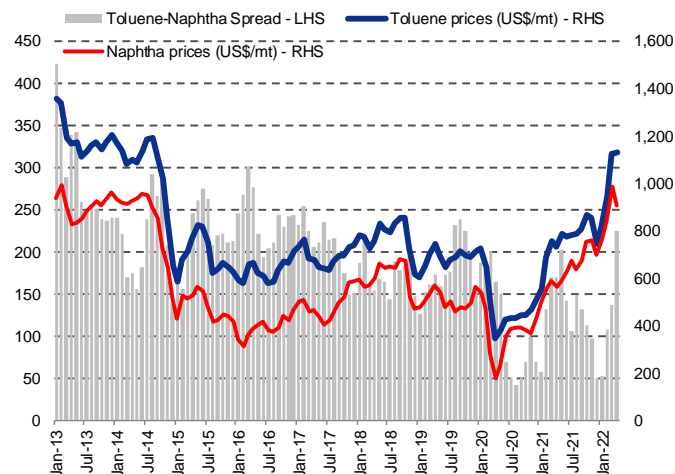
**Figure 27: Benzene (spot Japan CFR) and naphtha (Singapore FOB) monthly prices vs. Benzene-Naphtha spread**



SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 28: Toluene (spot Japan CFR) and naphtha(Singapore FOB) quarterly prices vs. Toluene-Naphtha spread**


SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 29: Toluene (spot Japan CFR) and naphtha(Singapore FOB) monthly prices vs. Toluene-Naphtha spread**


SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 30: 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                                   | 405  | 325  | 326  | 369       | 465                                    | 440  | 278  | 213  | 349       | 315                                    | 417  | 661  | -47   | 336       |
| 2022                    | 297                                   | 487  |      |      | 392       | 280                                    | 395  |      |      | 337       | 146                                    | 491  |      |       | 319       |
| Change yoy (US\$/tonne) |                                       |      |      |      |           |  |      |      |      |           |  |      |      |       |           |
| 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                    | 176                                   | 120  | -18  | -125 | 38        | 63                                     | 33   | -127 | -284 | -79       | -46                                    | 378  | 538  | -762  | 27        |
| 2022                    | -123                                  | 83   |      |      | 23        | -185                                   | -46  |      |      | -12       | -168                                   | 74   |      |       | -18       |

SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 31: 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                    | 577                               | 571  | 457  | 499  | 526       | 967                               | 917  | 740  | 879  | 876       | 662                                | 668  | 594  | 646  | 642       |
| 2022                    | 413                               | 493  |      |      | 453       | 739                               | 830  |      |      | 785       | 541                                | 623  |      |      | 582       |
| 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                    | 184                               | 69   | -65  | -104 | 21        | 501                               | 334  | 125  | 27   | 247       | 212                                | 130  | 59   | 1    | 101       |
| 2022                    | -165                              | -78  |      |      | -73       | -228                              | -87  |      |      | -91       | -121                               | -44  |      |      | -60       |

SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 32: 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                    | 765                                    | 704  | 553  | 558  | 645       | 748   | 690  | 543  | 546  | 632       | 760                                       | 704  | 553 | 571  | 647       |
| 2022                    | 431                                    | 485  |      |      | 458       | 421   | 475  |      |      | 448       | 431                                       | 485  |     |      | 458       |
| 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                    | 266                                    | 128  | 23   | -131 | 71        | 260   | 127  | 24   | -119 | 73        | 259                                       | 125  | 18  | -114 | 72        |
| 2022                    | -334                                   | -219 |      |      | -187      | -327  | -215 |      |      | -184      | -330                                      | -219 |     |      | -190      |

SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG

**Figure 33: 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                    | 205                                  | 382  | 365  | 245  | 299       | 115                                  | 171  | 127  | 86   | 125       | 209                                     | 257  | 255  | 151  | 218       |
| 2022                    | 234                                  | 268  |      |      | 251       | 98                                   | 225  |      |      | 162       | 222                                     | 273  |      |      | 248       |
| Change yoy (US\$/tonne) |                                      |      |      |      |           |                                      |      |      |      |           |   |      |      |      |           |
| 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                    | 5                                    | 248  | 319  | 115  | 172       | -73                                  | 41   | 80   | 8    | 14        | -60                                     | 27   | 111  | -5   | 18        |
| 2022                    | 29                                   | -114 |      |      | -48       | -16                                  | 54   |      |      | 37        | 12                                      | 16   |      |      | 29        |

SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG



**Figure 34: 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                    | 500  | 454  | 422  | 409  | 446       | 81                                    | 49   | 97   | 83   | 78        | 574                                | 554  | 568  | 580  | 569       |
| 2022                    | 294  | 317  |      |      | 306       | -3                                    | -170 |      |      | -86       | 551                                | 492  |      |      | 522       |
| Change yoy (US\$/tonne) |  |      |      |      |           |                                       |      |      |      |           |                                    |      |      |      |           |
| 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                    | 137  | 76   | 65   | -29  | 62        | -39                                   | -44  | 82   | 96   | 24        | 95                                 | 206  | 192  | 162  | 164       |
| 2022                    | -206                                       | -136 |      |      | -141      | -84                                   | -219 |      |      | -164      | -24                                | -62  |      |      | -48       |

SOURCES: CGS-CIMB RESEARCH, POLYMERUPDATE.COM, BLOOMBERG



## ESG in a nutshell

LCT is a naphtha-feedstock producer of petrochemicals, with plants in Pasir Gudang and Tanjung Langsat in Johor, Malaysia, and in Cilegon, Java, Indonesia. Petrochemical production is a heavy industry that consumes large amounts of energy. Hence, efficiency in energy use is important in order to minimise greenhouse gas (GHG) emissions in the course of production. The polymer products produced are used to make plastics and the growing problem of plastic waste has become an urgent global issue. We believe that petrochemical companies should invest to minimise their GHG emissions, make an effort to offset their carbon emissions, and also invest in the recycling of plastic waste. In our view, LCT has not yet made sufficient or apparent efforts in all three categories.

### Keep your eye on

Petrochemical companies must first and foremost measure their GHG and carbon emissions from their operations and then invest to mitigate those emissions. While LCT discloses its Scope 2 carbon emissions from the use of purchased electricity, it does not yet have equipment to measure its Scope 1 carbon emissions from its own plant operations; therefore, no disclosures have been made to-date.

In contrast, PCG reported its Scope 1 emissions for 2018, 2019 and 2020. Hence, LCT is substantially behind its local peer, PCG, in reporting emissions.

### Implications

LCT disclosed in its Integrated Report 2020 that it is currently “developing an internal process to track and measure GHG emissions”. It did not commit to a firm completion date for this process and did not say if it will disclose its Scope 1 GHG emissions in next year’s Integrated Report 2021.

However, we do note that LCT has made progress in cutting GHG emissions from its operations. In 2020, LCT succeeded in reusing 100% of the hydrogen and methane gases produced by its Malaysian naphtha cracker, which reduced its use of natural gas. In Indonesia, LCT has lowered its GHG emissions by using an ethylene recovery unit to recover wasted gas in the reactor, reducing the use of the coal-fired boiler and increasing the use of the natural gas boiler, and replacing the freon refrigerant (that is a potent GHG) in various equipment with propylene.

