

## China Oil &amp; Gas

## Weekly Theme: 2M24 energy demand and refined exports; CNOOC's new discovery

Industry Overview

## 2M24 oil &amp; gas demand and production picked up

According to NBS and China Customs data for 2M24, China crude oil apparent demand recorded 15.0mbd/123.4mnt in the first two months, +3% YoY, with refined oil production also up by 2% YoY at 118.8mnt. According to S&P, average utilization in China's state-owned refiners jumped to a five-month high of 82.4% in Jan and Feb, to meet robust domestic fuel demand during CNY. On the supply front, oil production in 2M24 was 4.3mbd/35.1mnt, +1% YoY on daily average basis; oil imports also grew by 3% YoY to 10.7mbd/88.3mnt under ample import quotas at the beginning of the year. In 2M24, China natural gas apparent demand reached a record high at 72bcm, up by 13% YoY. Domestic production registered 42bcm (+5.9% YoY on above-designated size enterprise basis) and the import was 30bcm (+23% YoY) of which LNG/PNG import comprised 18/12bcm, +19% YoY/+31% YoY, respectively.

## Refined exports muted in 2M24 on domestic demand

According to China customs data: In 2M24, China exported 5.6mnt refined oil (including diesel, gasoline and kerosene), down by 42% YoY from a post-reopening high base of 9.6mnt in 2M23. The export volume in the first two months accounted for 30% of the released 19mnt of fuel export quota for FY24. By products, diesel/gasoline/kerosene exports recorded 1.2/1.6/2.8mnt in 2M24, -73%/-31%/flat YoY respectively. With the support of healthy transportation fuel consumption during CNY, China gross refining margin (GRM) is constantly recovering since the start of 2024, from Dec'23 depression, with the 2M24 average GRM at US\$7.1/b (US\$4.8/b in Jan, US\$9.3/b in Feb) vs. negative US\$0.3/b in Dec 2023. Meanwhile, our tracked export arbitrage spread between Singapore and China shows that the spread of diesel came in at US\$6.4/b in 2M24 vs. US\$10.4/b in 2M23, and that of gasoline at US\$7.5/b in 2M24 vs. US\$5.1/b in 2M23.

## CNOOC's another mega reserve discovery in Bohai Basin

On 18 Mar, China's CNOOC announced another 104mnt oilfield discovery at Qinhuangdao 27-3 in Bohai Sea, following the discovery of a new deep-water and deep-play oilfield of 102mnt of oil equivalent in the South China Sea. The latest discovery is located in the north-central waters of the Bohai Sea, with an average water depth of 25 meters. The main oil-bearing play is the Minghuazhen Formation of Neogene, and the oil reserve is medium-heavy crude. The discovery well QHD27-3-3 was drilled and completed at a depth of 1,570 meters, which encountered a total of 48.9 meters oil pay zones. The field has been tested to produce 742bd from a single well. Through continued exploration, the proved in-place volume of Qinhuangdao 27-3 Oilfield has reached 104mnt of oil equivalent. YTD, CNOOC has discovered more than 200mnt of mega oil & gas reserve in domestic offshore oilfield.

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CNY: Chinese New Year

Mbd: Million barrels per day

Bd: Barrels per day

Bcm: Billion cubic meters

LNG: Liquefied natural gas

PNG: Piped natural gas

YTD: Year to date

More abbreviations in appendix

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Timestamp: 18 March 2024 11:22AM EDT

## Weekly updates

Oil prices: Brent oil price rose 4.0% WoW to US\$85.3/b and WTI oil price increased 3.9% WoW to US\$81.0/b in the week ended 15 Mar 2024. WTI discount to Brent expanded to US\$4.3/b.

