

PTT GLOBAL CHEMICAL

PTTGC TB

THAILAND / PETROCHEM & CHEMICALS

HOLD

FROM BUY

TARGET PRICE	THB56.00
CLOSE	THB51.50
UP/DOWNSIDE	+8.7%
PRIOR TP	THB75.00
CHANGE IN TP	-25.3%
TP vs CONSENSUS	-16.7%

Goodbye to legacy gas feedstock

- We turn more bearish on NP growth outlook in 2022-24 on weak olefins and aromatics margins outlook and higher naphtha cost.
- After COD of ORP in 2H21, we think PTTGC turned from a gas-based to naphtha-based olefins producer (only 40% gas-based).
- Downgrade to HOLD from Buy; lower TP to THB56.

Weaker feedstock competitiveness and industry downturn ahead

We turn more bearish on PTTGC's net profit growth outlook in 2022-24 due to four reasons: the weak outlook for olefins margins due to oversupply, a higher-for-longer naphtha cost due to the impact of Russia's invasion of Ukraine, the weak aromatics earnings outlook due to chronic oversupply, and a limited upside from the GRM recovery.

High oil price to jeopardize PTTGC's EBITDA margin in 2022

With a higher proportion of naphtha-to-gas feedstock which we estimate to rise from 30:70 pre-Olefins Reconfiguration Project (ORP) in 2018 to 60:40 post-ORP in 2022, PTTGC is now similar to most naphtha-based olefins producers in Asia. The higher naphtha price in tandem with our revised oil price assumptions of USD100/bbl for 2022 and USD90/bbl for 2023-24 would squeeze PTTGC's naphtha-based chemical production margins, further exacerbating the industry's weak olefins margins.

Structural change from gas-based to naphtha-based producer

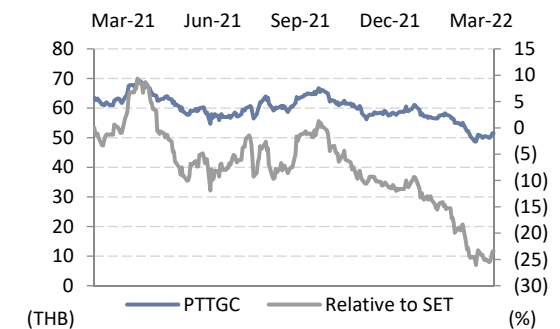
After the commencement of its new naphtha-based olefins plant ORP in 2H21, PTTGC has effectively turned from a gas-based to a naphtha-based olefins producer with the proportion of its gas-based olefins capacity down to only 40% post-ORP, based on our estimate. The higher naphtha price is likely to significantly erode PTTGC's EBITDA margin, and we think PTTGC's share price will diverge from the oil price's direction, reversing its historical trend as an indirect oil play as the competitiveness of its ethane and propane (gas) feedstocks have now decreased relative to the oil-based naphtha feedstock proportion.

Downgrade to HOLD and cut TP to THB56

We downgrade PTTGC to HOLD from Buy and lower our target price from THB75, previously based on 11.5x 2022E EV/EBITDA, down to THB56, now based on 8.1x 2022E EV/EBITDA, to reflect our more bearish view on PTTGC's olefins competitiveness as a result of the lower proportion of gas-based capacity after the addition of ORP and the poor margin outlook for aromatics products. We expect PTTGC's valuation de-rating to continue in 2022 and anticipate its one-year forward EV/EBITDA to structurally lower from its 10-year average of 8.4x down to 6x, the average valuation of its naphtha-based chemical peers in South Korea, which we think are the closest peers to PTTGC post the ORP addition.

KEY STOCK DATA

YE Dec (THB m)	2021	2022E	2023E	2024E
Revenue	468,953	497,682	470,425	471,550
Net profit	44,982	30,528	29,557	27,971
EPS (THB)	9.98	6.77	6.56	6.20
vs Consensus (%)	-	16.0	5.8	(6.7)
EBITDA	62,186	56,461	57,747	58,704
Core net profit	31,347	29,027	28,054	28,457
Core EPS (THB)	6.95	6.44	6.22	6.31
Chg. In EPS est. (%)	-	11.7	2.8	10.0
EPS growth (%)	326.2	(7.4)	(3.4)	1.4
Core P/E (x)	7.4	8.0	8.3	8.2
Dividend yield (%)	3.4	13.1	16.0	15.8
EV/EBITDA (x)	6.7	7.8	7.6	7.5
Price/book (x)	0.7	0.7	0.7	0.8
Net debt/Equity (%)	53.7	62.1	63.9	66.2
ROE (%)	10.5	9.1	8.9	9.3



Share price performance	1 Month	3 Month	12 Month
Absolute (%)	(6.4)	(12.0)	(18.6)
Relative to country (%)	(6.2)	(14.0)	(23.7)
Mkt cap (USD m)	6,918		
3m avg. daily turnover (USD m)	31.9		
Free float (%)	51		
Major shareholder	PTT Plc. (48%)		
12m high/low (THB)	70.00/47.50		
Issued shares (m)	4,508.85		

Sources: Bloomberg consensus; FSSIA estimates



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Investment thesis

With our projected weaker earnings starting in 2022 as a result of its weaker feedstock competitiveness after the start-up of its 0.75mtpa Olefins Reconfiguration Project (ORP) in 2H21, we think PTTGC's net profit and valuation are likely to weaken in 2022-24. The earnings from its high-volume specialty products should help partly offset the weaker earnings from its core olefins and aromatics units caused by the industry oversupply.

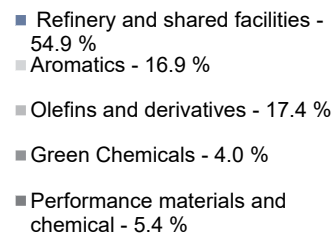
PTTGC is less attractive as a beneficiary of the strong projected GRM rise due to the lower GRM elasticity for its condensate residual splitter units, which should be more than offset by the weaker margins of PE, PP, PX, and benzene. The rising oil price would negatively impact PTTGC's olefins earnings as PTTGC now acquires over 60% of its feedstocks from naphtha vs only 40% from ethane.

Company profile

PTTGC was a merger between two previously listed petrochemical companies - PTTCH and PTTAR. PTTGC was listed on 21 October 2011. PTTCH and PTTAR shares were delisted on 11 October 2011 and their shareholders became shareholders of PTTGC based on an agreed swap ratio.

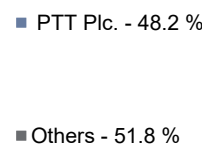
www.pttgcgroup.com

Principal activities (revenue, 2021)



Source: PTT Global Chemical

Major shareholders



Source: PTT Global Chemical

Catalysts

Potential key drivers are a weaker HDPE-naphtha margin and the continued weak margins of aromatics products.

Risks to our call

The key upside/downside risks to our EV/EBITDA-based TP are a stronger or weaker-than-expected HDPE price and HDPE-naphtha margin.

Event calendar

Date	Event
May 2022	1Q22 results announcement

Key assumptions

	2022E	2023E	2024E
Dubai oil price (USD/bbl)	100.0	90.0	90.0
Olefin utilisation rate (%)	95.0	96.0	97.0
Refinery utilisation rate (%)	90.0	90.0	90.0
HDPE-naphtha (USD/t)	450	590	640
HDPE price (USD/t)	1,450	1,400	1,450
LDPE-naphtha (USD/t)	650	790	840
LDPE price (USD/t)	1,650	1,600	1,650
LLDPE-naphtha (USD/t)	500	640	690
LLDPE price (USD/t)	1,500	1,450	1,500
MEG-naphtha (USD/t)	300	690	690
MEG price (USD/t)	1,300	1,500	1,500
Market GRM (USD/bbl)	9.2	9.5	8.7
Gasoline-Dubai (USD/bbl)	20	18	16
Jet-Dubai (USD/bbl)	23	22	20
Diesel-Dubai (USD/bbl)	24	22	20

Source: FSSIA estimates

Earnings sensitivity

- For every 1% increase in average Dubai oil price, we project 2022 earnings to rise by 1.2%, and vice versa.
- For every 1% increase in market GRM, we estimate 2022 earnings will rise by 0.5%, and vice versa.
- For every 1% increase in HDPE price, we estimate 2022 earnings will rise by 1.8%, and vice versa.

Source: FSSIA estimates

Goodbye to legacy gas feedstock competitiveness

We turn more bearish on PTTGC's net profit growth outlook in 2022-24 due to four reasons: the weak outlook for olefins margins due to oversupply, a higher-for-longer naphtha cost due to the impact of Russia's invasion of Ukraine, the weak aromatics earnings outlook due to chronic oversupplies, and a limited upside from the GRM recovery.

Exhibit 1: Capacity breakdown

Product	Capacity	Unit	Upstream/Downstream
Olefins - upstream	3.0	mtpa	Upstream
Ethylene	2.3	mtpa	Upstream
Propylene	0.5	mtpa	Upstream
Olefins Reconfiguration Project (ORP)			
Ethylene	0.5	mtpa	Upstream
Propylene	0.3	mtpa	Upstream
Olefins - Polymers downstream	2.0	mtpa	Downstream
HDPE	0.8	mtpa	Downstream
LDPE	0.3	mtpa	Downstream
LLDPE	0.8	mtpa	Downstream
Olefins - EO/EG downstream	0.5	mtpa	Downstream
Aromatics	2.4	mtpa	Downstream
PX	1.3	mtpa	Downstream
Benzene	0.7	mtpa	Downstream
PET & PTA	0.2	mtpa	Downstream
Other	1.0	mtpa	Downstream
Refinery	280	kbpd	Downstream
Total current petrochemical capacity	9.1	mtpa	
Upstream	5.0	mtpa	Upstream
Downstream	4.1	mtpa	Downstream
Capacity addition	1.8	mtpa	
Upstream	0.8	mtpa	Upstream
Downstream	1.1	mtpa	Downstream

Source: PTTGC

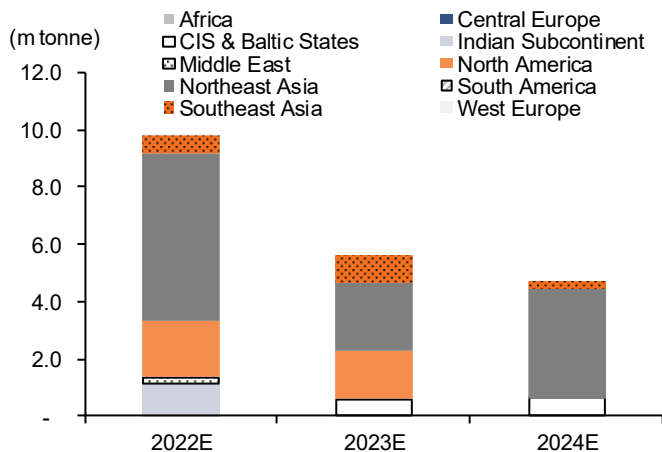
Weak margin outlook for PE and PP. The increasing supply of polyethylene (PE) and polypropylene (PP) are likely to pressure the margins of olefins, PTTGC's largest chemical unit, which accounted for over 60% of total EBITDA in 2021.

After the commencement of its new 0.8mtpa naphtha-based ORP olefins plant in 2H21, PTTGC has effectively turned from a gas-based to a naphtha-based olefins producer with the proportion of its gas-based olefins capacity dropping from 70% pre-ORP down to only 40% post-ORP, based on our estimate.

Hence, in 2022, the higher naphtha price is likely to significantly erode PTTGC's EBITDA margin and its share price has since diverged from the oil price's direction, reversing its historical trend as an indirect oil play as the competitiveness of its ethane and propane (gas) feedstocks have now decreased relative to the oil-based naphtha feedstock portion.