### ESG highlights

Energy intensity, water consumption intensity, nitrous oxide (NOx) and sulphur oxide (SOx) emissions, wastewater discharge quality, as well as hazardous waste management are all also important measures of environmental management of LCT’s operations.

Carbon emissions regulations are absent in Malaysia but we believe that responsible corporate citizens should seriously consider efforts to offset their carbon emissions that cannot be mitigated by operational measures. LCT did not indicate any intention to offset the carbon emissions from its operations; it is still in the process of trying to measure those emissions in the first place.

### Implications

While LCT’s energy intensity and wastewater discharge quality in 2020 were essentially unchanged from 2019, its water consumption intensity rose 11% yoy, NOx emissions (in terms of g/Nm<sup>3</sup>) rose 14%, and SOx emissions (g/Nm<sup>3</sup>) rose 250%. We understand that the NOx and SOx emissions were measured in a more comprehensive manner in 2020 vs. 2019, hence the yoy increase may not recur in 2021F. Hazardous waste intensity in 2020 fell 27% against 2019 but was 140% higher than the 2018 level despite similar production volumes. LCT believes that its hazardous waste generation should fall in 2021F as its wastewater treatment plant modification has been completed.

### Trends

Plastic waste is becoming an increasingly urgent global issue. LCT’s competitor, PCG, has committed to recover 100% of plastic waste equivalent to its domestic polymer sales volume, which will be “redirected into a circular economy”, although no timeline was provided.

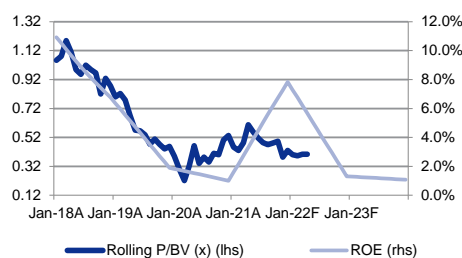
### Implications

LCT has expressed its commitment to the Malaysian government’s circular economy initiative and to continued participation in the new Malaysian Sustainable Plastics Alliance (MaSPA) initiative by the Ministry of Environment and Water, et. al. Apart from contributing to “various recycling awareness and education programmes”, LCT has yet to commit to any concrete measures to collect plastic waste or to be actively involved in plastic recycling.

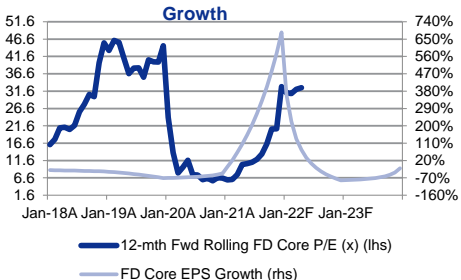
SOURCES: CGS-CIMB RESEARCH, REFINITIV

## BY THE NUMBERS

### P/BV vs ROE



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



### Profit & Loss

| (RMm)                                     | Dec-20A      | Dec-21A      | Dec-22F       | Dec-23F      | Dec-24F      |
|---|--------------|--------------|---------------|--------------|--------------|
| <b>Total Net Revenues</b>                 | <b>6,901</b> | <b>9,831</b> | <b>10,123</b> | <b>9,196</b> | <b>8,996</b> |
| <b>Gross Profit</b>                       | <b>1,058</b> | <b>1,846</b> | <b>864</b>    | <b>832</b>   | <b>944</b>   |
| <b>Operating EBITDA</b>                   | <b>779</b>   | <b>1,632</b> | <b>654</b>    | <b>613</b>   | <b>725</b>   |
| Depreciation And Amortisation             | -558         | -556         | -567          | -579         | -590         |
| <b>Operating EBIT</b>                     | <b>221</b>   | <b>1,076</b> | <b>86</b>     | <b>34</b>    | <b>135</b>   |
| Financial Income/(Expense)                | 51           | 39           | 27            | 16           | 17           |
| Pretax Income/(Loss) from Assoc.          | -119         | 120          | 93            | 93           | 93           |
| Non-Operating Income/(Expense)            | 25           | 23           | 25            | 25           | 25           |
| <b>Profit Before Tax (pre-EI)</b>         | <b>178</b>   | <b>1,257</b> | <b>232</b>    | <b>168</b>   | <b>270</b>   |
| Exceptional Items                         | 26           | 94           | 63            | 0            | 0            |
| <b>Pre-tax Profit</b>                     | <b>204</b>   | <b>1,351</b> | <b>295</b>    | <b>168</b>   | <b>270</b>   |
| Taxation                                  | -50          | -292         | -71           | -40          | -65          |
| Exceptional Income - post-tax             |              |              |               |              |              |
| <b>Profit After Tax</b>                   | <b>154</b>   | <b>1,059</b> | <b>224</b>    | <b>128</b>   | <b>205</b>   |
| Minority Interests                        | -5           | -1           | 5             | 5            | 5            |
| Preferred Dividends                       |              |              |               |              |              |
| FX Gain/(Loss) - post tax                 |              |              |               |              |              |
| Other Adjustments - post-tax              |              |              |               |              |              |
| <b>Net Profit</b>                         | <b>149</b>   | <b>1,058</b> | <b>229</b>    | <b>133</b>   | <b>210</b>   |
| Recurring Net Profit                      | 123          | 964          | 166           | 133          | 210          |
| <b>Fully Diluted Recurring Net Profit</b> | <b>123</b>   | <b>964</b>   | <b>166</b>    | <b>133</b>   | <b>210</b>   |

### Cash Flow

| (RMm)                            | Dec-20A      | Dec-21A      | Dec-22F       | Dec-23F       | Dec-24F       |
|----------------------------------|--------------|--------------|---------------|---------------|---------------|
| <b>EBITDA</b>                    | <b>779</b>   | <b>1,632</b> | <b>654</b>    | <b>613</b>    | <b>725</b>    |
| Cash Flow from Inv. & Assoc.     |              |              |               |               |               |
| Change In Working Capital        | 259          | -442         | -155          | 168           | 47            |
| (Incr)/Decr in Total Provisions  |              |              |               |               |               |
| Other Non-Cash (Income)/Expense  |              |              |               |               |               |
| Other Operating Cashflow         | 59           | 50           | 25            | 25            | 25            |
| Net Interest (Paid)/Received     | -4           | -7           | -8            | -126          | -402          |
| Tax Paid                         | -16          | -66          | -71           | -40           | -65           |
| <b>Cashflow From Operations</b>  | <b>1,077</b> | <b>1,167</b> | <b>445</b>    | <b>638</b>    | <b>330</b>    |
| Capex                            | -826         | -472         | -2,392        | -5,167        | -6,550        |
| Disposals Of FAs/subsidiaries    | 53           | 134          | 0             | 0             | 0             |
| Acq. Of Subsidiaries/investments | 0            | 0            | 0             | 0             | 0             |
| Other Investing Cashflow         | 52           | 68           | 44            | 33            | 34            |
| <b>Cash Flow From Investing</b>  | <b>-720</b>  | <b>-270</b>  | <b>-2,348</b> | <b>-5,134</b> | <b>-6,516</b> |
| Debt Raised/(repaid)             | 0            | 0            | 0             | 4,736         | 6,300         |
| Proceeds From Issue Of Shares    | 162          | 135          | 0             | 0             | 0             |
| Shares Repurchased               | 0            | 0            | 0             | 0             | 0             |
| Dividends Paid                   | -159         | -474         | -888          | -115          | -66           |
| Preferred Dividends              |              |              |               |               |               |
| Other Financing Cashflow         | -15          | -12          | 0             | 0             | 0             |
| <b>Cash Flow From Financing</b>  | <b>-12</b>   | <b>-351</b>  | <b>-888</b>   | <b>4,621</b>  | <b>6,234</b>  |
| Total Cash Generated             | 344          | 547          | -2,792        | 126           | 47            |
| <b>Free Cashflow To Equity</b>   | <b>357</b>   | <b>897</b>   | <b>-1,903</b> | <b>240</b>    | <b>113</b>    |
| <b>Free Cashflow To Firm</b>     | <b>361</b>   | <b>904</b>   | <b>-1,895</b> | <b>-4,369</b> | <b>-5,784</b> |

