FINANSIA
FSS INTERNATIONAL INVESTMENT ADVISORY

Thailand Refinery

Refinery + oil stations = winners

- Global refinery supply is projected to remain tight throughout 2022-24 due to permanent shutdowns of over 3mbpd during 2020-21.
- We think hedging losses and non-refinery profits could greatly differentiate earnings, allowing the winners to fully benefit from an expected GRM upcycle in 2022.
- We prefer ESSO and BCP as our top picks in the Thai refinery sector.

Tighter-for-longer supply with a stronger-for-longer demand outlook

In a sharp turnabout since the pre-Covid period in 2019, the global refinery supply is now projected to remain tight throughout 2022 and into 2023-24. We think this is a consequence of lower refinery supply due to the permanent shutdown of over 3mbpd of refinery capacity during 2020-21, refinery capacity losses in Europe due to the sudden shortage of Russian crude, limited supply growth from OPEC+, a paltry 0.8mbpd in net supply addition in Asia Pacific expected in 2022, the strong global demand growth outlook, and a continuing slide in China's exports in 2H22.

Demand-driven GRM should be a key catalyst

The global demand for gasoline, diesel, and jet fuel is projected to rise by 3-5mbpd in 2022, led by higher seasonal demand from Asia and the US. Coupled with low inventories in the US, Europe, and Asia, we think the margins of gasoline, diesel, and jet fuel over Dubai could stay above USD30/bbl in 2H22. The return of international flights, particularly long-haul intercontinental flights that consume a large amount of jet fuel, should drive the demand for jet fuel to 7.2mbpd by Dec-22 (90% of the pre-Covid level of 8mbpd in 2019), and sustain the global industry GRM at over USD15/bbl, in our view.

Two factors to watch: hedging losses and solid non-refinery earnings

We think two key factors – hedging losses and non-refinery earnings – will greatly differentiate the earnings of one refinery from another and effectively allow the winners to fully capture the benefits of the GRM upcycle in 2022. In 1Q22, all three refiners in PTT group were hit with huge hedging losses, with TOP at USD8.2/bbl, PTTGC at USD16.6/bbl, and IRPC at USD5.8/bbl. The large hedging losses for all three companies are likely to continue in 2Q22 given their hefty 50% hedging volume policy. SPRC is the only pure refinery play without any other businesses, while ESSO has a fully integrated refinery-oil station portfolio. BCP has a much more diversified business portfolio that includes upstream exploration & production, refinery, biofuel, oil stations, and power.

ESSO and BCP are our top picks

With no hedging losses, stronger earnings from oil stations, and significant room for refinery utilisation rate increases, ESSO and BCP are our top picks in the Thai refinery sector. ESSO is our top pick given its strong GRM outlook and high yields for gasoline (28-30%), diesel and jet (>50%), and rising earnings from its oil stations on higher marketing margins, sales volumes, and a refinery utilisation rate of over 80%. We also like BCP for its strong GRM outlook, higher utilisation rate, and the potential earnings growth from its oil stations on rising sales volumes and improving marketing margins.

Suwat Sinsadok, CFA, FRM, ERP
suwat.sin@fssia.com
+66 2611 3558

Siriluck Pinthusoonthorn
siriluck.pin@fssia.com
+66 2611 3562

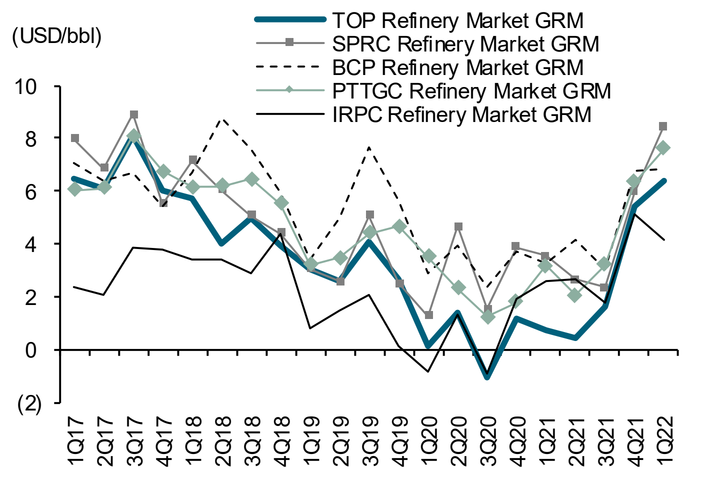
Refinery + oil stations = winners

Over the past six months, the global GRM has continued to rise, driven by the tight supply and stronger demand. The full economic reopening has led to a significant increase in global economic activity, particularly for travel, transportation, international flights, and industrial production – all being key drivers for the surging margins of gasoline (transportation), diesel (industry), and jet fuel (flights).

As a result, all six Thai refiners have enjoyed much higher GRMs in terms of both market GRM (operations) and accounting GRM (operations plus inventory gains/losses). Their market GRMs jumped from negative territory in 3Q20 during the peak of the global Covid-19 pandemic to USD5-9/bbl in 1Q22.

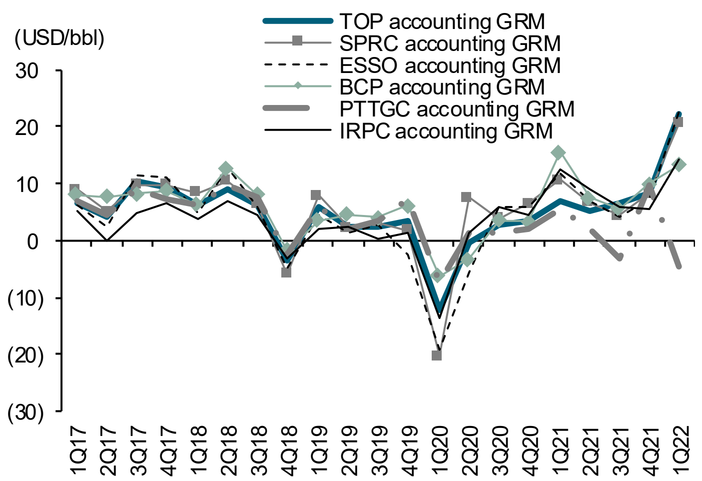
Accounting GRMs have surged even higher, jumping from the negative USD5-20/bbl range in 3Q20 to over USD10/bbl in 1Q22. One exception was PTT Global Chemical (PTTGC TB, REDUCE, TP THB40), whose accounting GRM suffered a -USD4.48/bbl hit in 1Q22 due to a large hedging loss of USD-16.6/bbl that overshadowed an inventory gain of USD4.5/bbl and a market GRM of USD7.6/bbl.