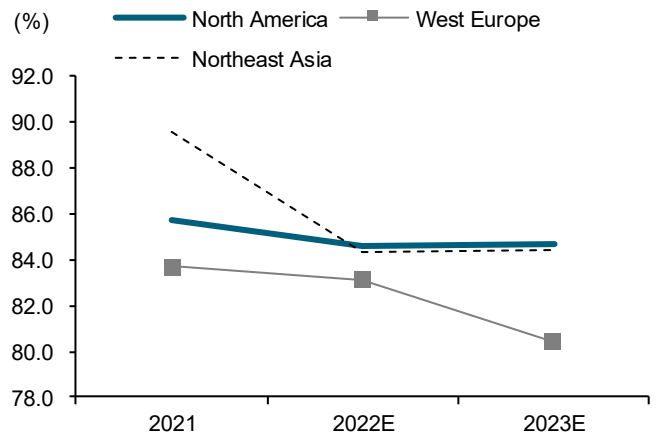
As PE supply growth should outpace the demand growth in 2022-23, we project the margin of high-density PE (HDPE) over naphtha to decline from USD650/t in 2021 down to USD500/t in 2022-23, thanks to the rising supply in China. We believe the margins of PE and ethylene and the utilisation rates for producers of ethylene and PE will likely decline from the 2021 level, with the producers in Southeast and Northeast Asia feeling the biggest pinch as a result of their less competitive cost structures and the oversupply in Asia compared with the import markets in Europe and North America.

Exhibit 2: Additional PE capacity



Source: IRPC

Exhibit 3: PE operating rate in North America, Western Europe and Northeast Asia

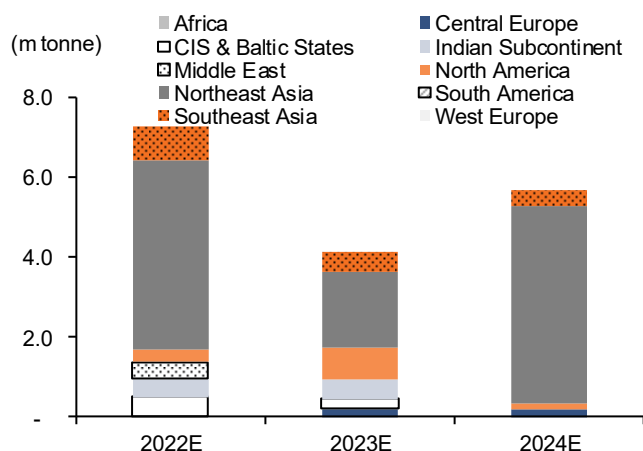


Source: IVL

The new supply of PP is expected to rise markedly in 2022 to 7.5mtpa, mostly coming from China's naphtha-based and gas-based propane dehydrogenation (PDH) plants using imported propane as a key feedstock. According to IVL, the projected global utilisation rate of PP producers should drop from 89% in 2021 to 87% in 2022-23, due to the new supply impact that should outweigh the strong demand impact.

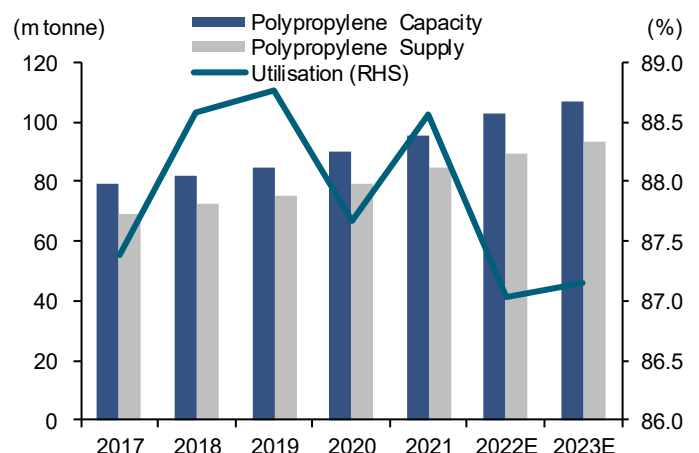
Most of the new supplies will come from Northeast Asia, mainly the PDH plants in China which saw a running rate of 80% in December 2021, down from 86% in November 2021, as the margin hit a record low at RMB-1,815/t (USD-283/t), due to the high price of propane feedstock. China's LPG imports fell 7.6% m-m in December 2021 to only 1.87mt, but were still up 12.3% y-y, according to China's General Administration of Customs data released in January 2022.

Exhibit 4: Additional PP capacity



Source: IRPC

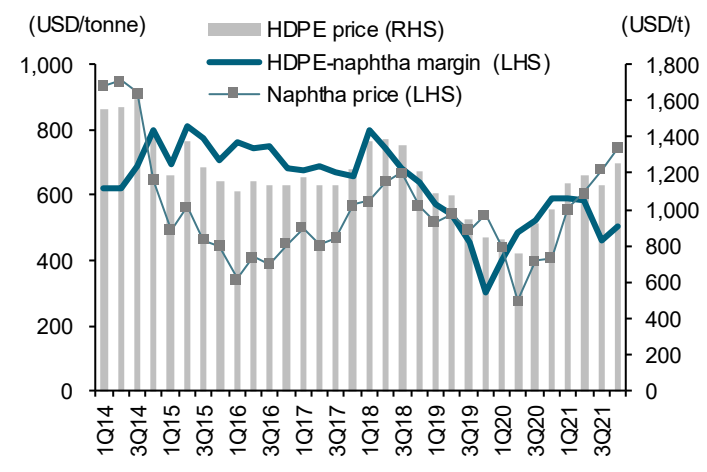
Exhibit 5: PP capacity, production and utilisation rate



Source: IVL

High naphtha cost. The higher-for-longer naphtha price in tandem with our revised oil price assumptions of USD100/bbl for 2022 and USD90/bbl for 2023-24, would squeeze PTTGC’s naphtha-based chemical production margins, which now stand at over 50%, while its legacy competitive gas-based olefins capacity proportion is now shrinking to only 40% of the total feedstocks used in 2022, based on our estimate.

Exhibit 6: HDPE price, HDPE-naphtha margin vs naphtha price



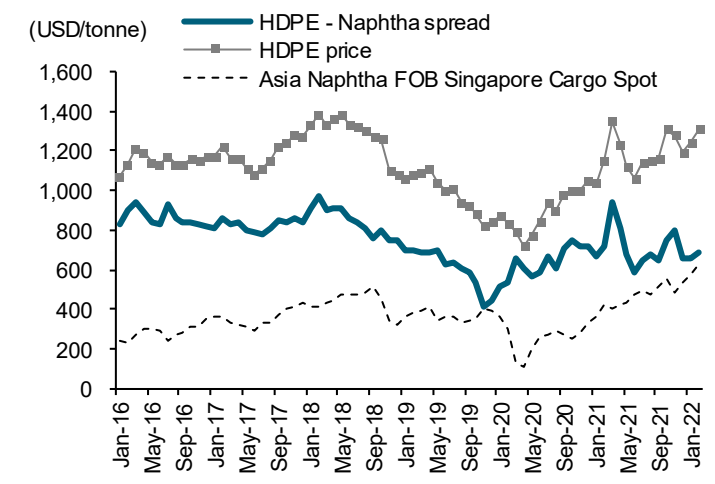
Sources: PTTGC; FSSIA estimates

With a higher proportion of naphtha-to-gas feedstock, which we expect to rise from 30:70 pre-ORP in 2018 to 60:40 post-ORP in 2022, PTTGC is now more or less similar to most olefins producers in Asia using naphtha as a key feedstock. Only Petronas Chemical (PCHEM MY), PTTGC’s former twin as a gas-based olefins producer in Asia, is now a gas-based chemical producer with its gas feedstock remaining at over 50%, based on our estimate.

The margins of propylene-naphtha and its derivative PP have been under pressure in the past three years before and during the pandemic period in 2019-21, hovering around USD400-500/t. It only spiked above USD500/t in 1Q21 due to the delay in new supplies, mainly the delay of Petronas’ USD27b Refinery and Petrochemical Integrated Development (RAPID) project in Pengerang, Malaysia, with a 630ktpa capacity of propylene, 165ktpa of benzene, and 180ktpa of butadiene, with a total capacity of 1.29mtpa.

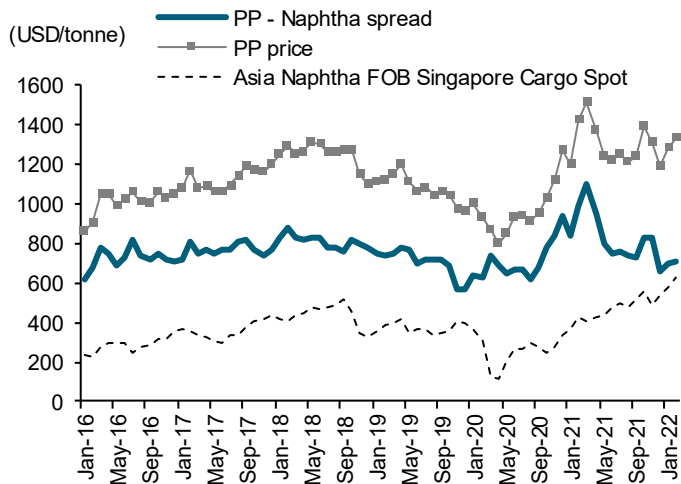
Even with the delay of RAPID, the margin of PP-naphtha has remained weak at USD500-700/t after peaking in 1Q21 due to the delay in the new supplies in Malaysia and China due to the lockdowns in response to the Covid-19 pandemic and the high naphtha cost.

Exhibit 7: Naphtha spread – HDPE



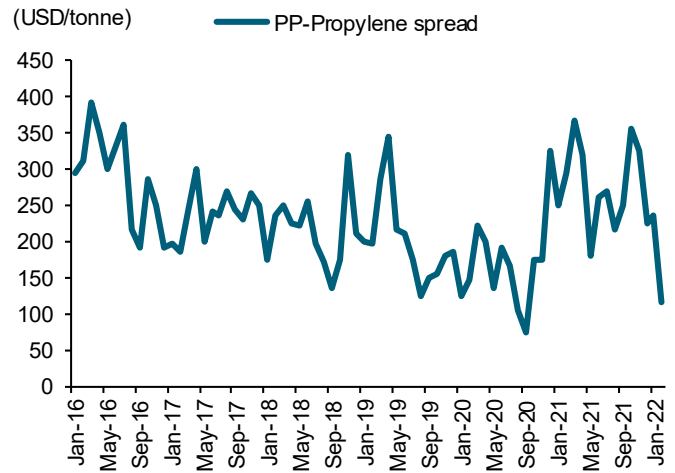
Source: Bloomberg

Exhibit 8: Margin and price of PP vs naphtha price



Source: Bloomberg

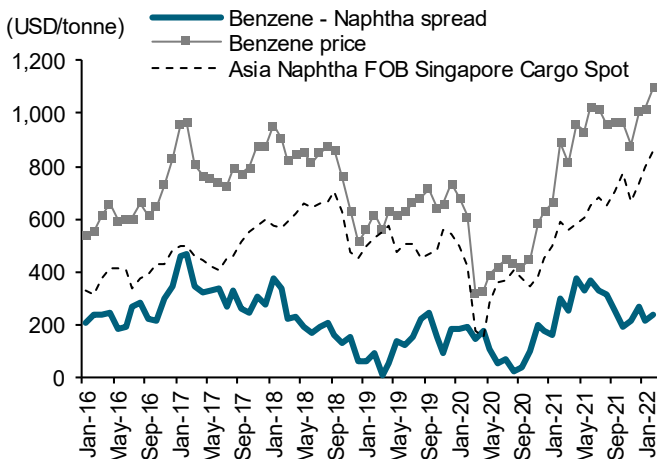
Exhibit 9: PP-propylene margin



Source: Bloomberg

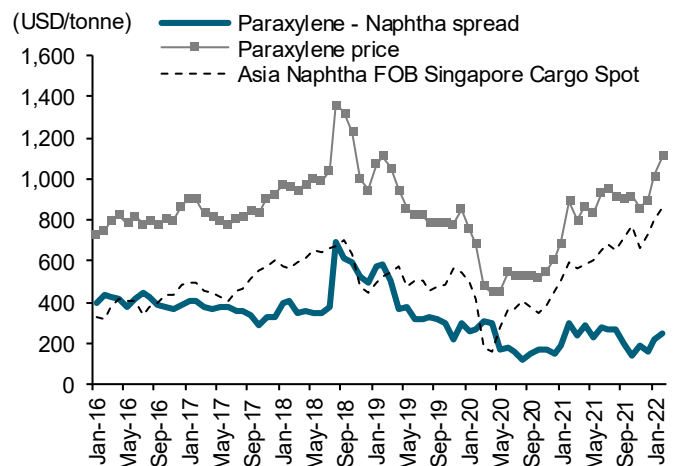
Weak earnings from aromatics. We project PTTGC's earnings from aromatics to remain weak in 2022-24 due to the chronic oversupply, mainly for its paraxylene (PX), benzene (BZ), and butadiene (BD) chains which now face a significant oversupply situation in 2022-24.