Factors supporting oil prices include:

- *Bloomberg* reports that the IEA anticipates a tighter oil market in 2024, raising its 2024 demand growth forecast to 1.3mbd and cutting its supply projection given OPEC+ is likely to extend cuts to the end of the year;
- *Bloomberg* reports that Ukrainian drone attacks have damaged three Russian oil refineries last week, which accounts for about 12% of the nation's oil processing capacity;
- *Bloomberg* reports that US Energy Department is seeking 3mb of oil for Strategic Petroleum Reserve for Aug and Sep delivery;
- The US commercial crude oil inventory decreased 2mb WoW to 447mb through the week ended 8 Mar 2024;
- The US crude output (one-week lag) decreased 0.1mbd WoW to 13.1mbd through the week ended 8 Mar 2024;

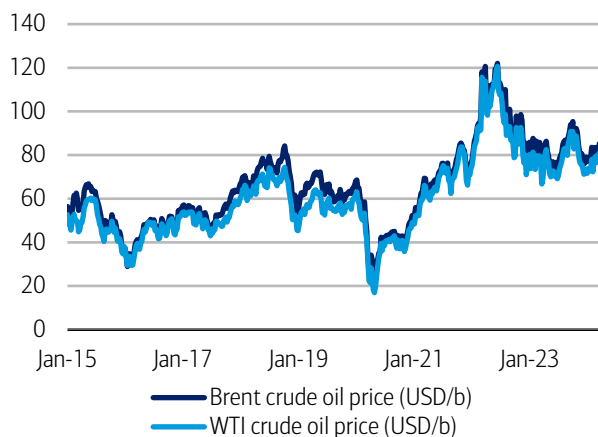
Factors suppressing oil prices include:

- *Reuters* reports that the EIA forecast US oil production growth will be 260kbd in 2024, up by 90kbd from its previous forecast, but also anticipate a slowdown in global growth due to OPEC+'s production cuts;
- The US rigs count climbed to 626 rigs (oil rigs +6 WoW to 510 and gas rigs +1 WoW to 116) through the week ended 15 Mar 2024;

*JLC* reports that Sinopec has signed a strategic cooperation framework agreement with CATL on collaboration covering new energy, chemical new materials, technological innovation and energy storage.

**Exhibit 1: Brent and WTI weekly prices**

Brent oil price rose 4.0% WoW to US\$85.3/b and WTI oil price increased 3.9% WoW to US\$81.0/b in the week ended 15 Mar 2024

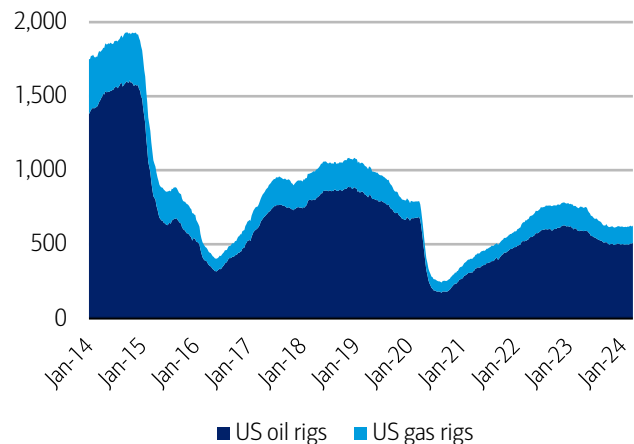


Source: Bloomberg, BofA Global Research

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**Exhibit 2: US weekly oil and gas rig count**

Oil rigs +6 and gas rigs +1 WoW

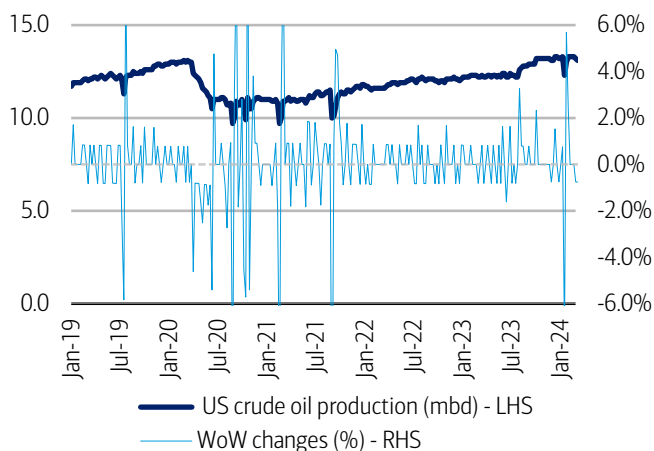


Source: Baker Hughes, Bloomberg, BofA Global Research

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**Exhibit 3: US crude oil production**