Exhibit 1: Refinery market GRM



Source: Companies

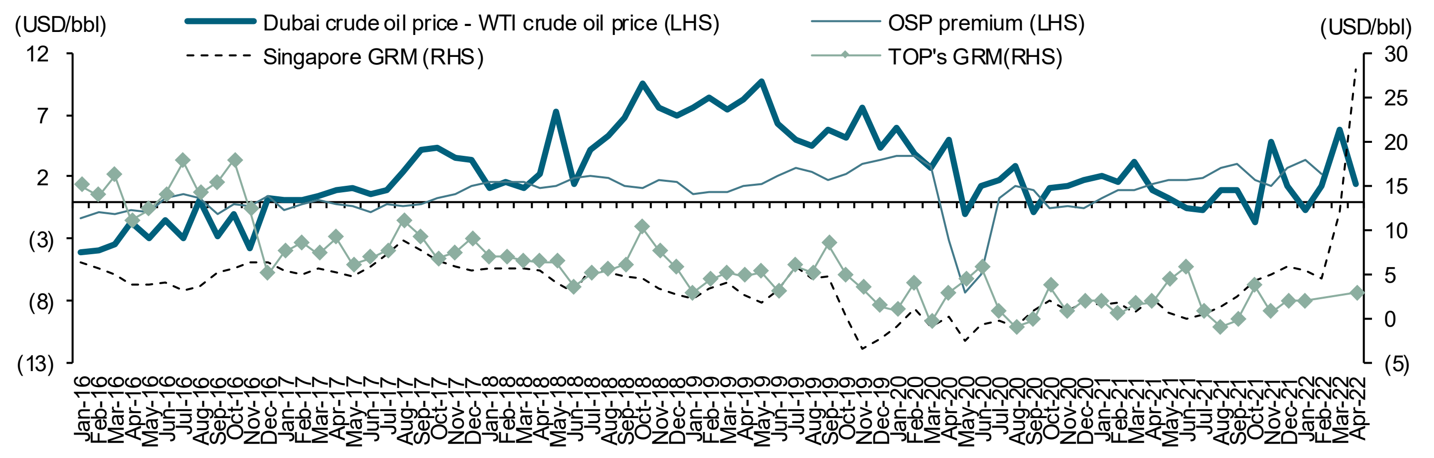
Exhibit 2: Accounting GRM



Source: Companies

Using Thai Oil (TOP TB, BUY, TP THB70)'s GRM as a proxy for the Thai refinery industry's GRM, we believe that TOP's GRM would have been much higher than USD5/bbl in 1Q22 if TOP had not suffered from spikes in the crude premium, represented by the official selling price (OSP) announced monthly by Saudi Arabia.

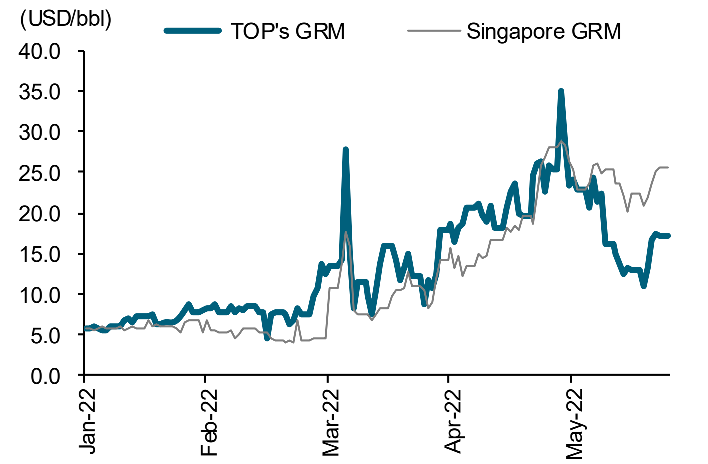
Exhibit 3: Dubai-WTI crude premium, Singapore GRM and TOP's GRM



Source: Bloomberg

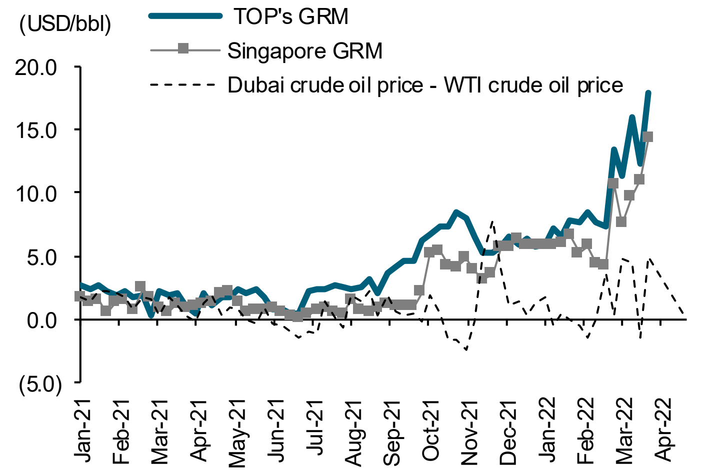
Most Thai refiners have higher accounting GRMs than the benchmark Singapore GRM thanks to their superior production yields of diesel and jet (middle distillate). Hence, we think the market GRMs for Thai refiners in 2Q22 onward, excluding hedging gains/losses, should improve markedly both on a q-q and y-y basis.

Exhibit 4: TOP's GRM vs Singapore GRM (daily)



Source: Bloomberg

Exhibit 5: TOP's GRM vs Singapore GRM vs Dubai-WTI (weekly)



Source: Bloomberg

Crude factors remain key

One of the key factors that we think differentiates the strength and competitiveness of Thai refinery companies is their capability to change their crude intake mix in a swift and efficient way to match dynamic changes in the global crude market, due mainly to geopolitical uncertainties, particularly the ongoing Russian invasion of Ukraine and the sanctions imposed by the US and EU against Russia, including bans on energy imports.

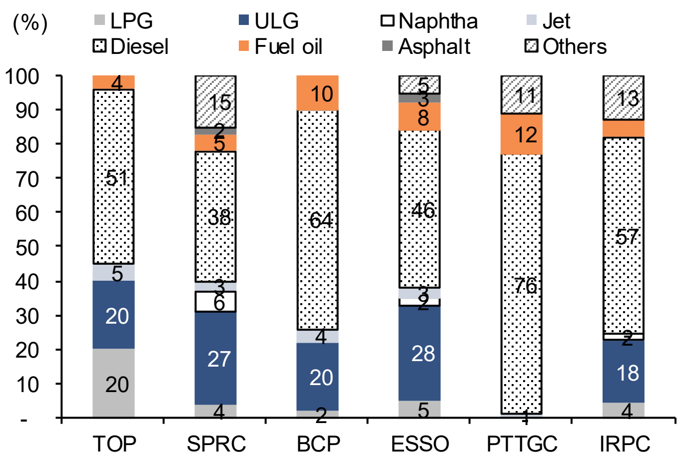
In 1Q22, we think Esso Thailand (ESSO TB, BUY, TP THB12.9), Star Petroleum Refining (SPRC TB, BUY, TP THB14), and Bangchak Corporation (BCP TB, BUY, TP THB40) showed that they possess proven capabilities to secure their crude supplies in a more effective and timely way, resulting in crude costs that were lower than the refiners in the PTT (PTT TB, BUY, TP THB60) group: TOP, PTTGC, and IRPC (IRPC TB, REDUCE, TP THB3).

SPRC and ESSO still enjoy the benefits of lower crude costs leveraged by their US parent oil companies. The key factor is the more efficient crude procurement systems of ExxonMobil, the parent company of ESSO, and Chevron, the parent company of SPRC. Their global presence and the large scale of their crude procurement allows them to secure a greater variety of crude sources worldwide vs PTT group's more limited crude procurement capacity, in our view.

BCP's legacy crude supply remains its key advantage. Meanwhile, BCP continued to benefit from its high local crude procurement of over 40kbpd and other alternative crude types from West Africa, the US, and the Far East (Indonesia, Australia). BCP uses only a small amount of Middle East crude, due mainly to its unfavorable location in the central Bangkok area that effectively prohibits it from importing crude via very large crude carriers (VLCC), which require a deep-sea port to unload.

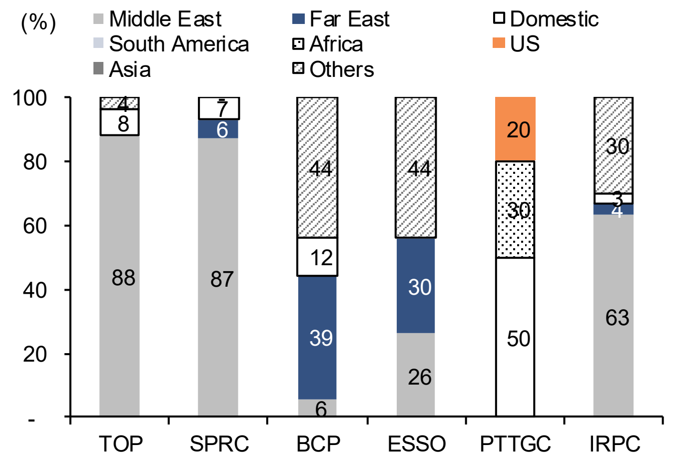
Refiners in the PTT group – TOP, PTTGC, IRPC – are more likely to see their crude costs soar than non-PTT refiners, given their high proportion of Middle East crude supplies in the range of 63% for IRPC and 88% for TOP. One exception is PTTGC, which consumed no crude from Middle Eastern producers in 1Q22. Instead, it used condensate along with crudes imported from West Africa and the US as the key feedstocks for its three refinery plants.