Exhibit 10: Naphtha spread – Benzene



Source: Bloomberg

Exhibit 11: Naphtha spread – Paraxylene



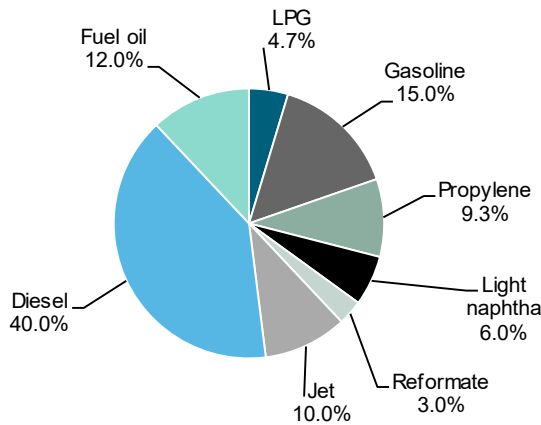
Source: Bloomberg

Limited upside from GRM recovery. Unlike other pure refineries in Thailand, PTTGC has the least leverage over the gross refining margin recovery in 2022 due to its unique condensate splitters which consume condensate as a feedstock vs refineries using crude oil as a feedstock.

Within PTTGC's complex, there are two types of production units to produce petroleum products. The first crude oil-based refinery plant (AR1 with a capacity of 145kbpd) is a common refinery using crude oil as a feedstock to produce petroleum products.

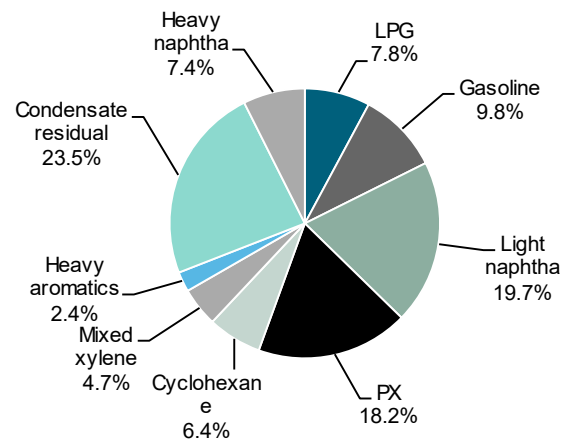
The second type of unit is the condensate splitter, which uses condensate as a feedstock to produce petroleum, mostly naphtha as a feedstock for the downstream aromatics unit, with the petroleum by-products of gasoline and LPG.

Exhibit 12: Production yield of refinery unit (AR1)



Sources: PTTGC; FSSIA estimates

Exhibit 13: Production yield of condensate splitter unit (AR2, AR3)



Sources: PTTGC; FSSIA estimates

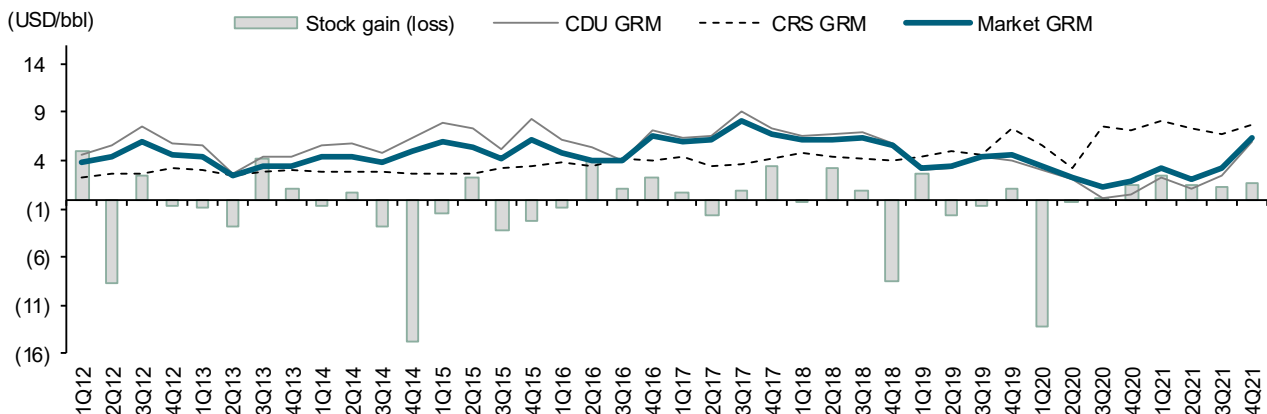
Exhibit 14: Plant capacity breakdown by feedstock type

Olefin plants	Capacity ('000tpa)	Product	Feedstock type
I1	461	Ethylene	Gas
I1	125	Propylene	Gas
Olefex I	127	Propylene	Gas
I4-1	515	Ethylene	40% Naphtha/60% Gas
I4-1	310	Propylene	40% Naphtha/60% Gas
I4-2	300	Ethylene	Gas
I4-2 - Debottleneck	150	Ethylene	Gas
Ethane cracker (PTTPE)	1,000	Ethylene	Gas
Olefins Reconfiguration (ORP)	750	Ethylene/Propylene	Naphtha
Total olefins	3,738		
Aromatics/ Refinery	Capacity (bpd)	Product	Feedstock type
AR 1 Refinery	145,000	Petroleum	Crude
AR 2 Condensate Splitter	65,000	Petroleum/Aromatics	Condensate
AR 3 Condensate Splitter	70,000	Petroleum/Aromatics	Condensate

Source: PTTGC

While the market GRM of AR1 using the crude distillation unit (CDU) as a refinery unit will move in tandem with the industry GRM and other local refinery peers, PTTGC's condensate residual splitter (CRS) GRM will move with the price of condensate, whose price is less volatile than the crude oil price due to its more local production vs the crude oil procured from global producers. In 2022, we believe the upside for PTTGC's overall GRM (CDU GRM plus CRS GRM) will increase at a much lower degree than those of other oil-based refineries.

Exhibit 15: Market GRM breakdown by CDU and CRS GRMs



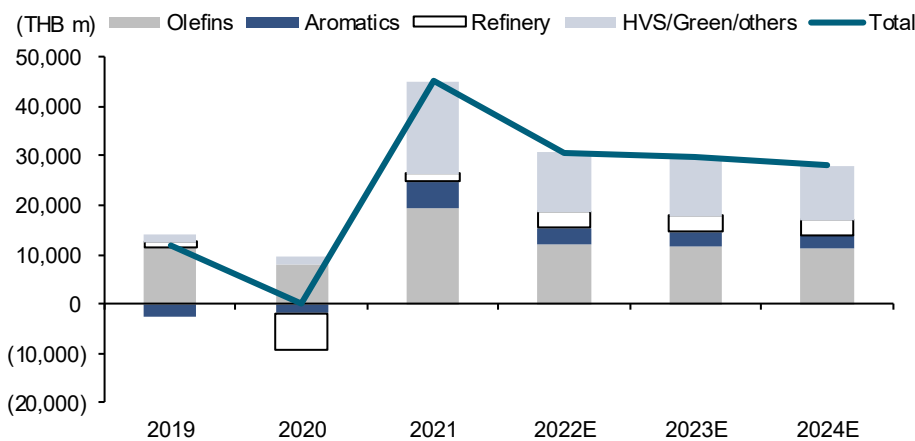
Source: PTTGC

Earnings downtrend in 2022-24

With our bearish view on PTTGC’s net profit outlook for its four major units of olefins & derivatives, aromatics, refinery, and the high-volume specialty (HVS) and green chemicals, we project PTTGC’s net profit to decline from THB45b in 2021, mostly driven by inventory gains, down to THB30.5b in 2022, THB29.6b in 2023, and THB28b in 2024.

The major drag for PTTGC’s earnings downtrend should come from weaker net profits from its olefins unit, which should suffer from the high naphtha cost and poor margins due to the oversupply. We project aromatics earnings to remain weak in 2022-24, hovering around THB2.8-3.0b annually as a result of the depressed margins of PX-naphtha and BZ-naphtha despite the more promising margin outlook for the BZ downstream products.

Exhibit 16: Net profit breakdown by business unit

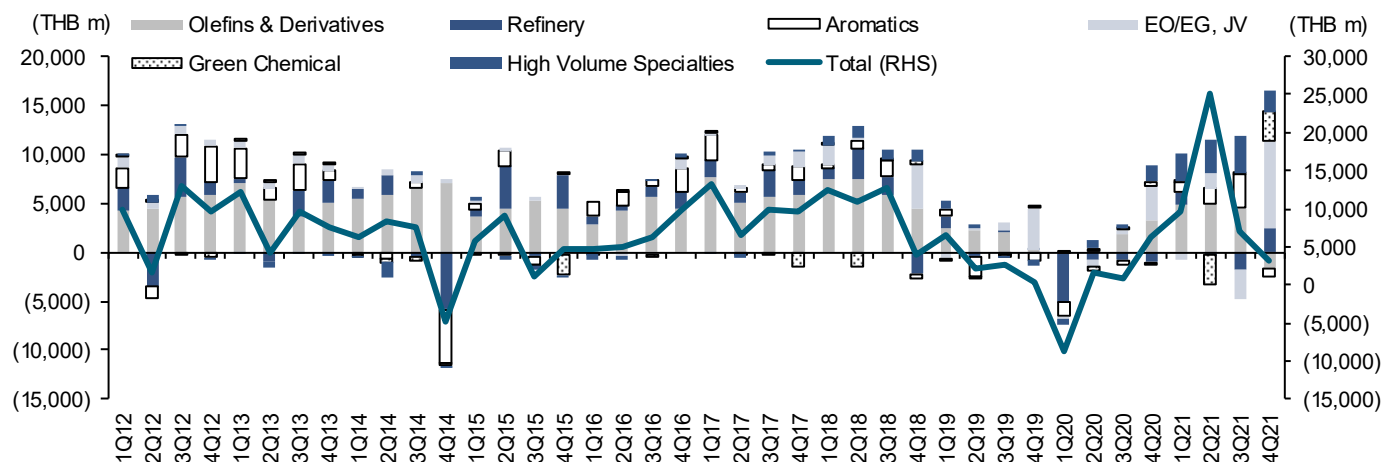


Sources: PTTGC; FSSIA estimates

In the past three years in 2019-21, PTTGC’s quarterly net profits have been highly volatile, ranging from net losses in 1Q20 to THB25b in 2Q21 due to the one-time gain from the divestment of Global Power Synergy (GPSC TB, BUY, TP THB90).

Only the olefins unit has posted a consistently profitable performance thanks to its more sustainable earnings from the competitive gas-based unit, while other units have seen highly volatile earnings due to the industry’s margin volatility and the impact of inventory gains/losses.