Decreased 0.1mbd WoW to 13.1mbd

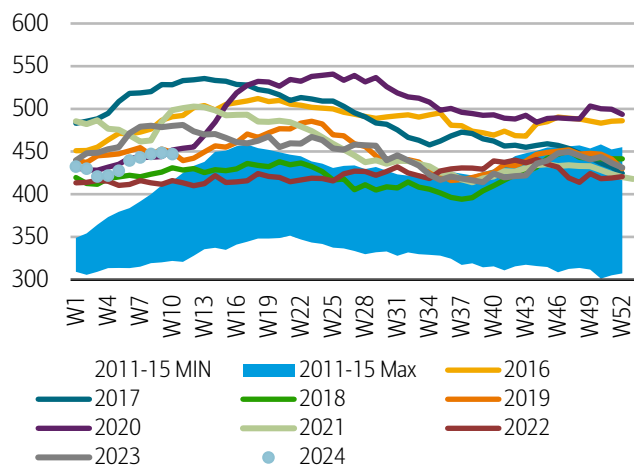


Source: EIA, Bloomberg, BofA Global Research

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**Exhibit 4: US weekly crude oil inventory (mb)**

Decreased 2mb WoW to 447mb

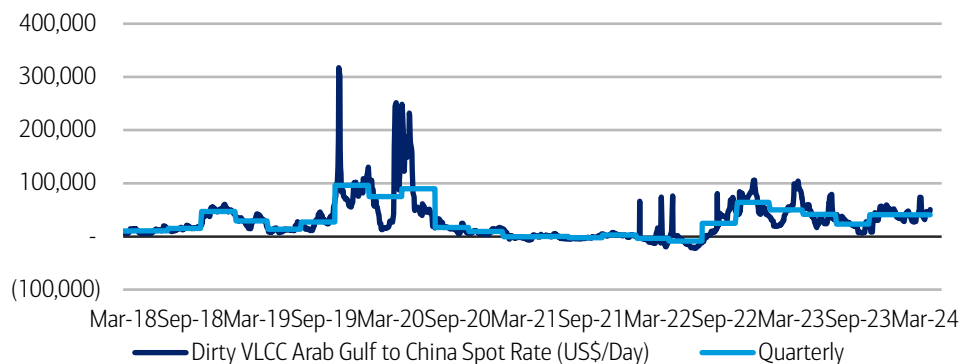


Source: EIA, Bloomberg, BofA Global Research

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**Exhibit 5: Dirty VLCC Arab Gulf to China spot rate (US\$/day)**

Crude oil shipping cost from Arab Gulf to China



Source: Bloomberg, BofA Global Research

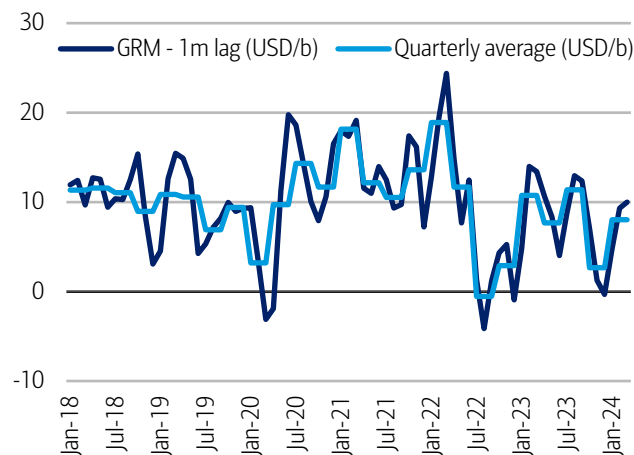
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## Refining

- China's refining margin (one-month crude price lag) in Mar 2024 rose to US\$10.0/b, from US\$9.3/b in Feb 2024. YTD, average GRM came in at US\$8.0/b;
- National Development and Reform Commission (NDRC) kept gasoline and diesel retail prices unchanged in the latest round of price adjustment on 18 Mar 2024; prices are now RMB9,105/ton and RMB8,065/ton, respectively. The next round of price adjustment is scheduled for 1 Apr;
- The run rate of independent refineries in Shandong in the week ended 15 Mar 2024 increased WoW to 54.1% vs. 56.8% in Feb 2024. The YTD rate averaged 57.6% in 2024, vs 61.9% in 2023;
- Based on one-month lag crude price, China diesel crack margin was flat WoW at US\$21.6/b and gasoline crack margin was flat WoW at US\$14.7/b in the week ended 15 Mar 2024;
- Compared with Singapore Dubai Crack margin, the export arbitrage spread for diesel expanded WoW to a positive US\$1.2/b (+US0.4/b WoW) and for gasoline expanded WoW to positive US\$3.4/b (+US\$1.4/b WoW) in the week ended 15 Mar 2024.