SOURCES: CGS-CIMB RESEARCH, COMPANY REPORTS

## BY THE NUMBERS... cont'd

### Balance Sheet

| (RMm)                                | Dec-20A       | Dec-21A       | Dec-22F       | Dec-23F       | Dec-24F       |
|--------------------------------------|---------------|---------------|---------------|---------------|---------------|
| Total Cash And Equivalents           | 4,158         | 4,598         | 2,659         | 2,785         | 2,832         |
| Total Debtors                        | 777           | 1,038         | 1,067         | 975           | 955           |
| Inventories                          | 1,294         | 1,674         | 1,934         | 1,753         | 1,689         |
| Total Other Current Assets           | 0             | 0             | 17            | 17            | 17            |
| <b>Total Current Assets</b>          | <b>6,229</b>  | <b>7,311</b>  | <b>5,678</b>  | <b>5,530</b>  | <b>5,493</b>  |
| Fixed Assets                         | 5,586         | 5,786         | 9,206         | 15,296        | 21,649        |
| Total Investments                    | 2,093         | 2,381         | 2,520         | 2,613         | 2,706         |
| Intangible Assets                    | 0             | 0             | 0             | 0             | 0             |
| Total Other Non-Current Assets       | 0             | 15            | 15            | 15            | 15            |
| <b>Total Non-current Assets</b>      | <b>7,679</b>  | <b>8,182</b>  | <b>11,741</b> | <b>17,923</b> | <b>24,370</b> |
| Short-term Debt                      | 0             | 0             | 0             | 0             | 0             |
| Current Portion of Long-Term Debt    |               |               |               |               |               |
| Total Creditors                      | 819           | 985           | 1,136         | 1,031         | 994           |
| Other Current Liabilities            | 0             | 0             | 0             | 0             | 0             |
| <b>Total Current Liabilities</b>     | <b>819</b>    | <b>985</b>    | <b>1,136</b>  | <b>1,031</b>  | <b>994</b>    |
| Total Long-term Debt                 | 0             | 0             | 0             | 4,736         | 11,036        |
| Hybrid Debt - Debt Component         |               |               |               |               |               |
| Total Other Non-Current Liabilities  | 389           | 458           | 466           | 475           | 483           |
| <b>Total Non-current Liabilities</b> | <b>389</b>    | <b>458</b>    | <b>466</b>    | <b>5,210</b>  | <b>11,519</b> |
| Total Provisions                     | 431           | 703           | 703           | 703           | 703           |
| <b>Total Liabilities</b>             | <b>1,640</b>  | <b>2,147</b>  | <b>2,306</b>  | <b>6,945</b>  | <b>13,216</b> |
| Shareholders' Equity                 | 11,799        | 12,724        | 12,064        | 12,082        | 12,226        |
| Minority Interests                   | 469           | 623           | 3,048         | 4,427         | 4,422         |
| <b>Total Equity</b>                  | <b>12,268</b> | <b>13,346</b> | <b>15,112</b> | <b>16,509</b> | <b>16,648</b> |

### Key Ratios

|                           | Dec-20A | Dec-21A | Dec-22F | Dec-23F | Dec-24F |
|---------------------------|---------|---------|---------|---------|---------|
| Revenue Growth            | (18.2%) | 42.4%   | 3.0%    | (9.2%)  | (2.2%)  |
| Operating EBITDA Growth   | (2%)    | 109%    | (60%)   | (6%)    | 18%     |
| Operating EBITDA Margin   | 11.3%   | 16.6%   | 6.5%    | 6.7%    | 8.1%    |
| Net Cash Per Share (RM)   | 1.83    | 2.02    | 1.17    | -0.86   | -3.61   |
| BVPS (RM)                 | 5.19    | 5.59    | 5.31    | 5.32    | 5.38    |
| Gross Interest Cover      | 15.38   | 77.88   | 5.34    | 2.05    | 8.10    |
| Effective Tax Rate        | 24.5%   | 21.6%   | 24.0%   | 24.0%   | 24.0%   |
| Net Dividend Payout Ratio | 60.6%   | 92.1%   | 69.0%   | 50.1%   | 50.0%   |
| Accounts Receivables Days | 42.19   | 31.73   | 35.69   | 38.04   | 36.71   |
| Inventory Days            | 82.01   | 67.84   | 71.12   | 80.44   | 78.23   |
| Accounts Payables Days    | 48.80   | 40.70   | 41.40   | 46.83   | 45.54   |
| ROIC (%)                  | 3.2%    | 15.7%   | 1.1%    | 0.3%    | 0.8%    |
| ROCE (%)                  | 2.26%   | 8.44%   | 0.87%   | 0.35%   | 0.67%   |
| Return On Average Assets  | 0.55%   | 6.30%   | 0.81%   | 0.54%   | 0.71%   |

### Key Drivers

|   | Dec-20A | Dec-21A | Dec-22F | Dec-23F | Dec-24F |
|---|---------|---------|---------|---------|---------|
| Plant utilisation (%)                     | 81.9%   | 84.3%   | 80.7%   | 84.2%   | 84.2%   |
| Production volume (m tonnes)              | 2.9     | 3.0     | 2.9     | 3.0     | 3.0     |
| Sales volume (m tonnes)                   | 2.0     | 2.0     | 1.7     | 1.8     | 1.8     |
| Average selling price (US\$/tonne)        | 833.8   | 1,196.2 | 1,381.5 | 1,204.7 | 1,178.5 |
| Average naphtha price (US\$/tonne)        | 365.3   | 632.9   | 845.7   | 655.9   | 655.9   |
| Average price-naphtha spread (US\$/tonne) | 468.6   | 563.3   | 535.7   | 548.8   | 522.6   |

SOURCES: CGS-CIMB RESEARCH, COMPANY REPORTS

## DISCLAIMER

The content of this report (including the views and opinions expressed therein, and the information comprised therein) has been prepared by and belongs to CGS-CIMB. Reports relating to a specific geographical area are produced and distributed by the corresponding CGS-CIMB entity as listed in the table below.

This report is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation.

By accepting this report, the recipient hereof represents and warrants that he is entitled to receive such report in accordance with the restrictions set forth below and agrees to be bound by the limitations contained herein (including the "Restrictions on Distributions" set out below). Any failure to comply with these limitations may constitute a violation of law. This publication is being supplied to you strictly on the basis that it will remain confidential. No part of this report may be (i) copied, photocopied, duplicated, stored or reproduced in any form by any means; or (ii) redistributed or passed on, directly or indirectly, to any other person in whole or in part, for any purpose without the prior written consent of CGS-CIMB.