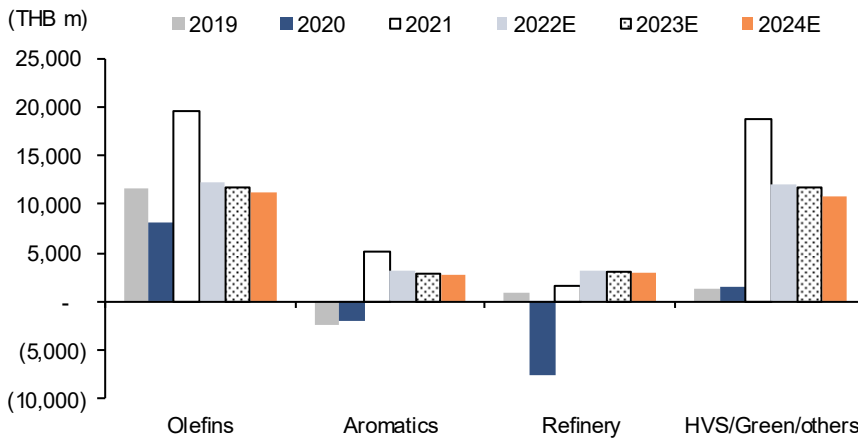
Exhibit 17: Quarterly net profit breakdown by unit



Source: PTTGC

We project PTTGC's net profit to be driven by olefins and HVS/green units thanks to its 40% gas-based capacity that should continue to support its net profit and offset the weak earnings from the aromatics unit. Refinery earnings are likely to grow y-y, but its relatively small contribution to PTTGC's overall net profit (less than 20%) is unlikely to meaningfully boost overall earnings in 2022-24.

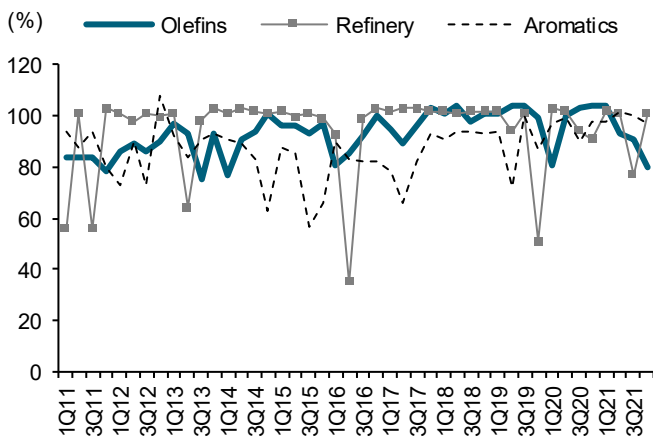
Exhibit 18: Projected net profit breakdown by unit



Sources: PTTGC; FSSIA estimates

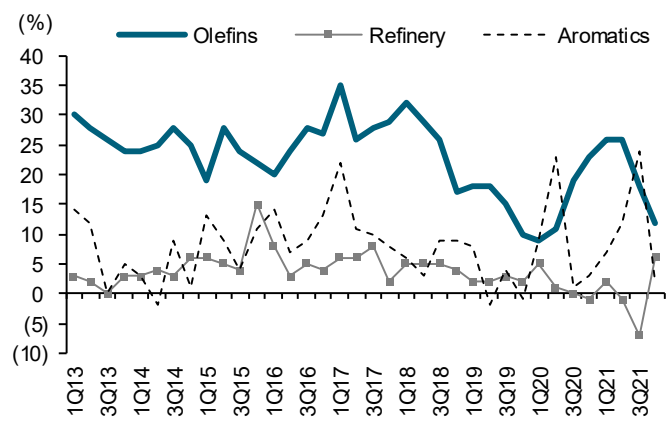
Due to the highly volatile aromatics and refinery industry margins, the utilisation rates and EBITDA margins of PTTGC's aromatics and refinery units have been swinging in a wide range relative to those of the olefins business.

Exhibit 19: Utilisation rate by unit



Source: PTTGC

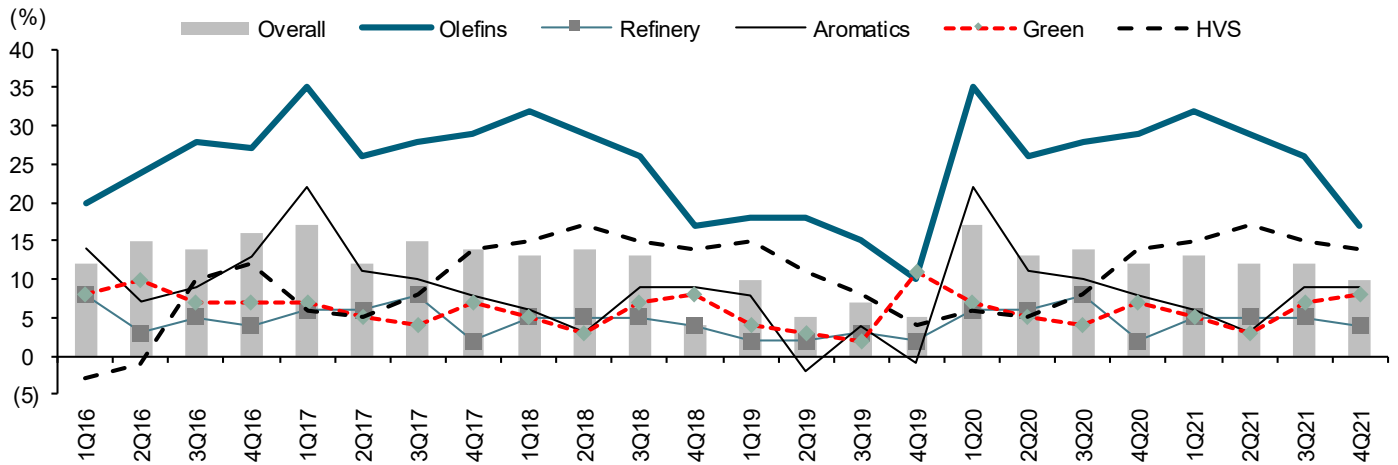
Exhibit 20: EBITDA margin by unit



Source: PTTGC

Since 2016, PTTGC has seen its overall EBITDA margin range between 4% at the lowest point in 4Q18 to 17% at the highest in 1Q17 and 1Q20, mostly driven by the rising EBITDA margin of the olefins unit. Its overall EBITDA margin has been more sustainable at above 10% since 1Q20 as PTTGC benefited from the strong EBITDA margins from its HVS, whose EBITDA margins had risen from 8.3% in 2020 to 15.3% in 2021, driven by PTTGC's HVS products of phenol, bisphenol A (BPA), acetone, acrylonitrile (AN), polyols, and ethanolamine.

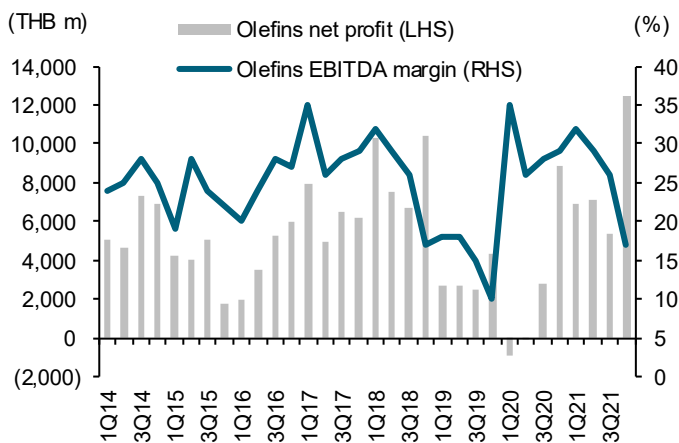
Exhibit 21: EBITDA margin by unit



Source: PTTGC

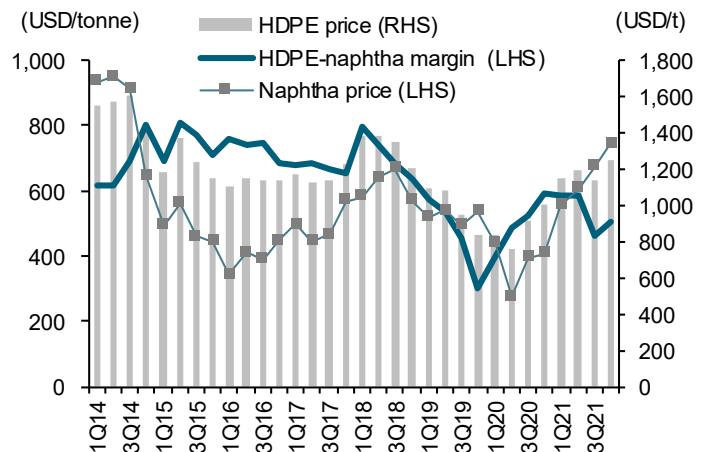
Olefins EBITDA margin is on the downtrend. We project PTTGC's EBITDA margin for the olefins unit to decline from 26% in 2021 down to 24% in 2022 as a result of the higher naphtha cost and the oversupply. The higher proportion of naphtha-based capacity from ORP since 4Q21 has effectively eroded PTTGC's overall cost competitiveness from its gas-based olefins to be closer to its regional olefins peers.

Exhibit 22: Olefins net profit and EBITDA margin



Source: PTTGC

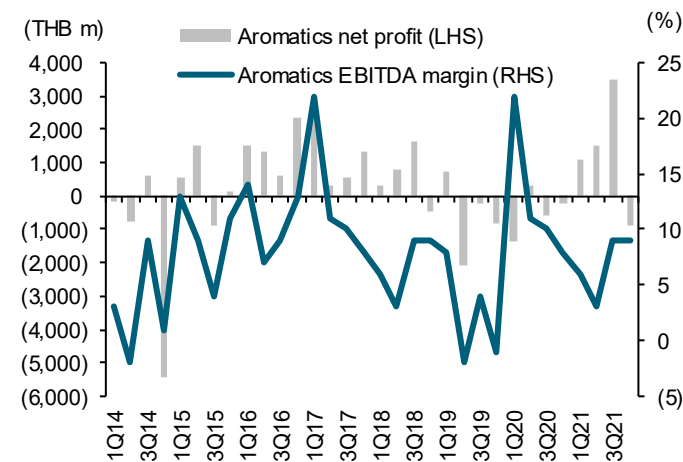
Exhibit 23: HDPE price and HDPE-naphtha margin



Source: PTTGC

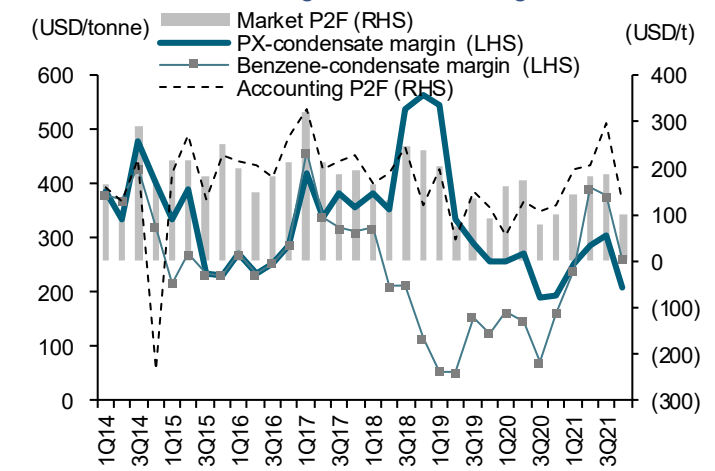
Aromatics margin remains in a downcycle. Due to the continued rising supply that we project to outpace the demand growth, we expect earnings from the aromatics unit to remain weak at THB2.8-3b annually in 2022-24, dragged down by the poor margins of PX-condensate and BZ-condensate.