### Exhibit 6: China gross refining margin (GRM) with 1month lag in crude prices

Profit of US\$10.0/b in Mar 2024, vs. US\$9.3/b in the previous month

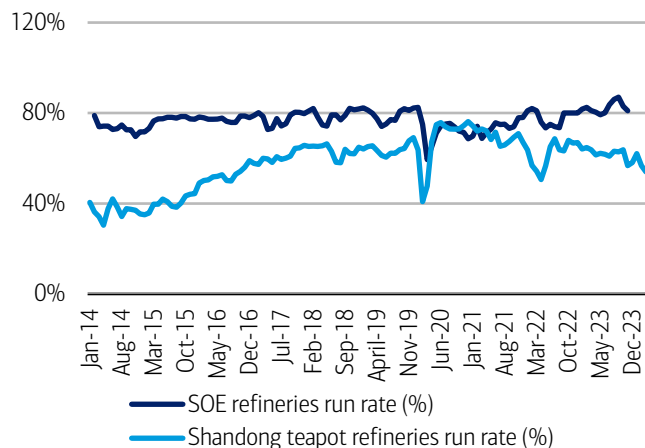


Source: Wind, BofA Global Research estimates

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### Exhibit 7: Shandong teapots refinery run rates (%)

Average run rate of teapots declined to 54.1% vs. 56.8% in Feb for the week ended 15 Mar

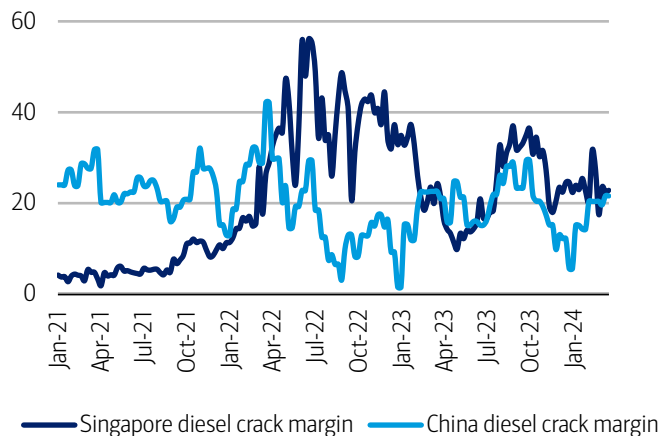


Source: Bloomberg, S&P Global, BofA Global Research

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**Exhibit 8: Diesel crack margin in China vs. Singapore (US\$/b)**

China diesel crack margin was US\$21.6/b for the week ended 15 Mar

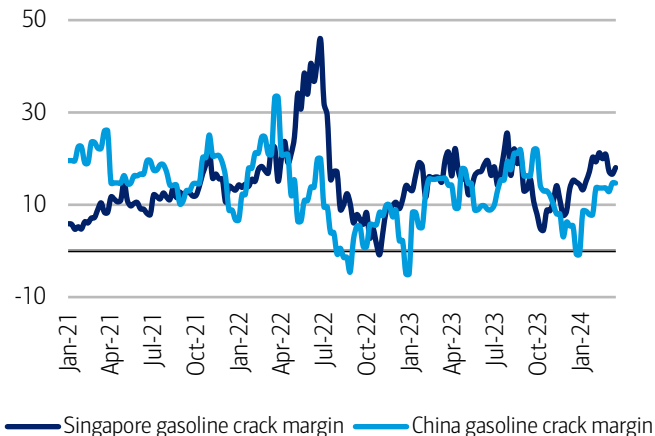


Source: Bloomberg, Wind, BofA Global Research

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**Exhibit 9: Gasoline crack margin in China vs. Singapore (US\$/b)**