Exhibit 6: Production yields of Thai refiners as of 1Q22



Source: Companies

Exhibit 7: Crude mix breakdown of Thai refiners as of 1Q22

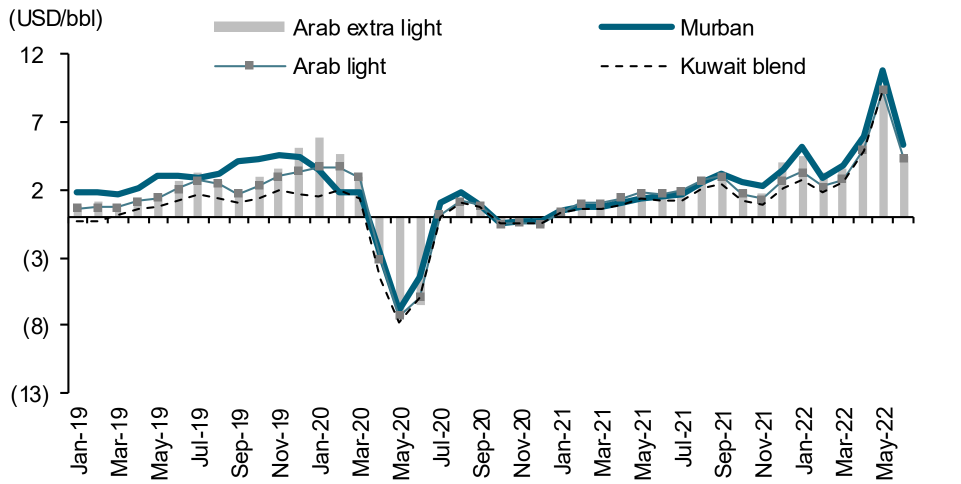


Source: Companies

Lower crude premium in May-22 onward? By suddenly raising its OSP crude premium in Mar-Apr 2022, Saudi Arabia attempted to take advantage of the Russian crude supply risk as a result of the sanctions imposed by the US and the EU countries against Russia over its invasion of Ukraine in Feb-22.

However, even after almost 90 days of war, Russia is still able to sell and export its crudes to willing buyers at deep discounts of up to USD20-30/bbl. Hence, the supply reduction from Russia – previously a grave concern – has not materialised, reflecting Russia's ability to export crude at almost the same level as before the Russia-Ukraine war.

Exhibit 8: Crude premiums of Middle Eastern producers

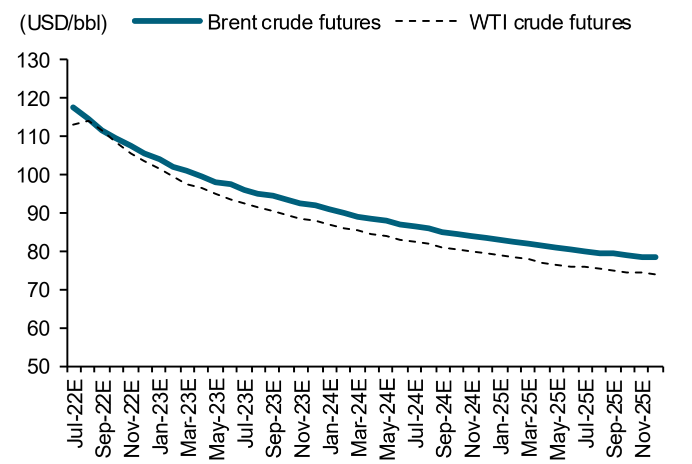


Source: TOP

Another way to monitor the global crude premium impact on Thai refiners would be the differential between the price of Brent and West Texas Intermediate (WTI), which has remained relatively unchanged, based on the Brent and WTI crude futures.

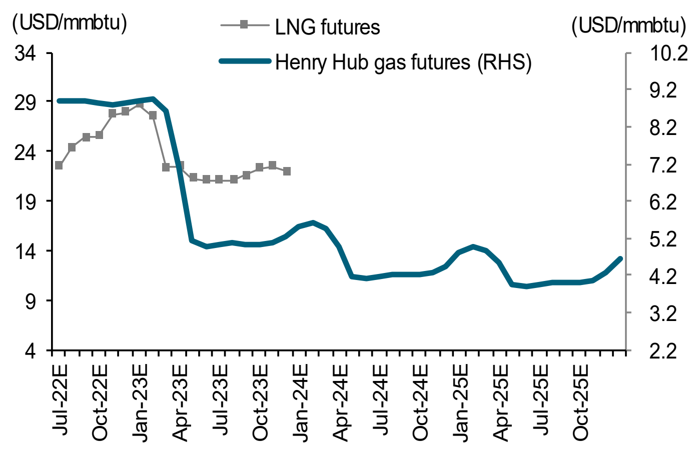
This reflects that the market is less concerned about supply shortages from Russia than the potentially tighter crude supply after the full global economic reopening that could lead to higher demand for gasoline, diesel, and jet fuel in the summer (May-Sep 2022) and winter (Oct-22 to Mar-23).

Exhibit 9: Futures – Brent, WTI crude price



Price as of 27 May 2022
Source: Bloomberg

Exhibit 10: Futures – LNG contract price and Henry Hub gas price



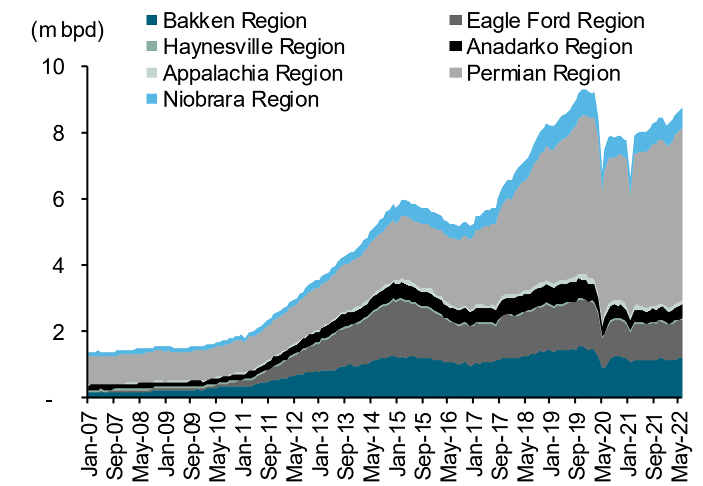
Price as of 27 May 2022
Source: Bloomberg

US shale oil production to remain low in 2022. Despite the sharp rise in the WTI oil price to over USD100/bbl, US shale oil production has remained stagnant at only 8.2mbpd in Apr-May 2022, still lower than the production peak of 9.2mbpd in 1Q19 when the WTI crude price was under USD70/bbl.

The key reason for the lower price elasticity of US shale oil production is financial discipline, in our view. Companies have chosen to maintain high cash flow and shareholder returns in the form of high dividends and stock buyback programs instead of pursuing production growth following the 2019-20 demand cliff sparked by the Covid-19 pandemic that drove many shale oil producers in the US to the brink of insolvency.

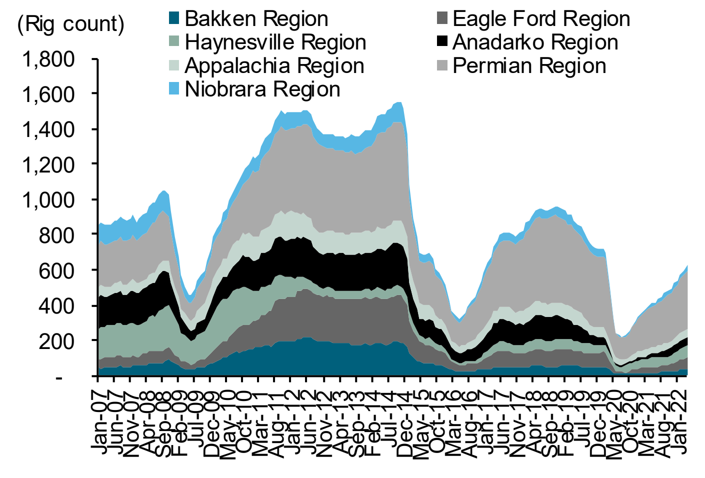
According to the Energy Information Administration (EIA), US shale oil production is projected to reach 9.2mbpd in 2023 but grow by only around 1mbpd to 8.7mbpd by the end of 2022 – still insufficient to match projected global oil demand growth at 3-5mbpd in 2022.