Exhibit 24: Aromatics net profit and EBITDA margin



Source: PTTGC

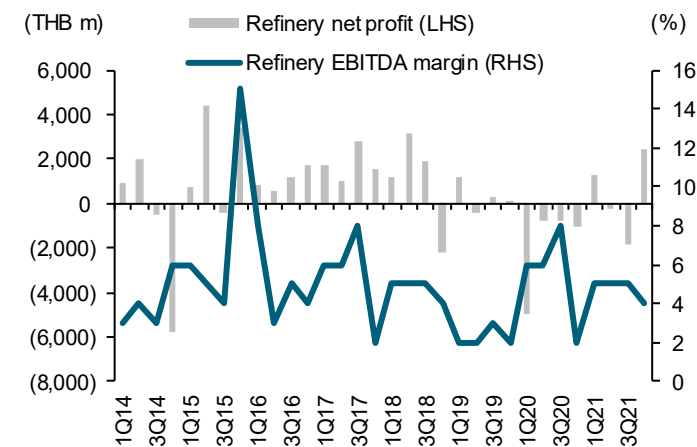
Exhibit 25: Market aromatics P2F, PX-condensate margin, benzene-condensate margin, and accounting P2F



Source: PTTGC

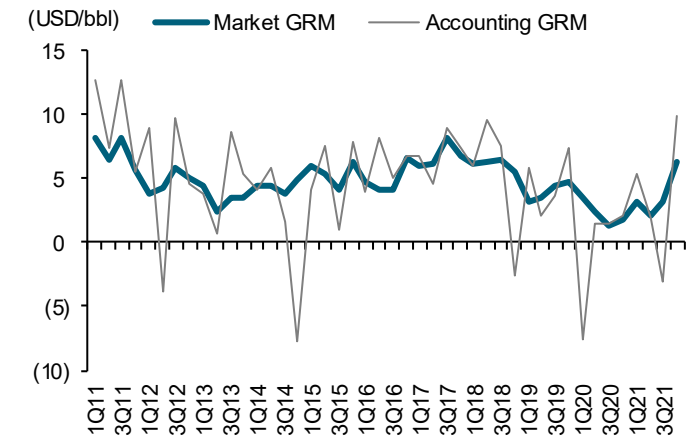
Refinery earnings to rebound marginally. Meanwhile, we expect refinery earnings to rise y-y in 2022-24, improving from a net profit of THB1.5b in 2021 and a net loss of THB7.5b in 2020, mainly due to the rising market GRM. However, the improvement in refinery earnings should be relatively small compared to the earnings declines for the chemical products of olefins and aromatics, thereby resulting in overall weaker net profits in 2022-24.

Exhibit 26: Refinery net profit and EBITDA margin



Source: PTTGC

Exhibit 27: Market and accounting GRM



Source: PTTGC

EPS and target revisions

We raise our core EPS forecasts for 2022-24 by 2.8-12% to incorporate 1) our lower margin assumptions for HDPE-naphtha by 11-25%, low density PE (LDPE)-naphtha by 2.3-7.1%, linear LDPE (LLDPE)-naphtha by 10-23% in 2022-24 to reflect the higher naphtha cost and oversupply impact; and 2) our higher market GRM estimates by 100% in 2022 and 0.5% in 2023 but lower by 2.8% in 2024 due to our higher crude premium assumptions that should be partly offset by higher product margins.

Exhibit 28: Changes in key assumptions and EPS forecasts

	Current			Previous			Change		
	2022E (THB m)	2023E (THB m)	2024E (THB m)	2022E (THB m)	2023E (THB m)	2024E (THB m)	2022E (%)	2023E (%)	2024E (%)
Revenue	497,682	470,425	471,550	442,909	431,220	430,360	12.4	9.1	9.6
Gross profit	53,127	50,802	49,722	36,166	43,165	40,029	46.9	17.7	24.2
Operating profit	29,470	28,510	27,220	20,211	27,763	24,644	45.8	2.7	10.4
Core net profit	29,027	28,054	28,457	25,982	27,300	25,863	11.7	2.8	10.0
Core EPS (THB/shr)	6.4	6.2	6.3	5.8	6.1	5.7	11.7	2.8	10.0
Key assumptions									
Dubai oil price (USD/bbl)	100.0	90.0	90.0	75.0	70.0	70.0	33.3	28.6	28.6
Olefin utilisation rate (%)	95.0	96.0	97.0	95.0	96.0	97.0	-	-	-
Refinery utilisation rate (%)	90.0	90.0	90.0	95.0	95.0	95.0	-	-	-
HDPE-naphtha (USD/t)	450	590	640	600	720	720	(25.0)	(18.1)	(11.1)
HDPE price (USD/t)	1,450	1,400	1,450	1,350	1,350	1,350	7.4	3.7	7.4
LDPE-naphtha (USD/t)	650	790	840	700	820	860	(7.1)	(3.7)	(2.3)
LDPE price (USD/t)	1,650	1,600	1,650	1,450	1,450	1,450	13.8	10.3	13.8
LLDPE-naphtha (USD/t)	500	640	690	650	770	770	(23.1)	(16.9)	(10.4)
LLDPE price (USD/t)	1,500	1,450	1,500	1,400	1,400	1,400	7.1	3.6	7.1
MEG-naphtha (USD/t)	300	690	690	250	370	370	20.0	86.5	86.5
MEG price (USD/t)	1,300	1,500	1,500	1,000	1,000	1,000	30.0	50.0	50.0
Market GRM (USD/bbl)	9.2	9.5	8.7	4.6	9.5	9.0	100.0	0.5	(2.8)
Gasoline-Dubai (USD/bbl)	20	18	16	13	13	13	11.1	-	-
Jet-Dubai (USD/bbl)	23	22	20	15	15	15	15.0	10.0	-
Diesel-Dubai (USD/bbl)	24	22	20	8	8	8	20.0	22.2	11.1
HSFO-Dubai (USD/bbl)	(15)	(12)	(12)	(7)	(7)	(7)	(114.3)	(71.4)	(71.4)
PX-naphtha (USD/bbl)	382	382	382	400	400	400	(4.5)	(4.5)	(4.5)

Note: Change of items in percentage terms are represented in ppt change

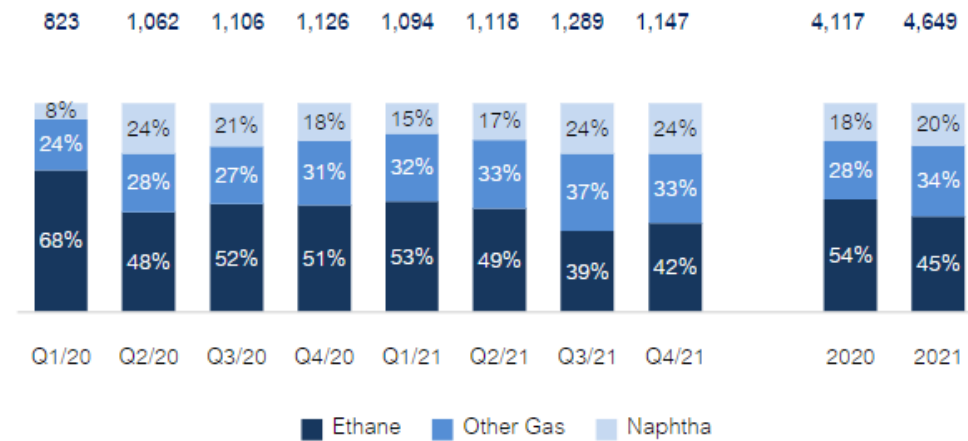
Sources: PTTGC; FSSIA estimates

We downgrade PTTGC to HOLD from Buy and lower our target price from THB75, previously based on 11.5x 2022E EV/EBITDA, down to THB56, now based on 8.1x 2022E EV/EBITDA, to reflect our more bearish view on PTTGC's olefins competitiveness as a result of the lower proportion of gas-based capacity after the addition of ORP and the poor margin outlook for aromatics products.

We believe the structural change in PTTGC’s feedstock structure with a lower competitive gas (ethane)-based capacity proportion at 45%, down from 68% in 1Q20 post the ORP unit addition, will lead to a valuation de-rating for PTTGC in 2022 onward.

As we project the price of naphtha, a product produced from crude oil via the refinery process, to stay high in tandem with the sharp rise in the crude oil price, the ethylene-naphtha margins of naphtha-based producers like PTTGC are likely to markedly narrow to USD400-450/t, the estimated industry breakeven level in 1H22. We project a high oil price at above USD120/bbl on average before declining to USD90-100/bbl in 2H22 when we expect the new supply from US shale oil to come onstream.

Exhibit 29: PTTGC’s feedstock structure

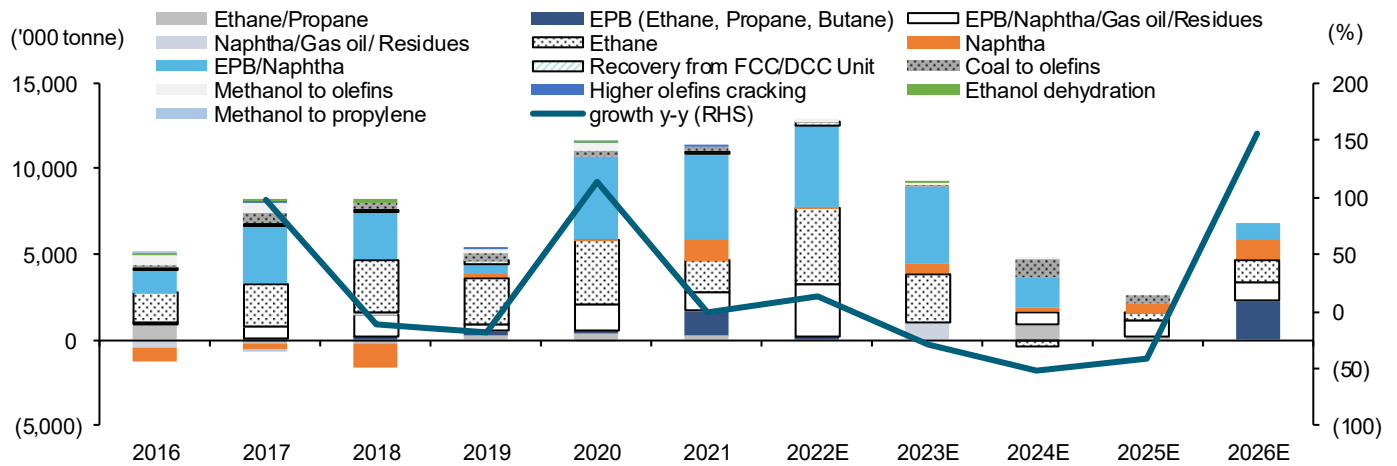


Source: PTTGC

According to IRPC (IRPC TB, BUY, TP THB5.8), the supply growth of ethylene is projected to outpace the demand growth in 2022, the third consecutive year of oversupply since 2020 thanks to the naphtha-based supply growth from China and other Asian countries. This includes Thailand from Siam Cement (SCC TB, BUY, TP THB483) via its naphtha-based capacity expansion of Map Ta Phut Olefins (not listed) by 0.45mtpa to 2.05mtpa from debottlenecking since 2Q21 and PTTGC’s 0.75mtpa naphtha-based ORP since 3Q21.

Meanwhile, ethane-based producers of ethylene, mainly in the US, have continued to enjoy the significant margin expansion as the cost of ethane feedstock remains low, while the price of ethylene has jumped much higher as a result of the higher naphtha prices. Hence, the naphtha-based producers, mostly in Asia and Europe, have been hit hard by the diversity of the ethylene-feedstock margins, with Asian and European naphtha-based producers seeing weaker margins while the ethane-based producers in the US have witnessed a rising margin.