The information contained in this research report is prepared from data believed to be correct and reliable at the time of issue of this report. CGS-CIMB may or may not issue regular reports on the subject matter of this report at any frequency and may cease to do so or change the periodicity of reports at any time. CGS-CIMB has no obligation to update this report in the event of a material change to the information contained in this report. CGS-CIMB does not accept any obligation to (i) check or ensure that the contents of this report remain current, reliable or relevant, (ii) ensure that the content of this report constitutes all the information a prospective investor may require, (iii) ensure the adequacy, accuracy, completeness, reliability or fairness of any views, opinions and information, and accordingly, CGS-CIMB, its affiliates and related persons including China Galaxy International Financial Holdings Limited ("CGIFHL") and CIMB Group Sdn. Bhd. ("CIMBG") and their respective related corporations (and their respective directors, associates, connected persons and/or employees) shall not be liable in any manner whatsoever for any consequences (including but not limited to any direct, indirect or consequential losses, loss of profits and damages) of any reliance thereon or usage thereof. In particular, CGS-CIMB disclaims all responsibility and liability for the views and opinions set out in this report.

Unless otherwise specified, this report is based upon sources which CGS-CIMB considers to be reasonable. Such sources will, unless otherwise specified, for market data, be market data and prices available from the main stock exchange or market where the relevant security is listed, or, where appropriate, any other market. Information on the accounts and business of company(ies) will generally be based on published statements of the company(ies), information disseminated by regulatory information services, other publicly available information and information resulting from our research.

Whilst every effort is made to ensure that statements of facts made in this report are accurate, all estimates, projections, forecasts, expressions of opinion and other subjective judgments contained in this report are based on assumptions considered to be reasonable as of the date of the document in which they are contained and must not be construed as a representation that the matters referred to therein will occur. Past performance is not a reliable indicator of future performance. The value of investments may go down as well as up and those investing may, depending on the investments in question, lose more than the initial investment. No report shall constitute an offer or an invitation by or on behalf of CGS-CIMB or any of its affiliates (including CGIFHL, CIMBG and their respective related corporations) to any person to buy or sell any investments.

CGS-CIMB, its affiliates and related corporations (including CGIFHL, CIMBG and their respective related corporations) and/or their respective directors, associates, connected parties and/or employees may own or have positions in securities of the company(ies) covered in this research report or any securities related thereto and may from time to time add to or dispose of, or may be materially interested in, any such securities. Further, CGS-CIMB, its affiliates and their respective related corporations (including CGIFHL, CIMBG and their respective related corporations) do and seek to do business with the company(ies) covered in this research report and may from time to time act as market maker or have assumed an underwriting commitment in securities of such company(ies), may sell them to or buy them from customers on a principal basis and may also perform or seek to perform significant investment banking, advisory, underwriting or placement services for or relating to such company(ies) as well as solicit such investment, advisory or other services from any entity mentioned in this report.

CGS-CIMB or its affiliates (including CGIFHL, CIMBG and their respective related corporations) may enter into an agreement with the company(ies) covered in this report relating to the production of research reports. CGS-CIMB may disclose the contents of this report to the company(ies) covered by it and may have amended the contents of this report following such disclosure.

The analyst responsible for the production of this report hereby certifies that the views expressed herein accurately and exclusively reflect his or her personal views and opinions about any and all of the issuers or securities analysed in this report and were prepared independently and autonomously. No part of the compensation of the analyst(s) was, is, or will be directly or indirectly related to the inclusion of specific recommendations(s) or view(s) in this report. The analyst(s) who prepared this research report is prohibited from receiving any compensation, incentive or bonus based on specific investment banking transactions or for providing a specific recommendation for, or view of, a particular company. Information barriers and other arrangements may be established where necessary to prevent conflicts of interests arising. However, the analyst(s) may receive compensation that is based on his/their coverage of company(ies) in the performance of his/their duties or the performance of his/their recommendations and the research personnel involved in the preparation of this report may also participate in the solicitation of the businesses as described above. In reviewing this research report, an investor should be aware that any or all of the foregoing, among other things, may give rise to real or potential conflicts of interest. Additional information is, subject to the duties of confidentiality, available on request.

Reports relating to a specific geographical area are produced by the corresponding CGS-CIMB entity as listed in the table below. The term "CGS-CIMB" shall denote, where appropriate, the relevant entity distributing or disseminating the report in the particular jurisdiction referenced below, or, in every other case except as otherwise stated herein, CGS-CIMB Securities International Pte. Ltd. and its affiliates, subsidiaries and related corporations.



| Country     | CGS-CIMB Entity                                       | Regulated by  |
|-------------|---|---|
| Hong Kong   | CGS-CIMB Securities (Hong Kong) Limited               | Securities and Futures Commission Hong Kong                     |
| India       | CGS-CIMB Securities (India) Private Limited           | Securities and Exchange Board of India (SEBI)                   |
| Indonesia   | PT CGS-CIMB Sekuritas Indonesia                       | Financial Services Authority of Indonesia                       |
| Malaysia    | CGS-CIMB Securities Sdn. Bhd.                         | Securities Commission Malaysia                                  |
| Singapore   | CGS-CIMB Securities (Singapore) Pte. Ltd.             | Monetary Authority of Singapore                                 |
| South Korea | CGS-CIMB Securities (Hong Kong) Limited, Korea Branch | Financial Services Commission and Financial Supervisory Service |
| Thailand    | CGS-CIMB Securities (Thailand) Co. Ltd.               | Securities and Exchange Commission Thailand                     |

#### Other Significant Financial Interests:

(i) As of March 31, 2022 CGS-CIMB has a proprietary position in the securities (which may include but not be limited to shares, warrants, call warrants and/or any other derivatives) in the following company or companies covered or recommended in this report

(a) Indorama Ventures, IRPC, Petronas Chemicals Group, PTT Global Chemical, Siam Cement

(ii) Analyst Disclosure: As of April 29, 2022, the analyst(s) who prepared this report, and the associate(s), has / have an interest in the securities (which may include but not be limited to shares, warrants, call warrants and/or any other derivatives) in the following company or companies covered or recommended in this report

(a) -

This report does not purport to contain all the information that a prospective investor may require. Neither CGS-CIMB nor any of its affiliates (including CGIFHL, CIMBG and their related corporations) make any guarantee, representation or warranty, express or implied, as to the adequacy, accuracy, completeness, reliability or fairness of any such information and opinion contained in this report. Neither CGS-CIMB nor any of its affiliates nor their related persons (including CGIFHL, CIMBG and their related corporations) shall be liable in any manner whatsoever for any consequences (including but not limited to any direct, indirect or consequential losses, loss of profits and damages) of any reliance thereon or usage thereof.

This report is general in nature and has been prepared for information purposes only. It is intended for circulation amongst CGS-CIMB's clients generally and does not have regard to the specific investment objectives, financial situation and the particular needs of any specific person who may receive this report. The information and opinions in this report are not and should not be construed or considered as an offer, recommendation or solicitation to buy or sell the subject securities, related investments or other financial instruments or any derivative instrument, or any rights pertaining thereto.

Investors are advised to make their own independent evaluation of the information contained in this research report, consider their own individual investment objectives, financial situation and particular needs and consult their own professional and financial advisers as to the legal, business, financial, tax and other aspects before participating in any transaction in respect of the securities of company(ies) covered in this research report.

The securities of such company(ies) may not be eligible for sale in all jurisdictions or to all categories of investors.