Exhibit 11: US shale oil production by region



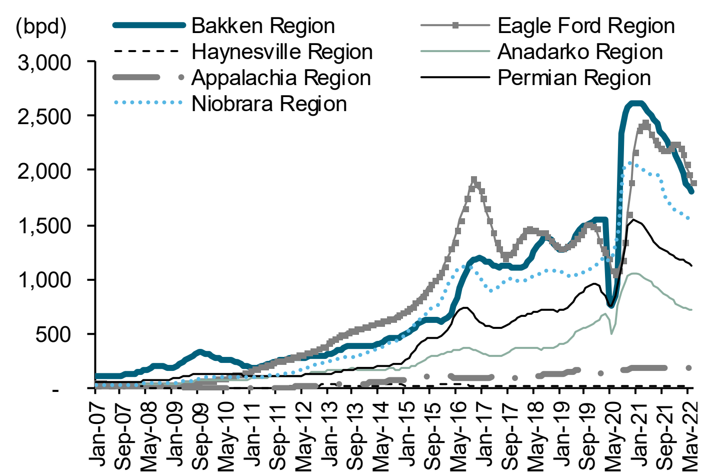
Source: EIA

Exhibit 12: US shale oil rig count



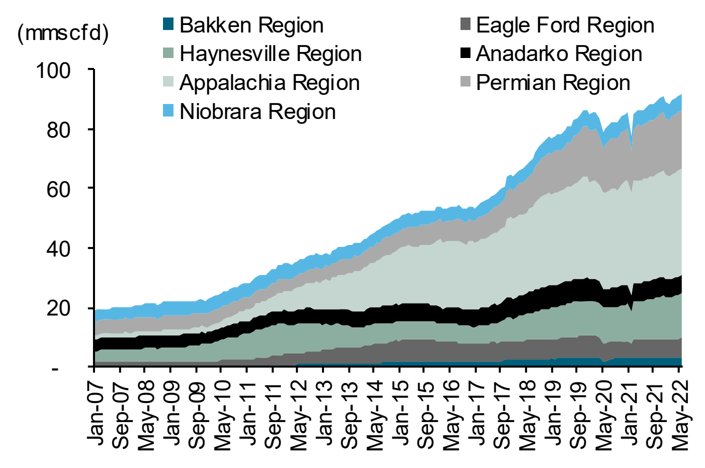
Source: EIA

Exhibit 13: Shale oil production per rig



Source: EIA

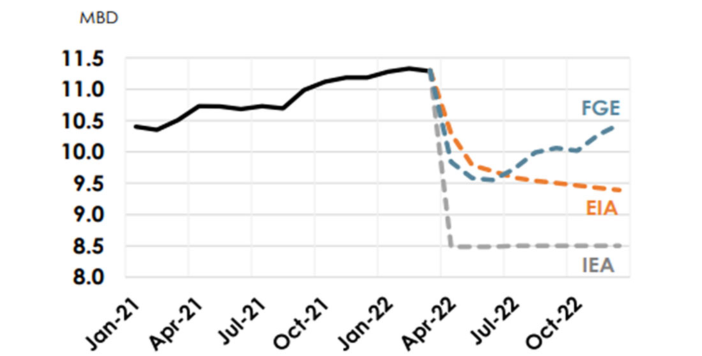
Exhibit 14: US shale gas production by region



Source: EIA

Will Russia's crude supply remain at risk in 2022? According to the EIA, and TOP, the crude supply from Russia is projected to plunge sharply in May-22 onward, dropping from over 11mbpd in 1Q22 down to 8.5mbpd (projected by the International Energy Agency (IEA)), 9.6mbpd by EIA, and 9.5mbpd by FGE consulting company. The plunge in Russia's crude supply projected by these three agencies further signals that in 2022 the global crude market could remain in a very tight balance with demand growth of 3-5mbpd exceeding supply growth of 3-4mbpd, which includes the supply growth from US shale oil, OPEC, and other non-OPEC producers, based on the EIA's estimate.

Exhibit 15: Russia's crude output projections



Source: TOP

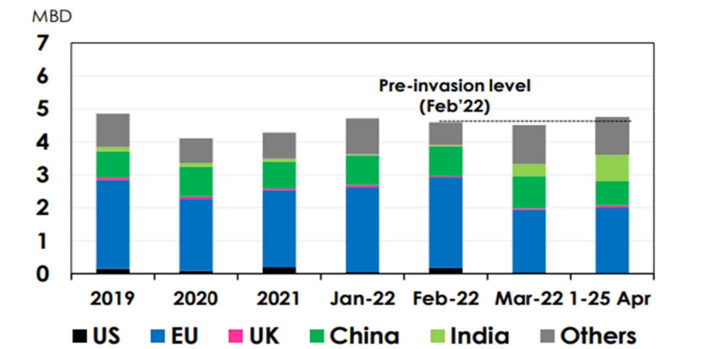
Exhibit 16: Production lost after Apr-22

	Supply loss	Rationale
FGE	Reduce by 1.0-1.2 MBD in May-22 and recover after Jun-22 onwards	Some volume relocated to new buyers
EIA	Gradually fall to 1.9 MBD	
IEA	2.8 MBD	Full voluntary embargo

Source: TOP

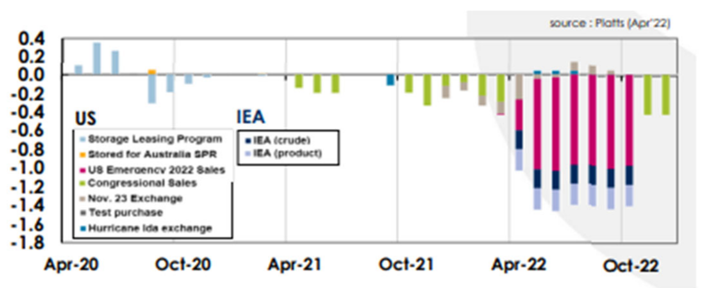
As of Apr-22, Russia's crude exports have remained relatively unchanged at 4.6-4.9mbpd – roughly the same level as before the Russia-Ukraine war began in Feb-22. The major buyers of Russian crude choosing to ignore the sanctions include China and India, which have effectively replaced Russia's lost exports to the US and EU countries. Even though the US and its allies have announced releases from their strategic petroleum reserves (SPR) into the market, crude oil prices have continued to rise, reflecting that the impact of the additional SPR crude has been negligible in the face of strong global demand growth in 2022.