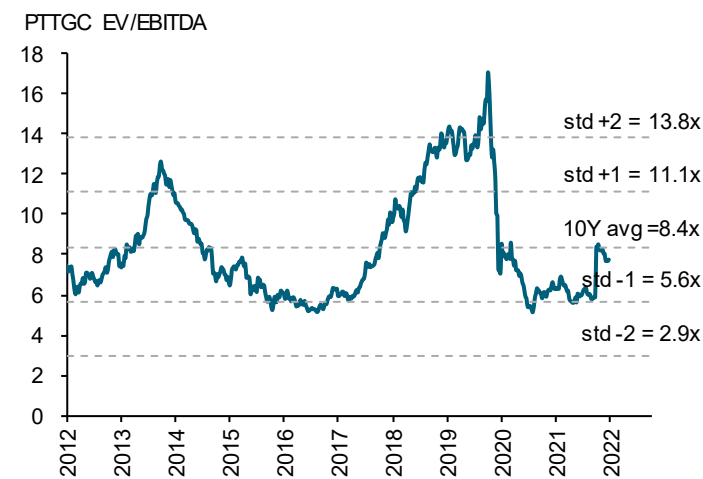
Exhibit 30: Additional ethylene capacity by feedstock



Source: IRPC

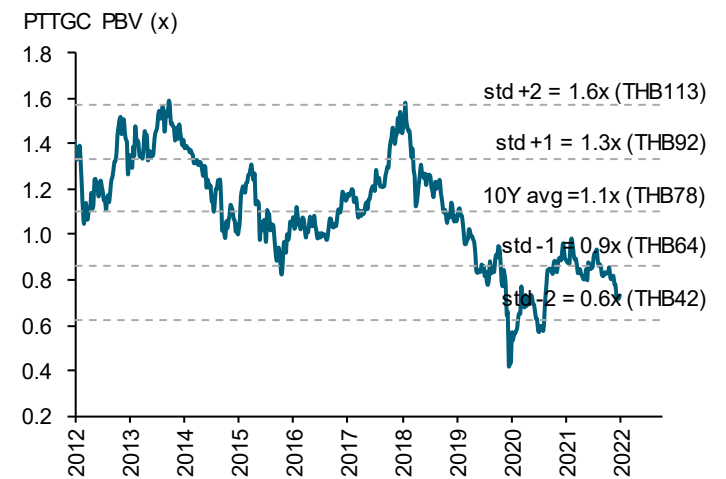
We expect PTTGC's valuation de-rating to continue in 2022 and anticipate its one-year forward EV/EBITDA to structurally lower from its 10-year average of 8.4x down to 6x, the average valuation of its naphtha-based chemical peers in South Korea, which we think are the closest peers to PTTGC post the ORP addition.

Exhibit 31: One-year forward rolling EV/EBITDA band



Sources: Bloomberg; FSSIA estimates

Exhibit 32: One-year forward rolling P/BV band



Sources: Bloomberg; FSSIA estimates

Financial Statements

PTT Global Chemical

Profit and Loss (THB m) Year Ending Dec	2020	2021	2022E	2023E	2024E
Revenue	329,291	468,953	497,682	470,425	471,550
Cost of goods sold	(294,596)	(385,039)	(417,564)	(390,386)	(390,344)
Gross profit	34,695	83,914	80,118	80,039	81,206
Other operating income	-	-	-	-	-
Operating costs	(14,881)	(21,727)	(23,657)	(22,292)	(22,502)
Operating EBITDA	19,813	62,186	56,461	57,747	58,704
Depreciation	(22,497)	(24,744)	(26,991)	(29,238)	(31,484)
Goodwill amortisation	0	0	0	0	0
Operating EBIT	(2,683)	37,443	29,470	28,510	27,220
Net financing costs	(3,861)	5,021	(4,750)	(4,583)	(3,028)
Associates	3,323	6,841	6,753	6,489	6,489
Recurring non-operating income	14,243	(3,320)	9,112	8,848	8,848
Non-recurring items	(7,156)	13,635	1,501	1,503	(486)
Profit before tax	543	52,778	35,333	34,277	32,553
Tax	109	(7,228)	(4,434)	(4,349)	(4,211)
Profit after tax	652	45,550	30,899	29,928	28,342
Minority interests	(452)	(568)	(371)	(371)	(371)
Preferred dividends	0	0	0	0	0
Other items	-	-	-	-	-
Reported net profit	200	44,982	30,528	29,557	27,971
Non-recurring items & goodwill (net)	7,156	(13,635)	(1,501)	(1,503)	486
Recurring net profit	7,356	31,347	29,027	28,054	28,457
Per share (THB)					
Recurring EPS *	1.63	6.95	6.44	6.22	6.31
Reported EPS	0.04	9.98	6.77	6.56	6.20
DPS	4.24	1.75	6.75	8.25	8.15
Diluted shares (used to calculate per share data)	4,508	4,508	4,508	4,508	4,508
Growth					
Revenue (%)	(20.2)	42.4	6.1	(5.5)	0.2
Operating EBITDA (%)	(23.7)	213.9	(9.2)	2.3	1.7
Operating EBIT (%)	nm	nm	(21.3)	(3.3)	(4.5)
Recurring EPS (%)	(25.8)	326.2	(7.4)	(3.4)	1.4
Reported EPS (%)	(98.3)	22,435.5	(32.1)	(3.2)	(5.4)
Operating performance					
Gross margin inc. depreciation (%)	3.7	12.6	10.7	10.8	10.5
Gross margin of key business (%)	3.7	12.6	10.7	10.8	10.5
Operating EBITDA margin (%)	6.0	13.3	11.3	12.3	12.4
Operating EBIT margin (%)	(0.8)	8.0	5.9	6.1	5.8
Net margin (%)	2.2	6.7	5.8	6.0	6.0
Effective tax rate (%)	-20.1	13.7	12.5	12.7	12.9
Dividend payout on recurring profit (%)	260.1	25.2	104.8	132.6	129.1
Interest cover (X)	3.0	(6.8)	8.1	8.2	11.9
Inventory days	43.2	48.9	47.0	34.4	33.4
Debtor days	35.2	31.1	34.6	33.0	32.1
Creditor days	44.7	36.8	41.0	44.0	42.8
Operating ROIC (%)	(0.9)	(1.5)	(1.3)	(1.3)	(1.2)
ROIC (%)	2.7	(0.8)	(0.8)	(0.8)	(0.7)
ROE (%)	2.6	10.5	9.1	8.9	9.3
ROA (%)	2.4	5.2	4.0	4.0	4.2
* Pre-exceptional, pre-goodwill and fully diluted					
Revenue by Division (THB m)					
Refinery and shared facilities	136,654	257,369	284,711	257,455	258,580
Aromatics	59,125	79,125	79,125	79,125	79,125
Olefins and derivatives	90,258	81,475	82,861	82,861	82,861
Green Chemicals	13,652	18,652	19,652	19,652	19,652

Sources: PTT Global Chemical; FSSIA estimates

Financial Statements

PTT Global Chemical

Cash Flow (THB m) Year Ending Dec	2020	2021	2022E	2023E	2024E
Recurring net profit	7,356	31,347	29,027	28,054	28,457
Depreciation	22,497	24,744	26,991	29,238	31,484
Associates & minorities	(6,001)	(6,002)	(6,753)	(6,489)	(6,489)
Other non-cash items	(1,584)	13,514	13,514	13,514	13,514
Change in working capital	6,024	(8,749)	(1,545)	2,189	296
Cash flow from operations	28,291	54,854	61,233	66,506	67,262
Capex - maintenance	-	-	-	-	-
Capex - new investment	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)
Net acquisitions & disposals	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)
Other investments (net)	(770)	(760)	(760)	(760)	(760)
Cash flow from investing	(41,770)	(41,760)	(41,760)	(41,760)	(41,760)
Dividends paid	(19,131)	(7,889)	(30,429)	(37,193)	(36,727)
Equity finance	0	0	0	0	0
Debt finance	(8,486)	(8,484)	(1,000)	(10,000)	(10,000)
Other financing cash flows	59,849	14,579	(13,957)	11,423	9,434
Cash flow from financing	32,231	(1,794)	(45,386)	(35,770)	(37,293)
Non-recurring cash flows	-	-	-	-	-
Other adjustments	0	0	0	0	0
Net other adjustments	0	0	0	0	0
Movement in cash	18,752	11,301	(25,912)	(11,024)	(11,791)
Free cash flow to firm (FCFF)	(9,967.83)	19,039.33	25,795.39	30,900.86	31,352.64
Free cash flow to equity (FCFE)	37,883.83	19,189.55	4,516.65	26,169.02	24,936.50

Per share (THB)

FCFF per share	(2.21)	4.22	5.72	6.85	6.95
FCFE per share	8.40	4.26	1.00	5.80	5.53
Recurring cash flow per share	4.94	14.11	13.93	14.27	14.85

Balance Sheet (THB m) Year Ending Dec	2020	2021	2022E	2023E	2024E
Tangible fixed assets (gross)	420,497	460,497	500,497	540,497	580,497
Less: Accumulated depreciation	(177,243)	(201,987)	(228,977)	(258,215)	(289,699)
Tangible fixed assets (net)	243,254	258,511	271,520	282,282	290,798
Intangible fixed assets (net)	0	0	0	0	0
Long-term financial assets	-	-	-	-	-
Invest. in associates & subsidiaries	51,791	58,793	66,546	74,035	81,524
Cash & equivalents	44,313	55,613	29,701	18,676	6,885
A/C receivable	29,277	50,540	43,771	41,374	41,473
Inventories	33,445	69,725	37,774	35,705	35,790
Other current assets	22,876	31,366	21,366	21,366	21,366
Current assets	129,911	207,244	132,611	117,121	105,514
Other assets	64,426	229,567	229,567	209,567	189,567
Total assets	489,383	754,115	700,245	683,006	667,404
Common equity	281,015	318,242	318,341	310,704	301,948
Minorities etc.	7,979	9,361	4,790	5,161	5,532
Total shareholders' equity	288,994	327,603	323,131	315,866	307,480
Long term debt	126,261	224,760	223,760	213,760	203,760
Other long-term liabilities	15,086	54,746	3,556	6,231	8,905
Long-term liabilities	141,347	279,506	227,316	219,991	212,665
A/C payable	31,988	45,556	48,346	45,699	45,808
Short term debt	1,993	6,729	6,729	6,729	6,729
Other current liabilities	25,060	94,723	94,723	94,723	94,723
Current liabilities	59,041	147,007	149,798	147,150	147,259
Total liabilities and shareholders' equity	489,383	754,115	700,245	683,006	667,404
Net working capital	28,550	11,353	(40,158)	(41,976)	(41,901)
Invested capital	388,022	558,224	527,475	523,909	519,988

* Includes convertibles and preferred stock which is being treated as debt

Per share (THB)

Book value per share	62.34	70.59	70.62	68.92	66.98
Tangible book value per share	62.34	70.59	70.62	68.92	66.98

Financial strength

Net debt/equity (%)	29.0	53.7	62.1	63.9	66.2
Net debt/total assets (%)	17.2	23.3	28.7	29.5	30.5
Current ratio (x)	2.2	1.4	0.9	0.8	0.7
CF interest cover (x)	21.2	(10.8)	10.4	15.4	22.4

Valuation	2020	2021	2022E	2023E	2024E
Recurring P/E (x) *	31.6	7.4	8.0	8.3	8.2
Recurring P/E @ target price (x) *	34.3	8.1	8.7	9.0	8.9
Reported P/E (x)	1,163.1	5.2	7.6	7.9	8.3
Dividend yield (%)	8.2	3.4	13.1	16.0	15.8
Price/book (x)	0.8	0.7	0.7	0.7	0.8
Price/tangible book (x)	0.8	0.7	0.7	0.7	0.8
EV/EBITDA (x) **	16.4	6.7	7.8	7.6	7.5
EV/EBITDA @ target price (x) **	17.4	7.0	8.1	8.0	7.9
EV/invested capital (x)	0.8	0.7	0.8	0.8	0.8

* Pre-exceptional, pre-goodwill and fully diluted ** EBITDA includes associate income and recurring non-operating income