#### Restrictions on Distributions

**Australia:** Despite anything in this report to the contrary, this research is provided in Australia by CGS-CIMB Securities (Singapore) Pte. Ltd. and CGS-CIMB Securities (Hong Kong) Limited. This research is only available in Australia to persons who are "wholesale clients" (within the meaning of the Corporations Act 2001 (Cth) and is supplied solely for the use of such wholesale clients and shall not be distributed or passed on to any other person. You represent and warrant that if you are in Australia, you are a "wholesale client". This research is of a general nature only and has been prepared without taking into account the objectives, financial situation or needs of the individual recipient. CGS-CIMB Securities (Singapore) Pte. Ltd. and CGS-CIMB Securities (Hong Kong) Limited do not hold, and are not required to hold an Australian financial services license. CGS-CIMB Securities (Singapore) Pte. Ltd. and CGS-CIMB Securities (Hong Kong) Limited rely on "passporting" exemptions for entities appropriately licensed by the Monetary Authority of Singapore (under ASIC Class Order 03/1102) and the Securities and Futures Commission in Hong Kong (under ASIC Class Order 03/1103).

**Canada:** This research report has not been prepared in accordance with the disclosure requirements of Dealer Member Rule 3400 – Research Restrictions and Disclosure Requirements of the Investment Industry Regulatory Organization of Canada. For any research report distributed by CIBC, further disclosures related to CIBC conflicts of interest can be found at <https://researchcentral.cibcwm.com>.

**China:** For the purpose of this report, the People's Republic of China ("PRC") does not include the Hong Kong Special Administrative Region, the Macau Special Administrative Region or Taiwan. The distributor of this report has not been approved or licensed by the China Securities Regulatory Commission or any other relevant regulatory authority or governmental agency in the PRC. This report contains only marketing information. The distribution of this report is not an offer to buy or sell to any person within or outside PRC or a solicitation to any person within or outside of PRC to buy or sell any instruments described herein. This report is being issued outside the PRC to a limited number of institutional investors and may not be provided to any person other than the original recipient and may not be reproduced or used for any other purpose.

**France:** Only qualified investors within the meaning of French law shall have access to this report. This report shall not be considered as an offer to subscribe to, or used in connection with, any offer for subscription or sale or marketing or direct or indirect distribution of financial instruments and it is not intended as a solicitation for the purchase of any financial instrument.

**Germany:** This report is only directed at persons who are professional investors as defined in sec 31a(2) of the German Securities Trading Act (WpHG). This publication constitutes research of a non-binding nature on the market situation and the investment instruments cited here at the time of the publication of the information.

The current prices/yields in this issue are based upon closing prices from Bloomberg as of the day preceding publication. Please note that neither the German Federal Financial Supervisory Agency (BaFin), nor any other supervisory authority exercises any control over the content of this report.

**Hong Kong:** This report is issued and distributed in Hong Kong by CGS-CIMB Securities (Hong Kong) Limited ("CHK") which is licensed in Hong Kong by the Securities and Futures Commission for Type 1 (dealing in securities) and Type 4 (advising on securities) activities. Any investors wishing to purchase or otherwise deal in the securities covered in this report should contact the Head of Sales at CGS-CIMB Securities (Hong Kong) Limited. The views and opinions in this research report are our own as of the date hereof and are subject to change. If the Financial Services and Markets

Act of the United Kingdom or the rules of the Financial Conduct Authority apply to a recipient, our obligations owed to such recipient therein are unaffected. CHK has no obligation to update its opinion or the information in this research report.

This publication is strictly confidential and is for private circulation only to clients of CHK.

CHK does not make a market on other securities mentioned in the report.

**India:** This report is issued and distributed in India by CGS-CIMB Securities (India) Private Limited ("CGS-CIMB India"). CGS-CIMB India is a subsidiary of CGS-CIMB Securities International Pte. Ltd. which is in turn is a 50:50 joint venture company of CGIFHL and CIMBG. The details of the members of the group of companies of CGS-CIMB can be found at [www.cgs-cimb.com](http://www.cgs-cimb.com), CGIFHL at [www.chinastock.com.hk/en/ACG/ContactUs/index.aspx](http://www.chinastock.com.hk/en/ACG/ContactUs/index.aspx) and CIMBG at [www.cimb.com/en/who-we-are.html](http://www.cimb.com/en/who-we-are.html). CGS-CIMB India is registered with the National Stock Exchange of India Limited and BSE Limited as a trading and clearing member (Merchant Banking Number: INM000012037) under the Securities and Exchange Board of India (Stock Brokers and Sub-Brokers) Regulations, 1992. In accordance with the provisions of Regulation 4(g) of the Securities and Exchange Board of India (Investment Advisers) Regulations, 2013, CGS-CIMB India is not required to seek registration with the Securities and Exchange Board of India ("SEBI") as an Investment Adviser. CGS-CIMB India is registered with SEBI (SEBI Registration Number: INZ000209135) as a Research Analyst (INH000000669) pursuant to the SEBI (Research Analysts) Regulations, 2014 ("Regulations").

This report does not take into account the particular investment objectives, financial situations, or needs of the recipients. It is not intended for and does not deal with prohibitions on investment due to law/jurisdiction issues etc. which may exist for certain persons/entities. Recipients should rely on their own investigations and take their own professional advice before investment.

The report is not a "prospectus" as defined under Indian Law, including the Companies Act, 2013, and is not, and shall not be, approved by, or filed or registered with, any Indian regulator, including any Registrar of Companies in India, SEBI, any Indian stock exchange, or the Reserve Bank of India. No offer, or invitation to offer, or solicitation of subscription with respect to any such securities listed or proposed to be listed in India is being made, or intended to be made, to the public, or to any member or section of the public in India, through or pursuant to this report.

The research analysts, strategists or economists principally responsible for the preparation of this research report are segregated from the other activities of CGS-CIMB India and they have received compensation based upon various factors, including quality, accuracy and value of research, firm profitability or revenues, client feedback and competitive factors. Research analysts', strategists' or economists' compensation is not linked to investment banking or capital markets transactions performed or proposed to be performed by CGS-CIMB India or its affiliates.

CGS-CIMB India does not have actual / beneficial ownership of 1% or more securities of the subject company in this research report, at the end of the month immediately preceding the date of publication of this research report. However, since affiliates of CGS-CIMB India are engaged in the financial services business, they might have in their normal course of business financial interests or actual / beneficial ownership of one per cent or more in various companies including the subject company in this research report.

CGS-CIMB India or its associates, may: (a) from time to time, have long or short position in, and buy or sell the securities of the subject company in this research report; or (b) be engaged in any other transaction involving such securities and earn brokerage or other compensation or act as a market maker in the financial instruments of the subject company in this research report or act as an advisor or lender/borrower to such company or may have any other potential conflict of interests with respect to any recommendation and other related information and opinions.

CGS-CIMB India, its associates and the analyst engaged in preparation of this research report have not received any compensation for investment banking, merchant banking or brokerage services from the subject company mentioned in the research report in the past 12 months.

CGS-CIMB India, its associates and the analyst engaged in preparation of this research report have not managed or co-managed public offering of securities for the subject company mentioned in the research report in the past 12 months. The analyst from CGS-CIMB India engaged in preparation of this research report or his/her relative (a) do not have any financial interests in the subject company mentioned in this research report; (b) do not own 1% or more of the equity securities of the subject company mentioned in the research report as of the last day of the month preceding the publication of the research report; (c) do not have any material conflict of interest at the time of publication of the research report.