China gasoline crack margin was US\$14.7/b for the week ended 15 Mar

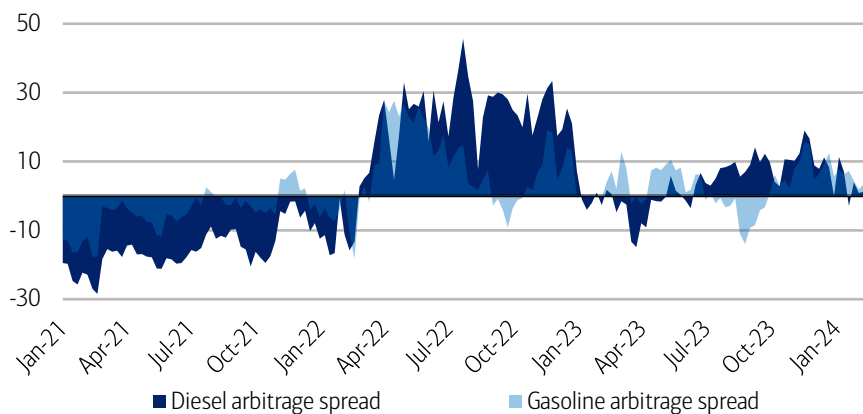


Source: Bloomberg, Wind, BofA Global Research

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**Exhibit 10: Diesel/gasoline export arbitrage spread**

Export arbitrage spread for diesel expanded WoW to positive US\$1.2/b (+US\$0.4/b WoW) and that for gasoline expanded to positive US\$3.4/b (+US\$1.4/b WoW), respectively, for the week ended 15 Mar



Source: Bloomberg, Wind, BofA Global Research

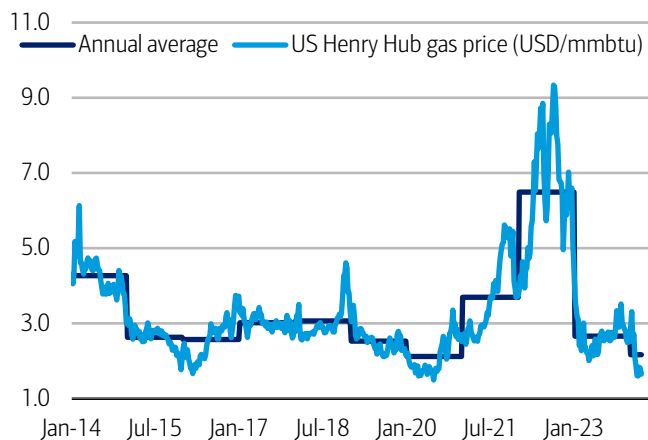
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## Natural gas

- The US Henry Hub natural gas price decreased by 8.3% WoW to US\$1.66/mmbtu in the week ended 15 Mar 2024, 29.2% lower YoY;
- The Netherlands TTF natural gas price increased by 1.6% WoW to US\$8.68/mmbtu in the week ended 15 Mar 2024, 35.3% lower YoY;
- The JKM swap future rose by 0.7% WoW to USD8.52/mmbtu in the week ended 15 Mar 2024, 35.3% lower YoY;
- Reuters reports that Sinopec has started natural gas production at West Sichuan Gas Field with the annual production capacity of 2bcm.

### Exhibit 11: US Henry Hub natural gas price (US\$/mmbtu)

Decreased by 8.3% WoW to US\$1.66/mmbtu

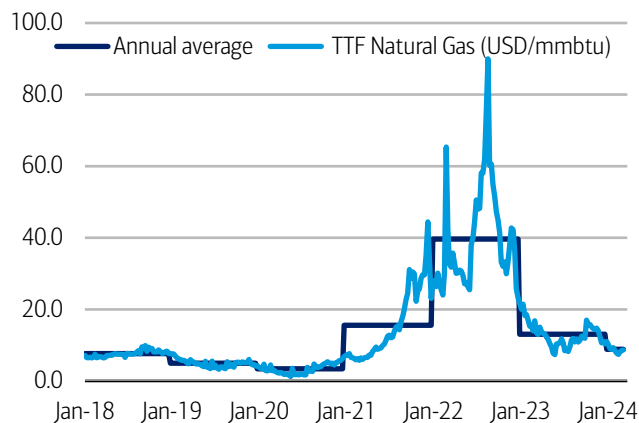


Source: Bloomberg, BofA Global Research

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### Exhibit 12: Netherlands TTF Natural gas price (US\$/mmbtu)