Exhibit 17: Russian crude oil exports



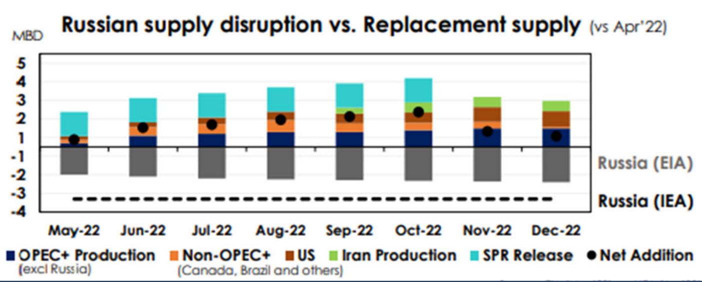
Source: TOP

Exhibit 18: Potential supply replacement from SPR (mbpd)



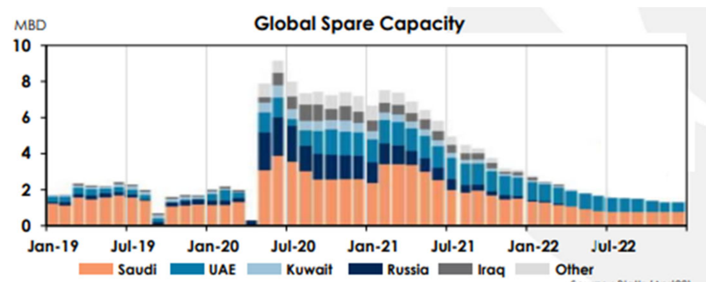
Source: TOP

Exhibit 19: Other supplies can fill the gap in case of Russian supply disruption



Sources: EIA, IEA

Exhibit 20: Limited spare capacity to support price at high level



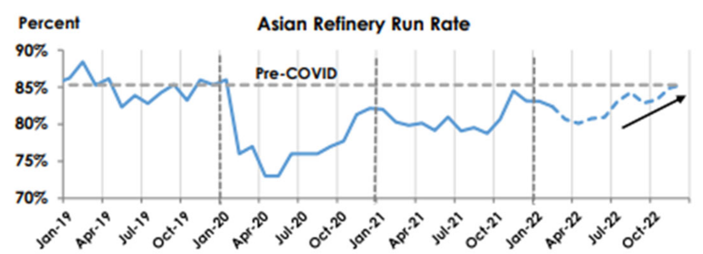
Source: EIA

Refinery industry balance to remain tight in 2022-23

Contrary to expectations from the pre-Covid period in 2019, the global refinery supply is now likely to remain tight throughout 2022 into 2023-24, given:

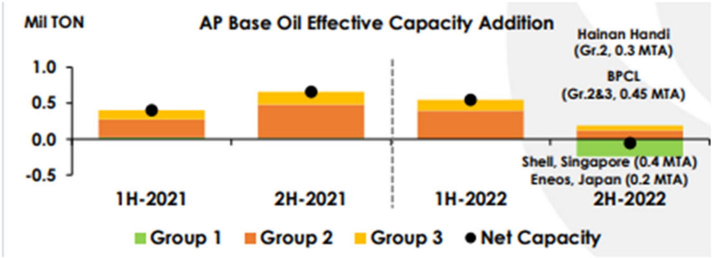
The permanent shutdowns of over 3mbpd of refinery capacity during 2020-21 due to poor financial performance. Refineries with uncompetitive cost structures could not survive the depressed industry GRM below USD3/bbl during the 2020-21 Covid-19 period.

Exhibit 21: Increasing feedstock supply from a higher refinery run rate in Asia



Source: TOP

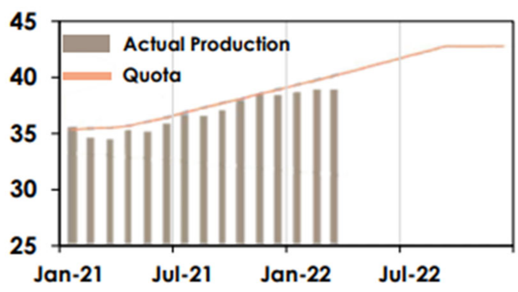
Exhibit 22: Plant Gr.1 closures in 2H22



Source: TOP

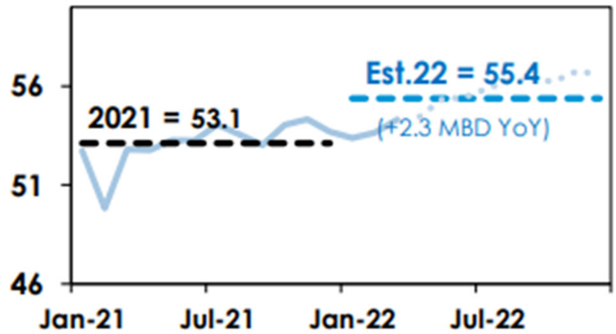
The refinery capacity loss in Europe due to the sudden shortage of Russian crude feedstock. Following the sanctions by the EU against Russia, inland refiners with plants designed for refining mainly Russian crude have shut down due to the lack of alternative suppliers.

Exhibit 23: OPEC crude production (mbbl/day)



Source: TOP

Exhibit 24: Non-OPEC crude production (mbbl/day)

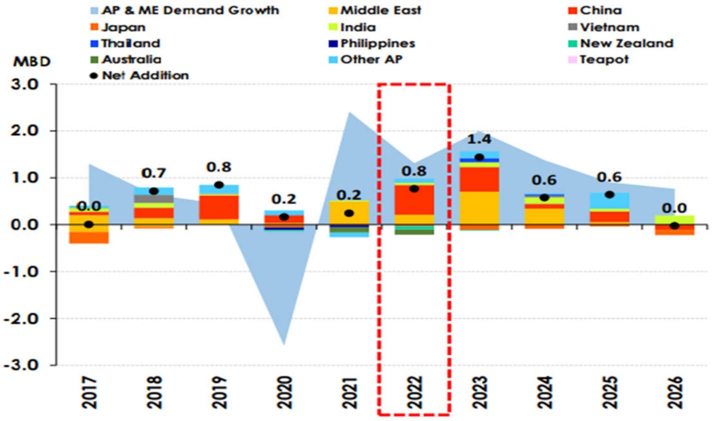


Source: TOP

Limited supply growth from OPEC+. The OPEC+ cartel, comprising OPEC members led by Saudi Arabia and the UAE, and some non-OPEC producers, led by Russia, have retained their original target of 0.4mbpd monthly supply increases despite the sharp rise in the crude oil price and requests by the US and its allies for OPEC+ to boost their crude oil supply above 0.4mbpd.

A mere 0.8mbpd in net supply addition in Asia Pacific in 2022. In 2022, while projected refinery capacity growth is high at 0.8mbpd, according to Thai Oil, the lost refinery capacity in Europe and strong demand growth projected at over 3mbpd in 2022 is likely to lead to a tighter global refinery demand-supply balance. We think this is driving the current high GRM of over USD15/bbl compared to just USD2-5/bbl during 2020-21.

Exhibit 25: Asia Pacific and Middle East effective CDU additions vs additional demand



Source:TOP

Exhibit 26: Key projects – new additions

Country	Company	CDU (kbd)	COD	Previous plan startup
China	Rongsheng II	400	1Q22	3Q21
China	Local Shenghong Petrochemical	320	3Q22	4Q21
Malaysia	Petronas	300	3Q22	
China	CNPC/PDVSA	400	3Q22	3Q21
India	Hindustan Petroleum	125	3Q22	4Q20
Thailand	Thai Oil	125	1Q23	
Oman	Al-Duqm	230	1Q23	
Kuwait	AL Zour	615	2Q23	4Q20
China	Sinopec Hainan	100	3Q23	

Source: TOP

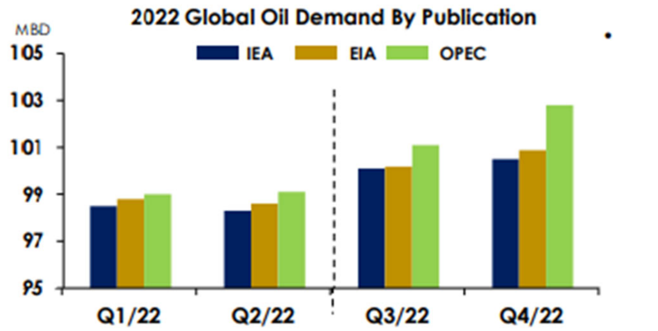
Exhibit 27: Key projects – closures

Country	Company	CDU (kbd)	Closure
Malaysia	Petronas	(300)	3Q22
China	Local refineries	(100)	3Q22
Japan	ENEOS	(112)	4Q22
Iran	Abadan	(210)	3Q23
Japan	Various Refineries	(195)	4Q24

Source: TOP

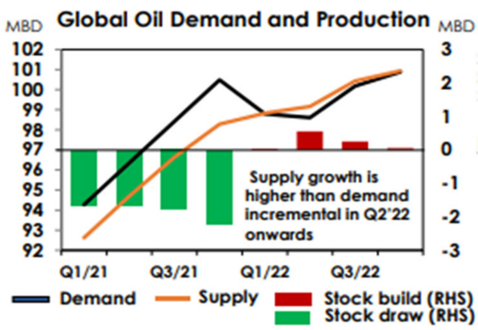
Strong global demand growth outlook. In 2022, the first full year after the global economic reopening post Covid, the demand for jet, diesel, and gasoline, is projected to rise markedly y-y. Based on the projections by three leading global energy agencies EIA (US), IEA (Europe), and OPEC, oil demand growth in 2022 will be in the range of 3-5mbpd. Especially in 2H22, when economic activity is likely to return to the pre-Covid level, the projections for total global demand range from 98mbpd in 1Q22 to 100-103mbpd in 4Q22.