**Indonesia:** This report is issued and distributed by PT CGS-CIMB Sekuritas Indonesia ("CGS-CIMB Indonesia"). The views and opinions in this research report are our own as of the date hereof and are subject to change. CGS-CIMB Indonesia has no obligation to update its opinion or the information in this research report. This report is for private circulation only to clients of CGS-CIMB Indonesia. Neither this report nor any copy hereof may be distributed in Indonesia or to any Indonesian citizens wherever they are domiciled or to Indonesian residents except in compliance with applicable Indonesian capital market laws and regulations.

This research report is not an offer of securities in Indonesia. The securities referred to in this research report have not been registered with the Financial Services Authority (Otoritas Jasa Keuangan) pursuant to relevant capital market laws and regulations, and may not be offered or sold within the territory of the Republic of Indonesia or to Indonesian citizens through a public offering or in circumstances which constitute an offer within the meaning of the Indonesian capital market law and regulations.

**Ireland:** CGS-CIMB is not an investment firm authorised in the Republic of Ireland and no part of this document should be construed as CGS-CIMB acting as, or otherwise claiming or representing to be, an investment firm authorised in the Republic of Ireland.

**Malaysia:** This report is distributed in Malaysia by CGS-CIMB Securities Sdn. Bhd. ("CGS-CIMB Malaysia") solely for the benefit of and for the exclusive use of our clients. Recipients of this report are to contact CGS-CIMB Malaysia, at Level 29, Menara Bumiputra-Commerce, No. 11, Jalan Raja Laut, 50350 Kuala Lumpur, Malaysia, in respect of any matters arising from or in connection with this report. CGS-CIMB Malaysia has no obligation to update, revise or reaffirm its opinion or the information in this research reports after the date of this report.

**New Zealand:** In New Zealand, this report is for distribution only to persons who are wholesale clients pursuant to section 5C of the Financial Advisers Act 2008.

**Singapore:** This report is issued and distributed by CGS-CIMB Securities (Singapore) Pte Ltd ("CGS-CIMB Singapore"). CGS-CIMB Singapore is a capital markets services licensee under the Securities and Futures Act (Chapter 289). Accordingly, it is exempted from the requirement to hold a financial adviser's licence under the Financial Advisers Act, Cap 110 ("FAA") for advising on investment products, by issuing or promulgating research analyses or research reports, whether in electronic, print or other form. CGS-CIMB Singapore is subject to the applicable rules under the FAA unless it is able to avail itself to any prescribed exemptions.

Recipients of this report are to contact CGS-CIMB Singapore, 10 Marina Boulevard, Marina Bay Financial Centre Tower 2, #09-01, Singapore

018983 in respect of any matters arising from, or in connection with this report. CGS-CIMB Singapore has no obligation to update its opinion or the information in this research report. This publication is strictly confidential and is for private circulation only. If you have not been sent this report by CGS-CIMB Singapore directly, you may not rely, use or disclose to anyone else this report or its contents.

If the recipient of this research report is not an accredited investor, expert investor or institutional investor, CGS-CIMB Singapore accepts legal responsibility for the contents of the report without any disclaimer limiting or otherwise curtailing such legal responsibility. If the recipient is an accredited investor, expert investor or institutional investor, the recipient is deemed to acknowledge that CGS-CIMB Singapore is exempt from certain requirements under the FAA and its attendant regulations, and as such, is exempt from complying with the following:

- (a) Section 25 of the FAA (obligation to disclose product information);
- (b) Section 27 (duty not to make recommendation with respect to any investment product without having a reasonable basis where you may be reasonably expected to rely on the recommendation) of the FAA;
- (c) MAS Notice on Information to Clients and Product Information Disclosure [Notice No. FAA-N03];
- (d) MAS Notice on Recommendation on Investment Products [Notice No. FAA-N16];
- (e) Section 36 (obligation on disclosure of interest in specified products), and
- (f) any other laws, regulations, notices, directive, guidelines, circulars and practice notes which are relates to the above, to the extent permitted by applicable laws, as may be amended from time to time, and any other laws, regulations, notices, directive, guidelines, circulars, and practice notes as we may notify you from time to time. In addition, the recipient who is an accredited investor, expert investor or institutional investor acknowledges that as CGS-CIMB Singapore is exempt from Section 27 of the FAA, the recipient will also not be able to file a civil claim against CGS-CIMB Singapore for any loss or damage arising from the recipient's reliance on any recommendation made by CGS-CIMB Singapore which would otherwise be a right that is available to the recipient under Section 27 of the FAA.

CGS-CIMB Singapore, its affiliates and related corporations, their directors, associates, connected parties and/or employees may own or have positions in specified products of the company(ies) covered in this research report or any specified products related thereto and may from time to time add to or dispose of, or may be materially interested in, any such specified products. Further, CGS-CIMB Singapore, its affiliates and its related corporations do and seek to do business with the company(ies) covered in this research report and may from time to time act as market maker or have assumed an underwriting commitment in specified products of such company(ies), may sell them to or buy them from customers on a principal basis and may also perform or seek to perform significant investment banking, advisory, underwriting or placement services for or relating to such company(ies) as well as solicit such investment, advisory or other services from any entity mentioned in this report.

As of April 28, 2022, CGS-CIMB Singapore does not have a proprietary position in the recommended specified products in this report.

CGS-CIMB Singapore does not make a market on other securities mentioned in the report.

**South Korea:** This report is issued and distributed in South Korea by CGS-CIMB Securities (Hong Kong) Limited, Korea Branch ("CGS-CIMB Korea") which is licensed as a cash equity broker, and regulated by the Financial Services Commission and Financial Supervisory Service of Korea. In South Korea, this report is for distribution only to professional investors under Article 9(5) of the Financial Investment Services and Capital Market Act of Korea ("FSCMA").

**Spain:** This document is a research report and it is addressed to institutional investors only. The research report is of a general nature and not personalised and does not constitute investment advice so, as the case may be, the recipient must seek proper advice before adopting any investment decision. This document does not constitute a public offering of securities.

CGS-CIMB is not registered with the Spanish Comision Nacional del Mercado de Valores to provide investment services.

**Sweden:** This report contains only marketing information and has not been approved by the Swedish Financial Supervisory Authority. The distribution of this report is not an offer to sell to any person in Sweden or a solicitation to any person in Sweden to buy any instruments described herein and may not be forwarded to the public in Sweden.

**Switzerland:** This report has not been prepared in accordance with the recognized self-regulatory minimal standards for research reports of banks issued by the Swiss Bankers' Association (Directives on the Independence of Financial Research).

**Thailand:** This report is issued and distributed by CGS-CIMB Securities (Thailand) Co. Ltd. ("CGS-CIMB Thailand") based upon sources believed to be reliable (but their accuracy, completeness or correctness is not guaranteed). The statements or expressions of opinion herein were arrived at after due and careful consideration for use as information for investment. Such opinions are subject to change without notice and CGS-CIMB Thailand has no obligation to update its opinion or the information in this research report.

CGS-CIMB Thailand may act or acts as Market Maker, and issuer and offeror of Derivative Warrants and Structured Note which may have the following securities as its underlying securities. Investors should carefully read and study the details of the derivative warrants in the prospectus before making investment decisions.