Increased by 1.6% WoW to US\$8.68/mmbtu

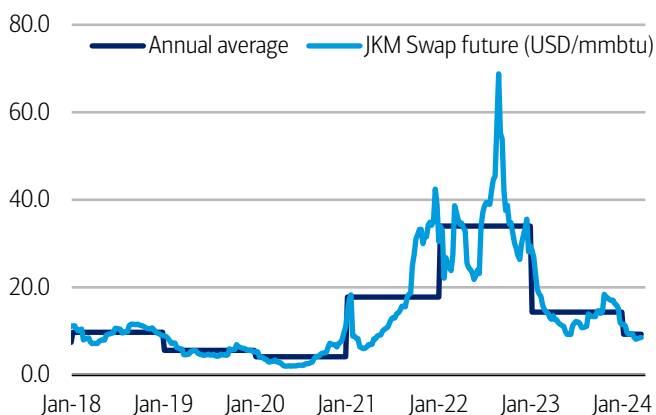


Source: Bloomberg, BofA Global Research

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### Exhibit 13: Northern Asia LNG-JKM swap future (US\$/mmbtu)

Increased by 0.7% WoW to USD8.52/mmbtu



Source: Bloomberg, BofA Global Research

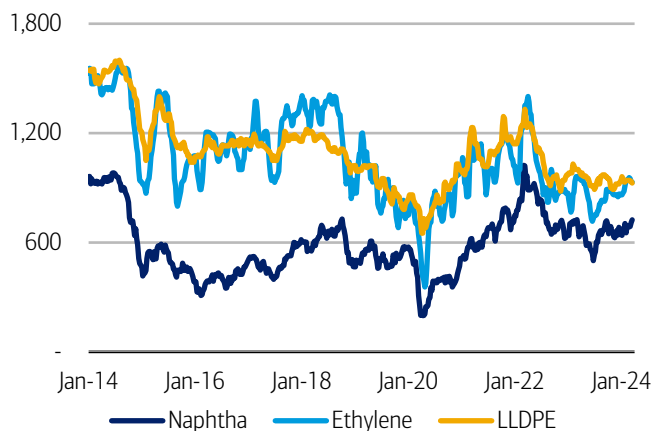
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## Chemicals

- Northeast Asia LLDPE price decreased WoW to US\$926/ton and PP price was flat WoW at US\$874/ton in the week ended 15 Mar 2024;
- LLDPE-ethylene spread turned to a loss of US\$5/ton;
- PP-propylene spread was flat WoW at US\$58/ton;
- East China m-MDI price decreased by 1% WoW to RMB20,600/ton and p-MDI price decreased by 2% WoW to RMB16,300/ton in the week ended 15 Mar 2024.

### Exhibit 14: Northeast Asia naphtha, ethylene and LLDPE prices (US\$/ton)

Ethylene price flat and LLDPE price decreased WoW

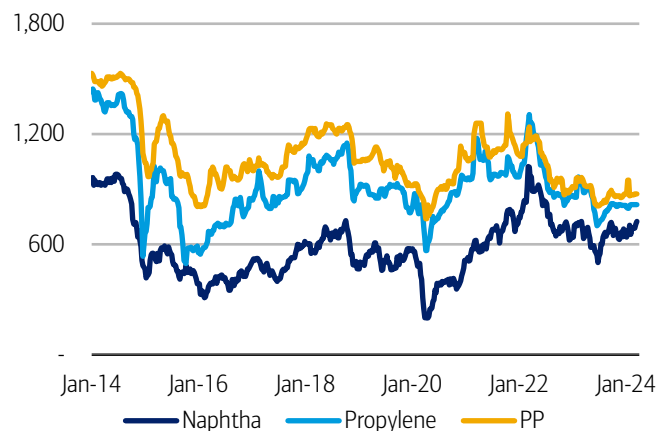


Source: Wind, BofA Global Research

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### Exhibit 15: Northeast Asia naphtha, propylene and PP prices (US\$/ton)