Sources: PTT Global Chemical; FSSIA estimates

Corporate Governance report of Thai listed companies 2020

EXCELLENT LEVEL										
AAV	ADVANC	AF	AIRA	AKP	AKR	ALT	AMA	AMATA	AMATAV	ANAN
AOT	AP	ARIP	ARROW	ASP	BAFS	BANPU	BAY	BCP	BCPG	BDMS
BEC	BEM	BGRIM	BIZ	BKI	BLA	BOL	BPP	BRR	BTS	BWG
CENTEL	CFRESH	CHEWA	CHO	CIMBT	CK	CKP	CM	CNT	COL	COMAN
COTTO	CPALL	CPF	CPI	CPN	CSS	DELTA	DEMCO	DRT	DTAC	DTC
DV8	EA	EASTW	ECF	ECL	EGCO	EPG	ETE	FNS	FPI	FPT
FSMART	GBX	GC	GCAP	GEL	GFPT	GGC	GPSC	GRAMMY	GUNKUL	HANA
HARN	HMPRO	ICC	ICI	III	ILINK	INTUCH	IRPC	IVL	JKN	JSP
JWD	K	KBANK	KCE	KKP	KSL	KTB	KTC	LANNA	LH	LHFG
LIT	LPN	MAKRO	MALEE	MBK	MBKET	MC	MCOT	METCO	MFEC	MINT
MONO	MOONG	MSC	MTC	NCH	NCL	NEP	NKI	NOBLE	NSI	NVD
NYT	OISHI	ORI	OTO	PAP	PCSGH	PDJ	PG	PHOL	PLANB	PLANET
PLAT	PORT	PPS	PR9	PREB	PRG	PRM	PSH	PSL	PTG	PTT
PTTEP	PTTGC	PYLON	Q-CON	QH	QTC	RATCH	RS	S	S & J	SAAM
SABINA	SAMART	SAMTEL	SAT	SC	SCB	SCC	SCCC	SCG	SCN	SDC
SEAFCO	SEOIL	SE-ED	SELIC	SENA	SIRI	SIS	SITHAI	SMK	SMPC	SNC
SONIC	SORKON	SPALI	SPI	SPRC	SPVI	SSSC	SST	STA	SUSCO	SUTHA
SVI	SYMC	SYNTEC	TACC	TASCO	TCAP	TFMAMA	THANA	THANI	THCOM	THG
THIP	THRE	THREL	TIP	TIPCO	TISCO	TK	TKT	TTB	TMILL	TNDT
TNL	TOA	TOP	TPBI	TQM	TRC	TRC	TSC	TSR	TSTE	TSTH
TTCL	TTW	TU	TVD	TVI	TVO	TWPC	U	UAC	UBIS	UV
VGI	VIH	WACOAL	WAVE	WHA	WHAUP	WICE	WINNER	TRUE		

VERY GOOD LEVEL										
2S	ABM	ACE	ACG	ADB	AEC	AEONTS	AGE	AH	AHC	AIT
ALLA	AMANAHA	AMARIN	APCO	APCS	APURE	AQUA	ASAP	ASEFA	ASIA	ASIAN
ASIMAR	ASK	ASN	ATP30	AUCT	AWC	AYUD	B	BA	BAM	BBL
BFIT	BGC	BJC	BJCHI	BROOK	BTW	CBG	CEN	CGH	CHARAN	CHAYO
CHG	CHOTI	CHOW	CI	CIG	CMC	COLOR	COM7	CPL	CRC	CRD
CSC	CSP	CWT	DCC	DCON	DDD	DOD	DOHOME	EASON	EE	ERW
ESTAR	FE	FLOYD	FN	FORTH	FSS	FTE	FVC	GENCO	GJS	GL
GLAND	GLOBAL	GLOCON	GPI	GULF	GYT	HPT	HTC	ICN	IFS	ILM
IMH	INET	INSURE	IRC	IRCP	IT	ITD	ITEL	J	JAS	JCK
JCKH	JMART	JMT	KBS	KCAR	KGI	KIAT	KOOL	KTIS	KWC	KWM
L&E	LALIN	LDC	LHK	LOXLEY	LPH	LRH	LST	M	MACO	MAJOR
MBAX	MEGA	META	MFC	MGT	MILL	MITSIB	MK	MODERN	MTI	MVP
NETBAY	NEX	NINE	NTV	NWR	OCC	OGC	OSP	PATO	PB	PDG
PDI	PICO	PIMO	PJW	PL	PM	PPP	PRIN	PRINC	PSTC	PT
QLT	RCL	RICHY	RML	RPC	RWI	S11	SALEE	SAMCO	SANKO	SAPPE
SAWAD	SCI	SCP	SE	SEG	SFP	SGF	SHR	SIAM	SINGER	SKE
SKR	SKY	SMIT	SMT	SNP	SPA	SPC	SPCG	SR	SRICHA	SSC
SSF	STANLY	STI	STPI	SUC	SUN	SYNEX	T	TAE	TAKUNI	TBSP
TCC	TCMC	TEAM	TEAMG	TFG	TIGER	TITLE	TKN	TKS	TM	TMC
TMD	TMI	TMT	TNITY	TNP	TNR	TOG	TPA	TPAC	TPCORP	TPOLY
TPS	TRITN	TRT	TRU	TSE	TVT	TWP	UEC	UMI	UOBKH	UP
UPF	UPOIC	UT	UTP	UWC	VL	VNT	VPO	WIJK	WP	XO
YUASA	ZEN	ZIGA	ZMICO							

GOOD LEVEL										
7UP	A	ABICO	AJ	ALL	ALUCON	AMC	APP	ARIN	AS	AU
B52	BC	BCH	BEAUTY	BGT	BH	BIG	BKD	BLAND	BM	BR
BROCK	BSBM	BSM	BTNC	CAZ	CCP	CGD	CITY	CMAN	CMO	CMR
CPT	CPW	CRANE	CSR	D	EKH	EP	ESSO	FMT	GIFT	GREEN
GSC	GTB	HTECH	HUMAN	IHL	INOX	INSET	IP	JTS	JUBILE	KASET
KCM	KKC	KUMWEL	KUN	KWG	KYE	LEE	MATCH	MATI	M-CHAI	MCS
MDX	MJD	MM	MORE	NC	NDR	NER	NFC	NNCL	NPK	NUSA
OCEAN	PAF	PF	PK	PLE	PMTA	POST	PPM	PRAKIT	PRECHA	PRIME
PROUD	PTL	RBF	RCI	RJH	ROJNA	RP	RPH	RSP	SF	SFLEX
SGP	SISB	SKN	SLP	SMART	SOLAR	SPG	SQ	SSP	STARK	STC
SUPER	SVOA	TC	TCCC	THMUI	TIW	TNH	TOPP	TPCH	TIPIP	TPLAS
TTI	TYCN	UKEM	UMS	VCOM	VRANDA	WIN	WORK	WPH		

Description

Score Range

Excellent

90-100

Very Good

80-89

Good

70-79

Disclaimer:

The disclosure of the survey results 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 results may be changed after that date. FSS International Investment Advisory Company Limited does not confirm nor certify the accuracy of such survey results.

* CGR scoring should be considered with news regarding wrong doing of the company or director or executive of the company such unfair practice on securities trading, fraud, and corruption SEC imposed a civil sanction against insider trading of director and executive; ** delisted

Source: Thai Institute of Directors Association (IOD); FSSIA's compilation

Anti-corruption Progress Indicator 2020

CERTIFIED										
2S	ADVANC	AI	AIE	AIRA	AKP	AMA	AMANAHA	AP	AQUA	ARROW
ASK	ASP	AYUD	B	BAFS	BANPU	BAY	BBL	BCH	BCP	BCPG
BGC	BGRIM	BJCHI	BKI	BLA	BPP	BROOK	BRR	BSBM	BTS	BWG
CEN	CENTEL	CFRESH	CGH	CHEWA	CHOTI	CHOW	CIG	CIMBT	CM	CMC
COL	COM7	CPALL	CPF	CPI	CPN	CSC	DCC	DELTA	DEMCO	DIMET
DRT	DTAC	DTC	EASTW	ECL	EGCO	FE	FNS	FPI	FPT	FSS
FTE	GBX	GC	GCAP	GEL	GFPT	GGC	GJS	GPSC	GSTEEL	GUNKUL
HANA	HARN	HMPRO	HTC	ICC	ICHI	IFS	INET	INSURE	INTUCH	IRPC
ITEL	IVL	K	KASET	KBANK	KBS	KCAR	KCE	KGI	KKP	KSL
KTB	KTC	KWC	L&E	LANNA	LHFG	LHK	LPN	LRH	M	MAKRO
MALEE	MBAX	MBK	MBKET	MC	MCOT	MFC	MFEC	MINT	MONO	MOONG
MPG	MSC	MTC	MTI	NBC	NEP	NINE	NKI	NMG	NNCL	NSI
NWR	OCC	OCEAN	OGC	ORI	PAP	PATO	PB	PCSGH	PDG	PDI
PDJ	PE	PG	PHOL	PL	PLANB	PLANET	PLAT	PM	PPP	PPPM
PPS	PREB	PRG	PRINC	PRM	PSH	PSL	PSTC	PT	PTG	PTT
PTTEP	PTTGC	PYLON	Q-CON	QH	QLT	QTC	RATCH	RML	RWI	S & J
SABINA	SAT	SC	SCB	SCC	SCCC	SCG	SCN	SEAOIL	SE-ED	SELIC
SENA	SGP	SIRI	SITHAI	SMIT	SMK	SMPC	SNC	SNP	SORKON	SPACK
SPC	SPI	SPRC	SRICHA	SSF	SSSC	SST	STA	SUSCO	SVI	SYNTEC
TAE	TAKUNI	TASCO	TBSP	TCAP	TCMC	TFG	TFI	TFMAMA	THANI	THCOM
THIP	THRE	THREL	TIP	TIPCO	TISCO	TKT	TTB	TMD	TMILL	TMT
TNITY	TNL	TNP	TNR	TOG	TOP	TPA	TPCORP	TPP	TRU	TSC
TSTH	TTCL	TU	TVD	TVI	TVO	TWPC	U	UBIS	UEC	UKEM
UOBKH	UWC	VGI	VIH	VNT	WACOAL	WHA	WHAUP	WICE	WIJK	XO
ZEN	TRUE									

DECLARED										
7UP	ABICO	AF	ALT	AMARIN	AMATA	AMATAV	ANAN	APURE	B52	BKD
BM	BROCK	BUI	CHO	CI	COTTO	DDD	EA	EFORL	EP	ERW
ESTAR	ETE	EVER	FSMART	GPI	ILINK	IRC	J	JKN	JMART	JMT
JSP	JTS	KWG	LDC	MAJOR	META	NCL	NOBLE	NOK	PK	PLE
ROJNA	SAAM	SAPPE	SCI	SE	SHANG	SINGER	SKR	SPALI	SSP	STANLY
SUPER	SYNEX	THAI	TKS	TOPP	TRITN	TTA	UPF	UV	WIN	ZIGA

Level	
Certified	This level indicates practical participation with thoroughly examination in relation to the recommended procedures from the audit committee or the SEC's certified auditor, being a certified member of Thailand's Private Sector Collective Action Coalition Against Corruption programme (Thai CAC) or already passed examination to ensure independence from external parties.
Declared	This level indicates determination to participate in the Thailand's Private Sector Collective Action Coalition Against Corruption programme (Thai CAC)

Disclaimer:

The disclosure of the Anti-Corruption Progress Indicators of a listed company on the Stock Exchange of Thailand, which is assessed by Thaipat Institute, is made in order to comply with the policy and sustainable development plan for the listed companies of the Office of the Securities and Exchange Commission. Thaipat Institute made this assessment based on the information received from the listed company, as stipulated in the form for the assessment of Anti-corruption which refers to the Annual Registration Statement (Form 56-1), Annual Report (Form 56-2), or other relevant documents or reports of such listed company. The assessment result is therefore made from the perspective of Thaipat Institute that is a third party. It is not an assessment of operation and is not based on any inside information. Since this assessment is only the assessment result as of the date appearing in the assessment result, it may be changed after that date or when there is any change to the relevant information. Nevertheless, FSS International Investment Advisory Company Limited does not confirm, verify, or certify the accuracy and completeness of the assessment results.