AAV, ACE, ADVANC, AEONTS, AMATA, AOT, AP, BAM, BANPU, BBL, BCH, BCP, BCPG, BDMS, BEC, BEM, BGRIM, BH, BJC, BTS, CBG, CENTEL, CHG, CK, CKP, COM7, CPALL, CPF, CPN, CRC, DELTA, DOHOME, DTAC, EA, EGCO, ESSO, GLOBAL, GPSC, GULF, GUNKUL, HANA, HMPRO, ICHI, INTUCH, IRPC, IVL, JAS, JMART, JMT, KBANK, KCE, KKP, KTB, KTC, LH, MAJOR, MEGA, MINT, MTC, NRF, OR, ORI, OSP, PLANB, PRM, PSL, PTG, PTL, PTT, PTTEP, PTTGC, QH, RATCH, RBF, RS, SAWAD, SCB, SCC, SCGP, SINGER, SPALI, SPRC, STA, STEC, STGT, SUPER, SYNEX, TASCO, TCAP, THANI, TISCO, TKN, TOP, TQM, TRUE, TTB, TU, TVO, VGI, WHA

#### Corporate Governance Report:

The disclosure of the survey result of the Thai Institute of Directors Association ("IOD") regarding corporate governance is made pursuant to the policy of the Office of the Securities and Exchange Commission. The survey of the IOD is based on the information of a company listed on the Stock Exchange of Thailand and the Market for Alternative Investment disclosed to the public and able to be accessed by a general public investor. The result, therefore, is from the perspective of a third party. It is not an evaluation of operation and is not based on inside information.

The survey result is as of the date appearing in the Corporate Governance Report of Thai Listed Companies. As a result, the survey result may be changed after that date. CGS-CIMB Thailand does not confirm nor certify the accuracy of such survey result.

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

**United Arab Emirates:** The distributor of this report has not been approved or licensed by the UAE Central Bank or any other relevant licensing authorities or governmental agencies in the United Arab Emirates. This report is strictly private and confidential and has not been reviewed by,



deposited or registered with UAE Central Bank or any other licensing authority or governmental agencies in the United Arab Emirates. This report is being issued outside the United Arab Emirates to a limited number of institutional investors and must not be provided to any person other than the original recipient and may not be reproduced or used for any other purpose. Further, the information contained in this report is not intended to lead to the sale of investments under any subscription agreement or the conclusion of any other contract of whatsoever nature within the territory of the United Arab Emirates.

**United Kingdom and European Economic Area (EEA):** In the United Kingdom and European Economic Area, this material is also being distributed by CGS-CIMB Securities (UK) Limited ("CGS-CIMB UK"). CGS-CIMB UK is authorized and regulated by the Financial Conduct Authority and its registered office is at 53 New Broad Street, London EC2M 1JJ. The material distributed by CGS-CIMB UK has been prepared in accordance with CGS-CIMB's policies for managing conflicts of interest arising as a result of publication and distribution of this material. This material is for distribution only to, and is solely directed at, selected persons on the basis that those persons: (a) are eligible counterparties and professional clients of CGS-CIMB UK; (b) have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended, the "Order"), (c) fall within Article 49(2)(a) to (d) ("high net worth companies, unincorporated associations etc") of the Order; (d) are outside the United Kingdom subject to relevant regulation in each jurisdiction, material (all such persons together being referred to as "relevant persons"). This material is directed only at relevant persons and must not be acted on or relied on by persons who are not relevant persons. Any investment or investment activity to which this material relates is available only to relevant persons and will be engaged in only with relevant persons.

This material is categorised as non-independent for the purposes of CGS-CIMB UK and therefore does not provide an impartial or objective assessment of the subject matter and does not constitute independent research. Consequently, this material has not been prepared in accordance with legal requirements designed to promote the independence of research and will not be subject to any prohibition on dealing ahead of the dissemination of research. Therefore, this material is considered a marketing communication.

**United States:** This research report is distributed in the United States of America by CGS-CIMB Securities (USA) Inc, a U.S. registered broker-dealer and an affiliate of CGS-CIMB Securities Sdn. Bhd., CGS-CIMB Securities (Singapore) Pte Ltd, PT CGS-CIMB Sekuritas Indonesia, CGS-CIMB Securities (Thailand) Co. Ltd, CGS-CIMB Securities (Hong Kong) Limited and CGS-CIMB Securities (India) Private Limited, and is distributed solely to persons who qualify as "U.S. Institutional Investors" as defined in Rule 15a-6 under the Securities and Exchange Act of 1934. This communication is only for Institutional Investors whose ordinary business activities involve investing in shares, bonds, and associated securities and/or derivative securities and who have professional experience in such investments. Any person who is not a U.S. Institutional Investor or Major Institutional Investor must not rely on this communication. The delivery of this research report to any person in the United States of America is not a recommendation to effect any transactions in the securities discussed herein, or an endorsement of any opinion expressed herein. CGS-CIMB Securities (USA) Inc, is a FINRA/SIPC member and takes responsibility for the content of this report. For further information or to place an order in any of the above-mentioned securities please contact a registered representative of CGS-CIMB Securities (USA) Inc.

CGS-CIMB Securities (USA) Inc. does not make a market on other securities mentioned in the report.

CGS-CIMB Securities (USA) Inc. has not managed or co-managed a public offering of any of the securities mentioned in the past 12 months.

CGS-CIMB Securities (USA) Inc. has not received compensation for investment banking services from any of the company mentioned in the past 12 months.

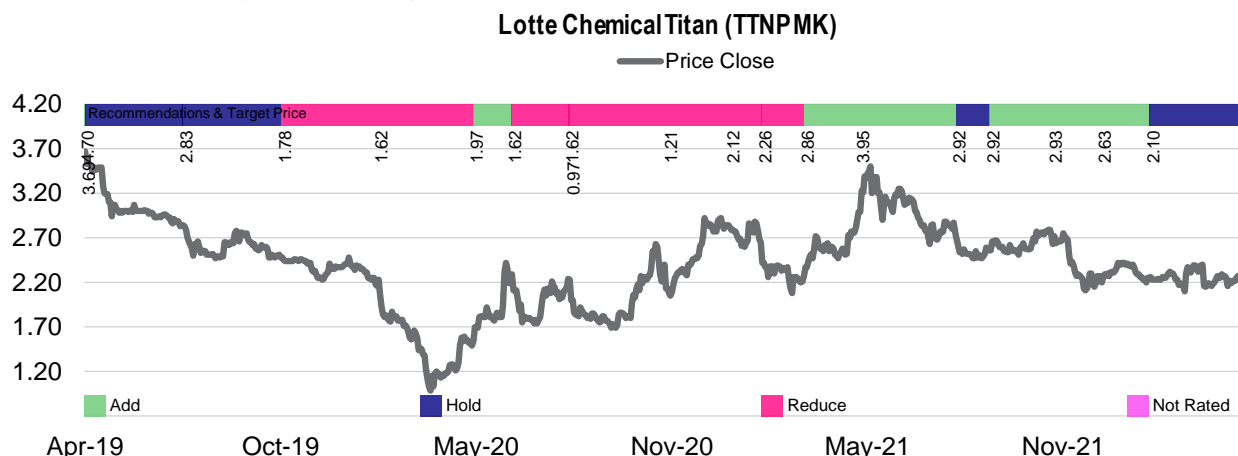
CGS-CIMB Securities (USA) Inc. neither expects to receive nor intends to seek compensation for investment banking services from any of the company mentioned within the next 3 months.