Propylene price and PP price flat WoW

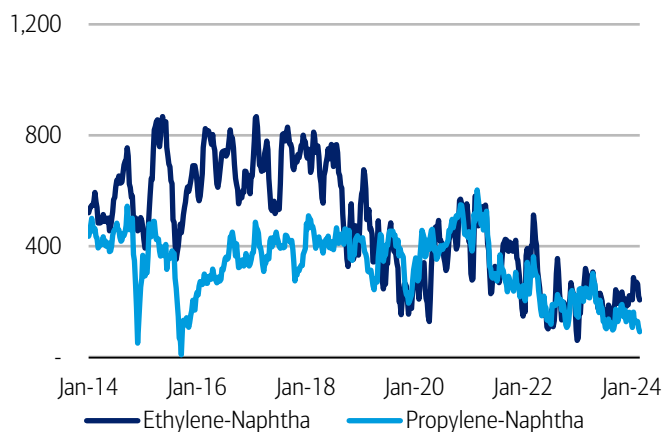


Source: Wind, BofA Global Research

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### Exhibit 16: Northeast Asia ethylene/propylene-naphtha spread (US\$/ton)

Ethylene-naphtha spread and propylene-naphtha spread narrowed WoW

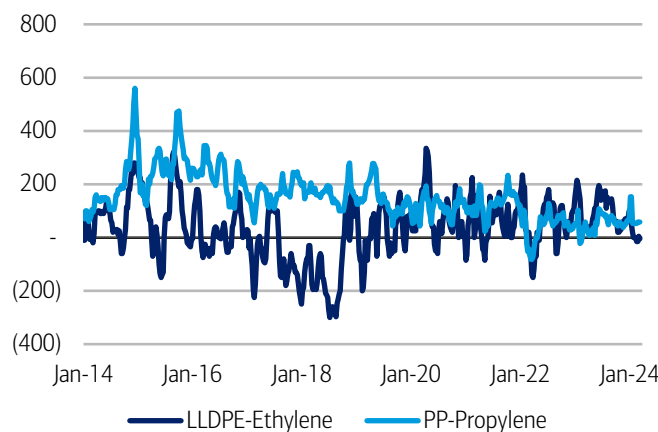


Source: Wind, BofA Global Research

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### Exhibit 17: Northeast Asia LLDPE-ethylene and PP-propylene spread (US\$/ton)

LLDPE-ethylene spread turned to a loss and PP-propylene spread flat WoW



Source: Wind, BofA Global Research

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**Exhibit 18: East China m-MDI and p-MDI price (RMB/ton)**

East China m-MDI price decreased by 1% WoW to RMB20,600/ton and p-MDI price decreased by 2% WoW to RMB16,300/ton in the week ended 15 Mar



Source: Wind, BofA Global Research

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## Appendix

**Exhibit 21: Abbreviations**

Abbreviations used in the report

Abbreviation	Full name	Abbreviation	Full name
bbl/b	Barrel(s)	m-MDI	Monomeric methylene diphenyl isocyanate
bnt	Billion tons	mntpa	Million tons per year
CCS	Carbon capture and storage	MoM	Month on month
CDU	Crude distillation unit	mnt	Million tons
cm	Cubic meters	MTBE	Methyl tert-butyl ether
CNPC	China national petroleum corporation	NBS	National bureau of statistics
EOR	Enhanced oil recovery	NDRC	National Development and Reform Commission
EVA	Ethylene vinyl acetate	PTR	PetroChina
FDPE	Full density polyethylene	p-MDI	Polymeric methylene diphenyl isocyanate
GRM	Gross refining margin	PP	Polypropylene
HDPE	High density polyethylene	SNP	Sinopec
JKM	Japan/Korea Marker (Northeast Asian spot price index for LNG delivered ex-ship to Japan and Korea)	SOE	State owned enterprise
ktpa	Thousand tons per year	t	Ton(s)
LLDPE	Linear low-density polyethylene	TTF	Title transfer facility
LNG	Liquefied natural gas	UHMWPE	Ultra-high molecular weight polyethylene
mb	Million barrels	VLCC	Very large crude carrier
mbd	Million barrels per day	WoW	Week on week
mmbtu	Metric million British thermal unit	WTI	West Texas Intermediate
mmt	Million metric tons	YoY	Year on year
MDI	Methylene diphenyl isocyanate	YTD	Year to date

Source: BofA Global Research

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Neutral	≥ 0%	≤ 30%
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<sup>R1</sup> Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

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