Note: Companies participating in Thailand's Private Sector Collective Action Coalition Against Corruption programme (Thai CAC) under Thai Institute of Directors (as of June 24, 2019) are categorised into: 1) companies that have declared their intention to join CAC, and; 2) companies certified by CAC.

Source: The Securities and Exchange Commission, Thailand; * FSSIA's compilation

GENERAL DISCLAIMER

ANALYST(S) CERTIFICATION

Suwat Sinsadok, CFA, FRM, ERP FSS International Investment Advisory Securities Co., Ltd

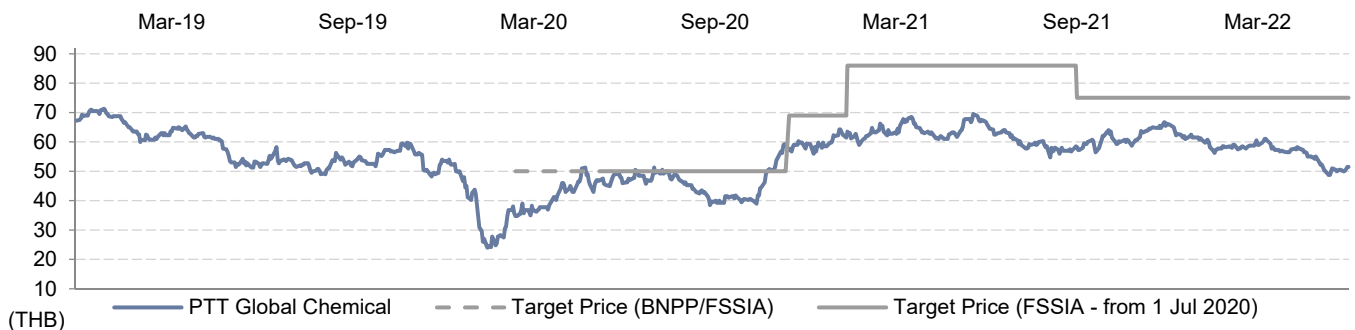
The individual(s) identified above certify(ies) that (i) all views expressed in this report accurately reflect the personal view of the analyst(s) with regard to any and all of the subject securities, companies or issuers mentioned in this report; and (ii) no part of the compensation of the analyst(s) was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed herein.

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History of change in investment rating and/or target price

PTT Global Chemical (PTTGC TB)



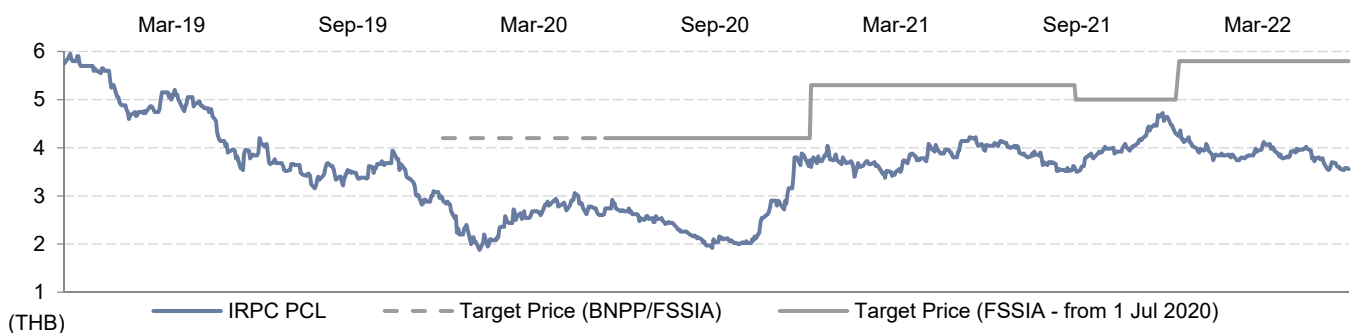
Date	Rating	Target price	Date	Rating	Target price	Date	Rating	Target price
09-Apr-2020	BUY	50.00	18-Jan-2021	BUY	86.00	-	-	-
27-Nov-2020	BUY	69.00	03-Aug-2021	BUY	75.00			

Suwat Sinsadok, CFA, FRM, ERP started covering this stock from 08-May-2020

Price and TP are in local currency

Source: FSSIA estimates

IRPC PCL (IRPC TB)



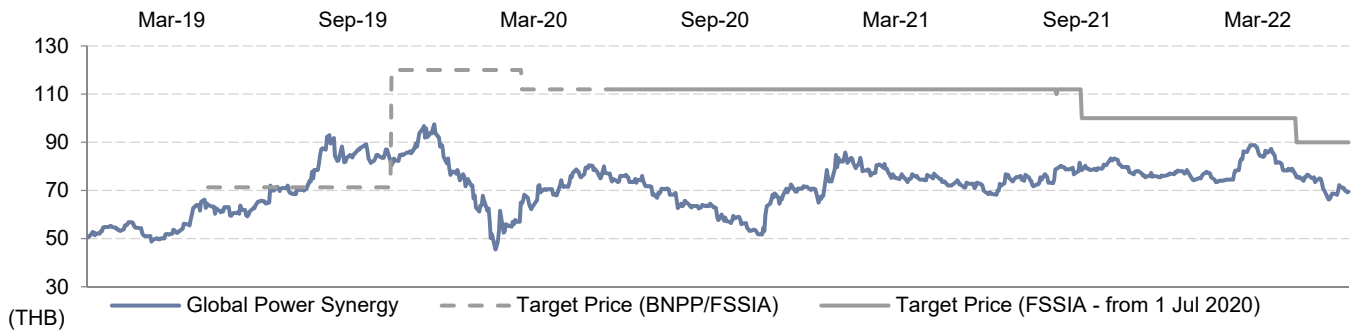
Date	Rating	Target price	Date	Rating	Target price	Date	Rating	Target price
14-Feb-2020	BUY	4.20	04-Aug-2021	BUY	5.00	-	-	-
22-Dec-2020	BUY	5.30	29-Oct-2021	BUY	5.80			

Suwat Sinsadok, CFA, FRM, ERP started covering this stock from 08-May-2020

Price and TP are in local currency

Source: FSSIA estimates

Global Power Synergy (GPSC TB)



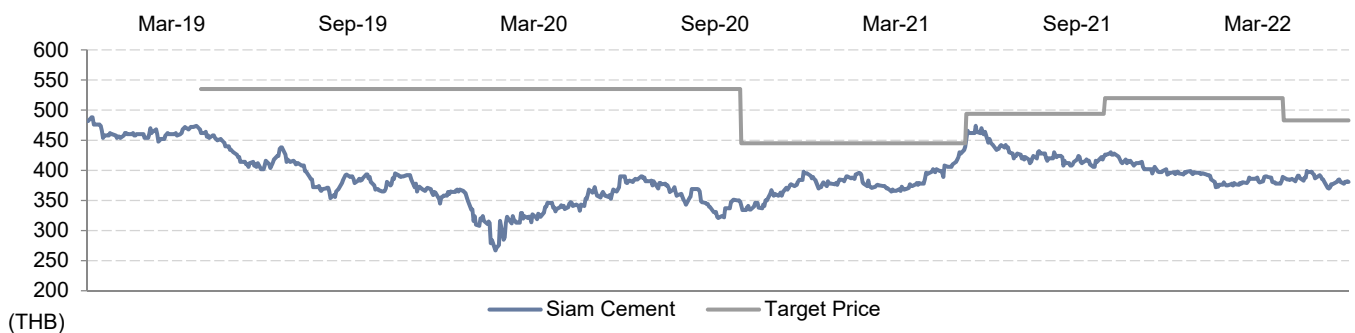
Date	Rating	Target price	Date	Rating	Target price	Date	Rating	Target price
11-Jul-2019	BUY	71.27	14-Jul-2021	BUY	110.00	07-Feb-2022	BUY	90.00
17-Dec-2019	BUY	120.00	15-Jul-2021	BUY	112.00			
08-Apr-2020	BUY	112.00	05-Aug-2021	BUY	100.00			

Suwat Sinsadok, CFA, FRM, ERP started covering this stock from 08-May-2020

Price and TP are in local currency

Source: FSSIA estimates

Siam Cement (SCC TB)



Date	Rating	Target price	Date	Rating	Target price	Date	Rating	Target price
05-Jul-2019	BUY	535.00	27-Apr-2021	BUY	494.00	27-Jan-2022	BUY	483.00
14-Oct-2020	BUY	445.00	25-Aug-2021	BUY	520.00			

Suwat Sinsadok, CFA, FRM, ERP started covering this stock from 14-Oct-2020

Price and TP are in local currency

Source: FSSIA estimates

Company	Ticker	Price	Rating	Valuation & Risks
PTT Global Chemical	PTTGC TB	THB 51.50	HOLD	The key upside/downside risks to our EV/EBITDA-based TP are a stronger or weaker-than-expected HDPE price and HDPE-naphtha margin.
IRPC PCL	IRPC TB	THB 3.56	BUY	Key risks to our positive view and EV/EBITDA-based target price are weaker-than-expected oil product demand growth and lower-than-expected PP-naphtha and SM-benzene margins.
Global Power Synergy	GPSC TB	THB 69.50	BUY	The downside risks to our SoTP-based TP on GPSC include 1) lower-than-expected demand for electricity in Thailand; 2) a lower crude price; and 3) lower-than-expected demand from industrial users.
Siam Cement	SCC TB	THB 381.00	BUY	Downside risks to our SOTP based TP include 1) a lower-than-expected demand for chemicals, CBM, and packaging; 2) rising coal costs for its cement and packaging units; and 3) weaker demand from the automobile industry that could erode the demand for SCC's chemical unit and its dividend contributions.

Source: FSSIA estimates

Additional Disclosures

Target price history, stock price charts, valuation and risk details, and equity rating histories applicable to each company rated in this report is available in our most recently published reports. You can contact the analyst named on the front of this note or your representative at Finasia Syrus Securities Public Company Limited

FSSIA may incorporate the recommendations and target prices of companies currently covered by FSS Research into equity research reports, denoted by an 'FSS' before the recommendation. FSS Research is part of Finasia Syrus Securities Public Company Limited, which is the parent company of FSSIA.

All share prices are as at market close on 25-Mar-2022 unless otherwise stated.

RECOMMENDATION STRUCTURE

Stock ratings

Stock ratings are based on absolute upside or downside, which we define as $(\text{target price}^* - \text{current price}) / \text{current price}$.

BUY (B). The upside is 10% or more.

HOLD (H). The upside or downside is less than 10%.

REDUCE (R). The downside is 10% or more.

Unless otherwise specified, these recommendations are set with a 12-month horizon. Thus, it is possible that future price volatility may cause a temporary mismatch between upside/downside for a stock based on market price and the formal recommendation.

* In most cases, the target price will equal the analyst's assessment of the current fair value of the stock. However, if the analyst doesn't think the market will reassess the stock over the specified time horizon due to a lack of events or catalysts, then the target price may differ from fair value. In most cases, therefore, our recommendation is an assessment of the mismatch between current market price and our assessment of current fair value.

Industry Recommendations

Overweight. The analyst expects the fundamental conditions of the sector to be positive over the next 12 months.

Neutral. The analyst expects the fundamental conditions of the sector to be maintained over the next 12 months.

Underweight. The analyst expects the fundamental conditions of the sector to be negative over the next 12 months.

Country (Strategy) Recommendations

Overweight (O). Over the next 12 months, the analyst expects the market to score positively on two or more of the criteria used to determine market recommendations: index returns relative to the regional benchmark, index sharpe ratio relative to the regional benchmark and index returns relative to the market cost of equity.

Neutral (N). Over the next 12 months, the analyst expects the market to score positively on one of the criteria used to determine market recommendations: index returns relative to the regional benchmark, index sharpe ratio relative to the regional benchmark and index returns relative to the market cost of equity.

Underweight (U). Over the next 12 months, the analyst does not expect the market to score positively on any of the criteria used to determine market recommendations: index returns relative to the regional benchmark, index sharpe ratio relative to the regional benchmark and index returns relative to the market cost of equity.