Exhibit 28: Expected higher global demand in 2H22



Source: TOP

Exhibit 29: Global oil demand and production

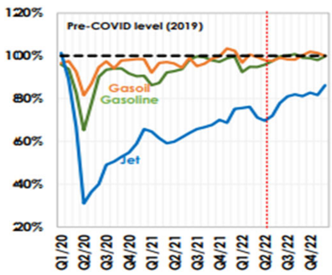


Source: TOP

While the global demand for gasoline and diesel has already recovered to pre-Covid-19 levels, the global demand for jet fuel remains at only 80% of the pre-Covid level of 7mbpd. However, global jet fuel demand is expected to rise to 90-95% of the pre-Covid level by the end of 2022 given the rising number of international long-haul flights since the beginning of 2022.

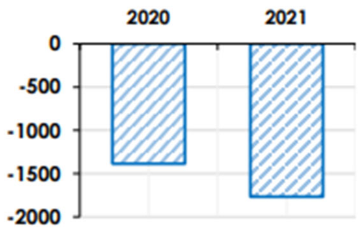
The closures of refinery plants globally with an accumulated capacity shutdown of 3.1mbpd in 2020-21 should further tighten the global refinery supply amid the strong demand outlook, potentially leading to a sustainably high GRM above USD15/bbl throughout 2022, in our view.

Exhibit 30: Global oil demand growth



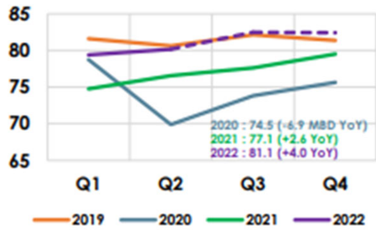
Source: TOP

Exhibit 31: Global refinery closures (k bbl/day)



Source: TOP

Exhibit 32: Global refinery run (m bbl/day)

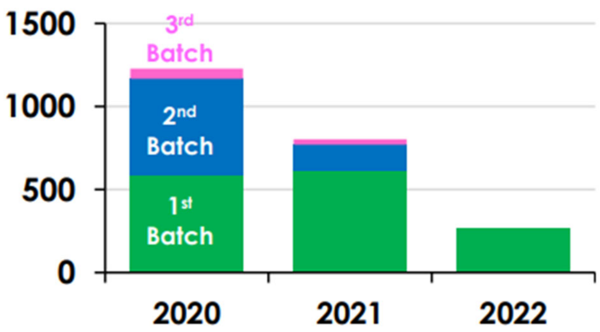


Source: TOP

China's lower exports to continue in 2H22. Since 2H21, China has significantly cut its export quotas for all three refined oil products, particularly gasoline and gasoil (diesel), as domestic demand growth has surged post the economic reopening.

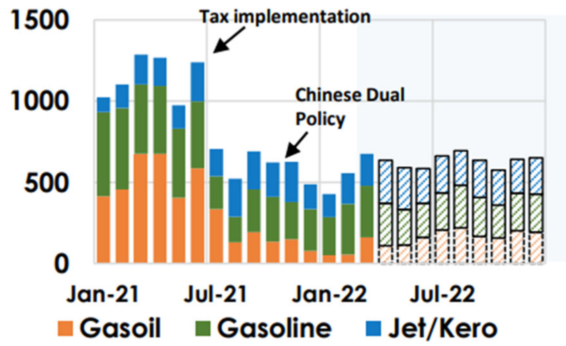
Despite the recent lockdowns of certain areas, including the major city of Shanghai, to control the resurgence of Covid-19, demand for refined oils has remained strong while the higher crude oil price above USD100/bbl has effectively forced many small and inefficient "tea pot" refinery plants to close, leading to lower export quotas for gasoline, diesel, and jet fuel.

Exhibit 33: China's export quota for gasoline/jet/gasoil (k bbl/day)



Source: TOP

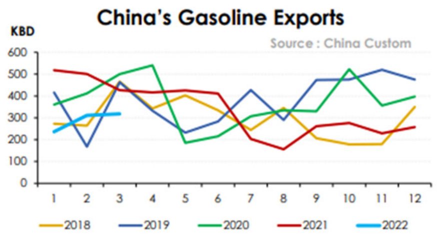
Exhibit 34: China's product exports (k bbl/day)



Source: TOP

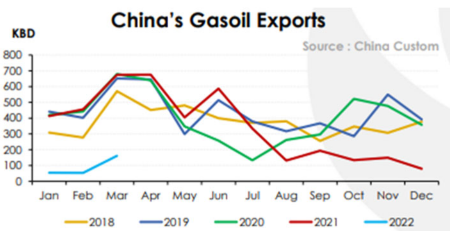
Gasoil has seen the deepest drop in China's exports, with only 100-200kbd exported in 1Q22, down from an average of 500-600kbd in 2018-21. We expect the low exports of refined oils to persist in 2022, further tightening the global refinery supply.

Exhibit 35: China's gasoline exports



Source: TOP

Exhibit 36: China's gasoil exports



Source: TOP

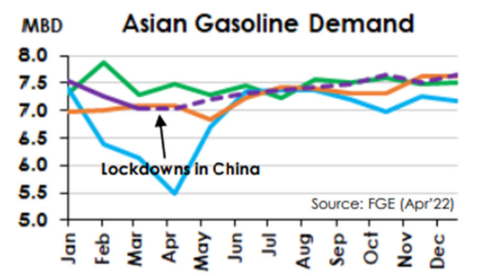
Exhibit 37: China's jet exports

Source: TOP

Strong demand growth should sustain a USD15/bbl industry GRM in 2022

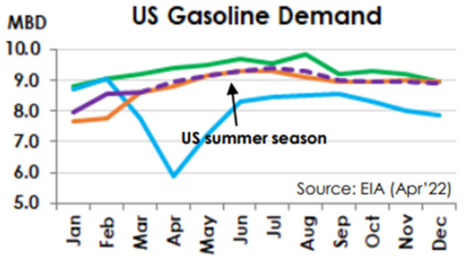
Global demand growth for gasoline, diesel, and jet fuel is projected to rise by 3-5mbpd in 2022, led by seasonal gasoline demand in Asia and the US. Coupled with the currently low gasoline inventory in the US, we think the gasoline-Dubai margin could stay above USD30/bbl in 3Q22.