**United States Third-Party Disclaimer:** If this report is distributed in the United States of America by Raymond James & Associates, Inc ("RJA"), this report is third-party research prepared for and distributed in the United States of America by RJA pursuant to an arrangement between RJA and CGS-CIMB Securities International Pte. Ltd. ("CGS-CIMB"). CGS-CIMB is not an affiliate of RJA. This report is distributed solely to persons who qualify as "U.S. Institutional Investors" or as "Major U.S. Institutional Investors" as defined in Rule 15a-6 under the Securities and Exchange Act of 1934, as amended. This communication is only for U.S. Institutional Investors or Major U.S. Institutional Investor whose ordinary business activities involve investing in shares, bonds, and associated securities and/or derivative securities and who have professional experience in such investments. Any person who is not a U.S. Institutional Investor or Major U.S. Institutional Investor must not rely on this communication. The delivery of this report to any person in the U.S. is not a recommendation to effect any transactions in the securities discussed herein, or an endorsement of any opinion expressed herein. If you are receiving this report in the U.S from RJA, a FINRA/SIPC member, it takes responsibility for the content of this report. For further information or to place an order in any of the above-mentioned securities please contact a registered representative of CGS-CIMB Securities (USA) Inc. or RJA. <https://raymondjames.com/InternationalEquityDisclosures>

**Other jurisdictions:** In any other jurisdictions, except if otherwise restricted by laws or regulations, this report is only for distribution to professional, institutional or sophisticated investors as defined in the laws and regulations of such jurisdictions.

| Distribution of stock ratings and investment banking clients for quarter ended on 31 December 2021 |                         |                                |
|--|-------------------------|--------------------------------|
| 619 companies under coverage for quarter ended on 31 December 2021                                 |                         |                                |
|  | Rating Distribution (%) | Investment Banking clients (%) |
| Add  | 71.1%                   | 1.5%                           |
| Hold   | 21.8%                   | 0.0%                           |
| Reduce   | 7.1%                    | 0.0%                           |

## Spitzer Chart for stock being researched ( 2 year data )



## Corporate Governance Report of Thai Listed Companies (CGR). CG Rating by the Thai Institute of Directors Association (Thai IOD) in 2021, Anti-Corruption 2021

**ADVANC** – Excellent, Certified, **AMATA** – Excellent, Certified, **ANAN** – Excellent, n/a, **AOT** – Excellent, n/a, **AP** – Excellent, Certified, **ASP** – Excellent, n/a, **AWC** – Excellent, Declared, **AU** – Good, n/a, **BAM** – Very Good, Certified, **BAY** – Excellent, Certified, **BBL** – Excellent, Certified, **BCH** – Very Good, Certified, **BCP** – Excellent, Certified, **BCPG** – Excellent, Certified, **BDMS** – Excellent, n/a, **BEAUTY** – Good, n/a, **BEM** – Excellent, n/a, **BH** – Good, n/a, **BJC** – Very Good, n/a, **BLA** – Very Good, Certified, **BTS** – Excellent, Certified, **CBG** – Very Good, n/a, **CCET** – n/a, n/a, **CENTEL** – Excellent, Certified, **CHAYO** – Very Good, n/a, **CHG** – Very Good, n/a, **CK** – Excellent, n/a, **COM7** – Excellent, Certified, **CPALL** – Excellent, Certified, **CPF** – Excellent, Certified, **CPN** – Excellent, Certified, **CPNREIT** – n/a, n/a, **CRC** – Excellent, Declared, **DELTA** – Excellent, Certified, **DDD** – Excellent, n/a, **DIF** – n/a, n/a, **DOHOME** – Very Good, Declared, **DREIT** – n/a, n/a, **DTAC** – Excellent, Certified, **ECL** – Excellent, Certified, **EGCO** – Excellent, Certified, **EPG** – Excellent, Certified, **ERW** – Very Good, Certified, **GFPT** – Excellent, Certified, **GGC** – Excellent, Certified, **GLOBAL** – Excellent, n/a, **HANA** – Excellent, Certified, **HMPRO** – Excellent, Certified, **HUMAN** – Good, n/a, **ICHI** – Excellent, Certified, **III** – Excellent, Declared, **INTUCH** – Excellent, Certified, **IRPC** – Excellent, Certified, **ITD** – Very Good, n/a, **IVL** – Excellent, Certified, **JASIF** – n/a, n/a, **JKN** – n/a, Certified, **JMT** – Very Good, n/a, **KBANK** – Excellent, Certified, **KCE** – Excellent, Certified, **KEX** – Very Good, Declared, **KKP** – Excellent, Certified, **KSL** – Excellent, Certified, **KTB** – Excellent, Certified, **KTC** – Excellent, Certified, **LH** – Excellent, n/a, **LPN** – Excellent, Certified, **M** – Very Good, Certified, **MAKRO** – Excellent, Certified, **MC** – Excellent, Certified, **MEGA** – Very Good, n/a, **MINT** – Excellent, Certified, **MTC** – Excellent, Certified, **NETBAY** – Very Good, n/a, **NRF** – Very Good, Declared, **OR** – Excellent, n/a, **ORI** – Excellent, Certified, **OSP** – Excellent, n/a, **PLANB** – Excellent, Certified, **PRINC** – Very Good, Certified, **PR9** – Excellent, Declared, **PSH** – Excellent, Certified, **PTT** – Excellent, Certified, **PTTEP** – Excellent, n/a, **PTTGC** – Excellent, Certified, **QH** – Excellent, Certified, **RAM** – n/a, n/a, **RBF** – Very Good, n/a, **RS** – Excellent, Declared, **RSP** – Good, n/a, **S** – Excellent, n/a, **SAK** – Very Good, Declared, **SAPPE** – Very Good, Certified, **SAWAD** – Very Good, n/a, **SCB** – Excellent, Certified, **SCC** – Excellent, Certified, **SCGP** – Excellent, Declared, **SECURE** – n/a, n/a, **SHR** – Excellent, n/a, **SIRI** – Excellent, Certified, **SPA** – Very Good, n/a, **SPALI** – Excellent, Certified, **SPRC** – Excellent, Certified, **SSP** – Good, Certified, **STEC** – Excellent, n/a, **SVI** – Excellent, Certified, **SYNEX** – Very Good, Certified, **TCAP** – Excellent, Certified, **THANI** – Excellent, Certified, **TIDLOR** – n/a, Certified, **TISCO** – Excellent, Certified, **TKN** – Very Good, n/a, **TOP** – Excellent, Certified, **TRUE** – Excellent, Certified, **TTB** – Excellent, Certified, **TU** – Excellent, Certified, **TVO** – Excellent, Certified, **VGI** – Excellent, Certified, **WHA** – Excellent, Certified, **WHART** – n/a, n/a, **WICE** – Excellent, Certified, **WORK** – Good, n/a.

- CG Score 2021 from Thai Institute of Directors Association (IOD)

- Companies participating in Thailand's Private Sector Collective Action Coalition Against Corruption programme (Thai CAC) under Thai Institute of Directors (as of August 5, 2021) are categorised into: companies that have declared their intention to join CAC, and companies certified by CAC.

| 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. |