Exhibit 38: Asian gasoline demand



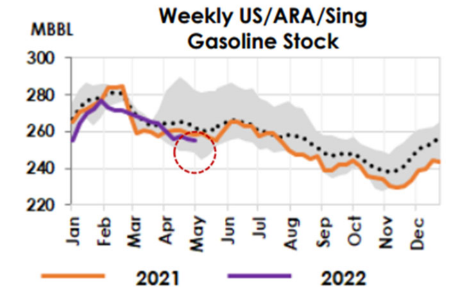
Source: TOP

Exhibit 39: US gasoline demand



Source: TOP

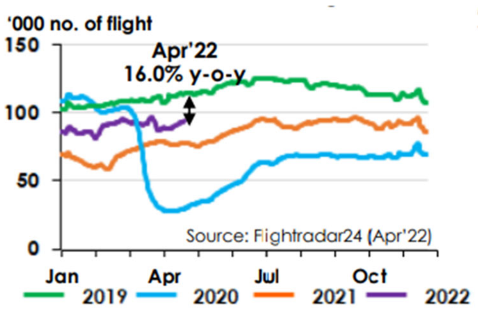
Exhibit 40: US/ARA/Sing gasoline stocks (weekly)



Source: TOP

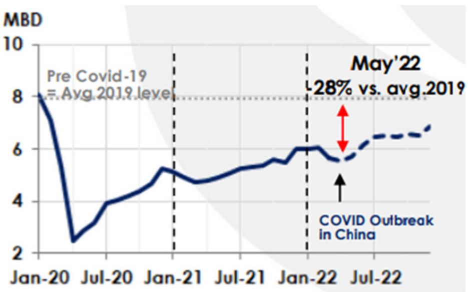
Jet fuel demand recovery is highly visible in 2H22. After the return of international flights, particularly long-haul intercontinental flights that consume a large amount of jet fuel, we expect demand for jet fuel to be one of the key catalysts to drive and sustain the global industry GRM above USD15/bbl. According to TOP's management and the EIA, global jet fuel demand is projected to rise to around 7.2mbpd by Dec-22, representing around 90% of the pre-Covid level of 8mbpd.

Exhibit 41: Global commercial flights



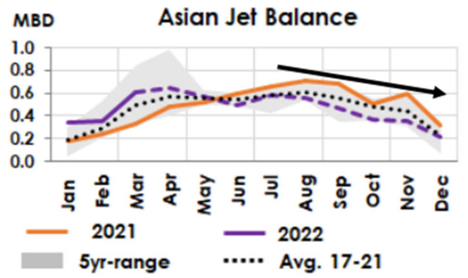
Source: TOP

Exhibit 42: Global jet fuel demand



Source: TOP

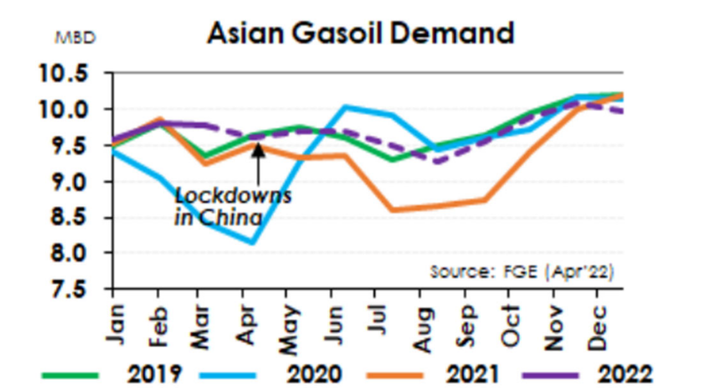
Exhibit 43: Asian jet balance



Source: TOP

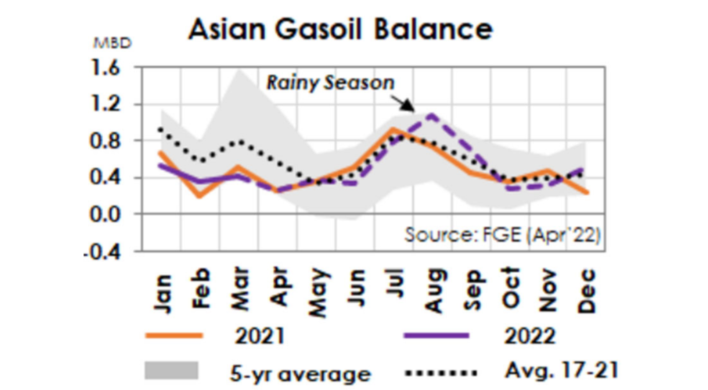
The current spike in the margin of gasoil over the Dubai crude price to over USD30/bbl could be the most significant driver for Thai GRMs, given their average high production yield of gasoil at over 45%.

Exhibit 44: Asian gasoil demand



Source: TOP

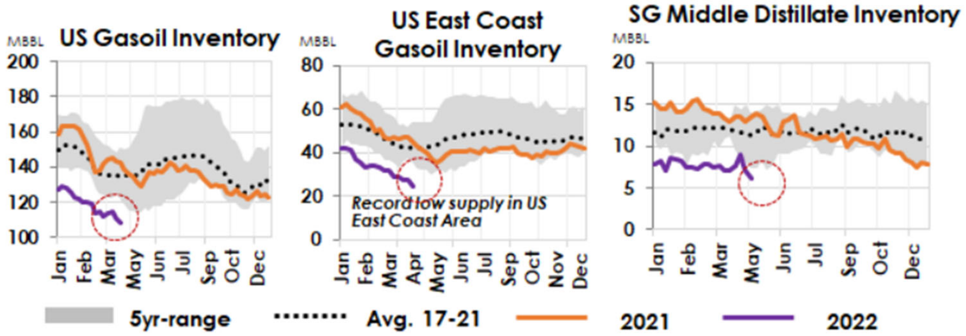
Exhibit 45: Asian gasoil balance



Source: TOP

While the US is not the world's largest market for gasoil, its extremely low inventory of gasoil below the five-year average is likely further aggravating the global tightening of gasoil supply and higher demand. This could help sustain the high margin of gasoil over the Dubai crude oil price above USD30/bbl throughout 2022, based on our estimate.

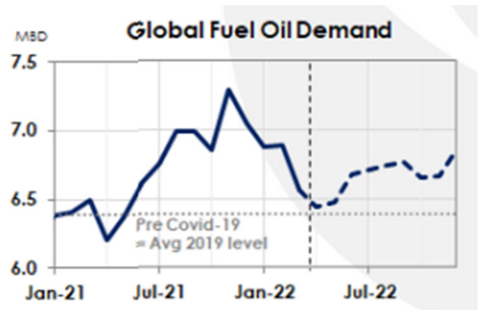
Exhibit 46: Very low inventories, all below the five-year average



Source: TOP

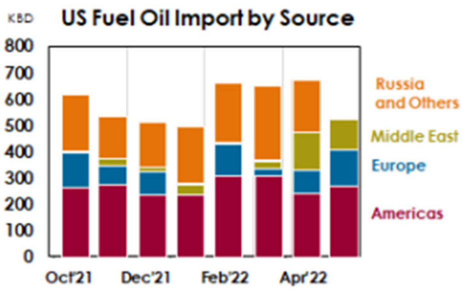
Fuel oil demand weakness could cap the margin in 2022. According to the EIA, the demand for fuel oil, particularly for high sulphur fuel oil (HSFO), is forecast to be weaker y-y due to the higher price and lower demand from the global shipping industry after the ban imposed by the International Maritime Organisation since Jan-20. However, we think the margin for HSFO-Dubai is projected to be in the range of negative USD5-15/bbl, supported by higher demand from power plants globally to partly substitute the supply shortages of coal and gas.

Exhibit 47: Global fuel oil demand



Source: TOP

Exhibit 48: US fuel oil imports by source



Source: TOP

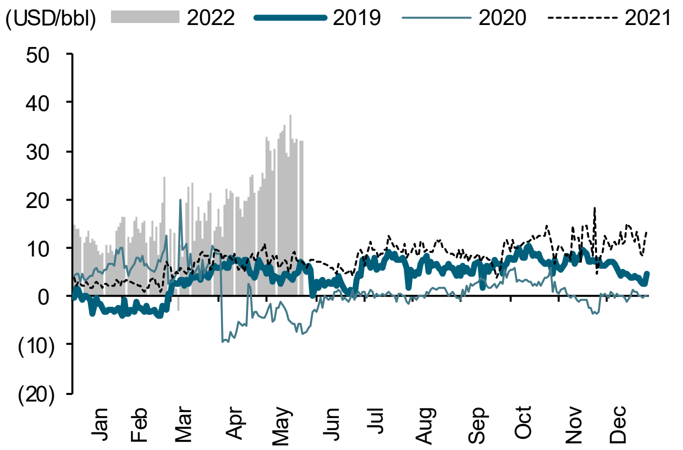
Exhibit 49: ME HSFO exports to Asia

Source: TOP

Bullish view on global refined product margins outlook

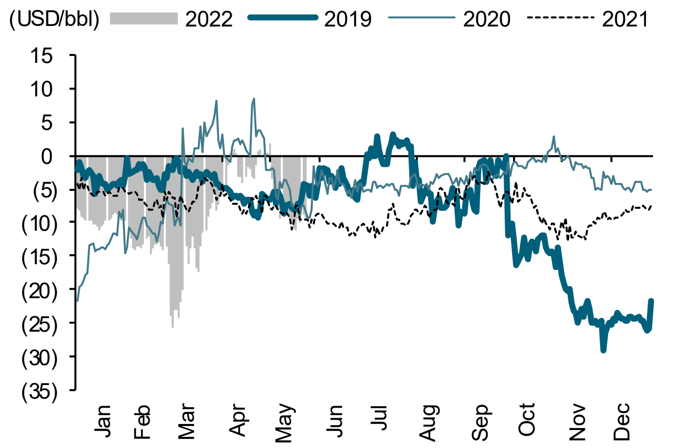
Since Apr-22, the margins of refined oil products, including gasoline, HSFO, diesel, and jet fuel, have spiked markedly, driven by the tight supply and strong demand. The margin of ULG92 gasoline-Dubai jumped from below USD10/bbl in 1Q22 to over USD30/bbl in Apr-May 2022 and is expected to rise further to USD40/bbl in summer 2022 thanks to the demand surge from the US driving season.

Exhibit 50: 92 octane gasoline price – Dubai crude oil price



Source: Bloomberg

Exhibit 51: High sulphur fuel oil SG – Dubai crude price

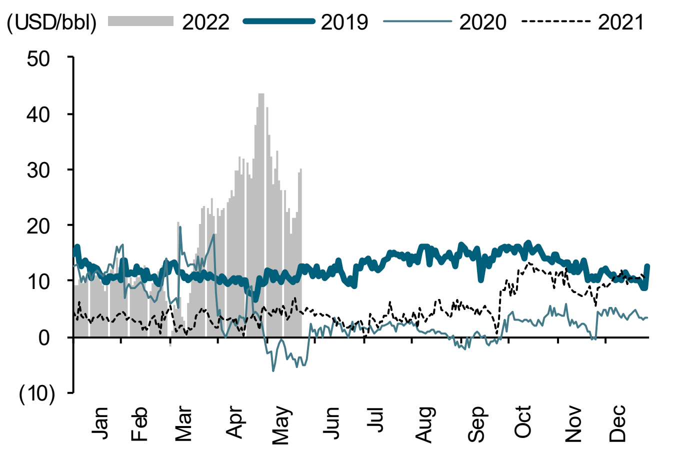


Source: Bloomberg

The margin of jet-Dubai surged by over USD40/bbl in Apr-22 and then softened to stay above USD30/bbl in May-22. We project the jet-Dubai margin to be above USD30/bbl in 2H22, in line with our assumption of an average jet-Dubai margin of USD23/bbl.

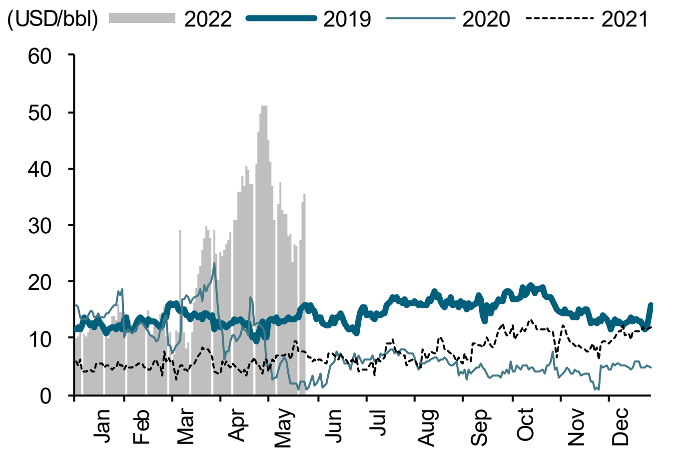
Similarly, the margin of gasoil-Dubai should also stay above USD30/bbl in Jun-22 and average USD22/bbl, based on our assumption, as the tight supply and high demand situation should sustain the high margin going forward.

Exhibit 52: Jet kerosene price – Dubai crude oil price



Source: Bloomberg

Exhibit 53: Gasoil 0.5% sulphur SG price – Dubai crude price



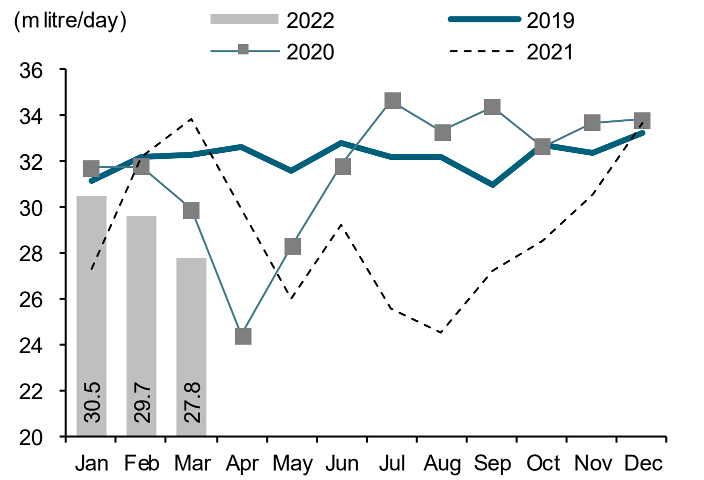
Source: Bloomberg

Thailand's demand for diesel remains strong

Thailand has seen a divergence in the demand growth for diesel vs gasoline as consumers with gasoline-powered cars reduced their consumption in 1Q22 due to the price spike caused by a higher tax on gasoline (THB3-5/litre) and the switch to electric vehicles (EVs) after the Thai government approved a subsidy package to encourage EV purchases and cut taxes on imported EVs.

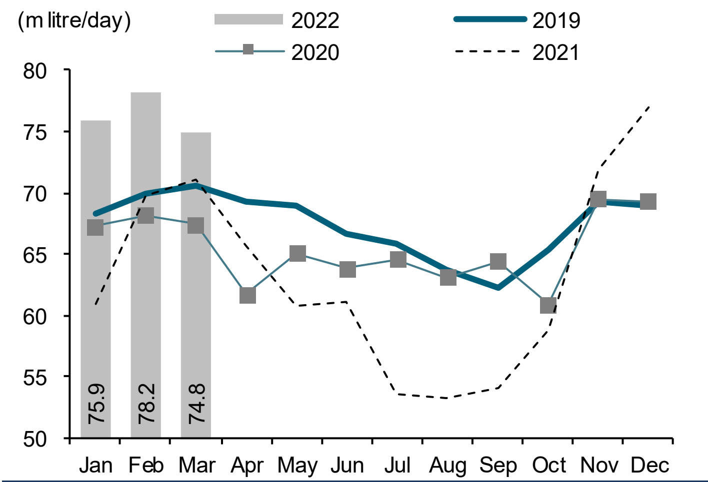
In contrast, demand for diesel, the key transportation fuel in Thailand, has continued to grow y-y – even surpassing the pre-Covid level in 2019 by almost 8% – thanks to the lower taxes on diesel compared to gasoline, based on data provided by the Department of Energy Business (DOEB). In addition, the Thai government capped the retail price of diesel at THB28/litre in 1Q22, rising to THB30/litre in Apr-22, and THB32/litre in May onward. Given the high yield of diesel at over 40% for all Thai refiners, the higher demand and margins should significantly boost the GRMs of Thai refiners in 2022.

Exhibit 54: Thailand's gasoline consumption



Source: DOEB

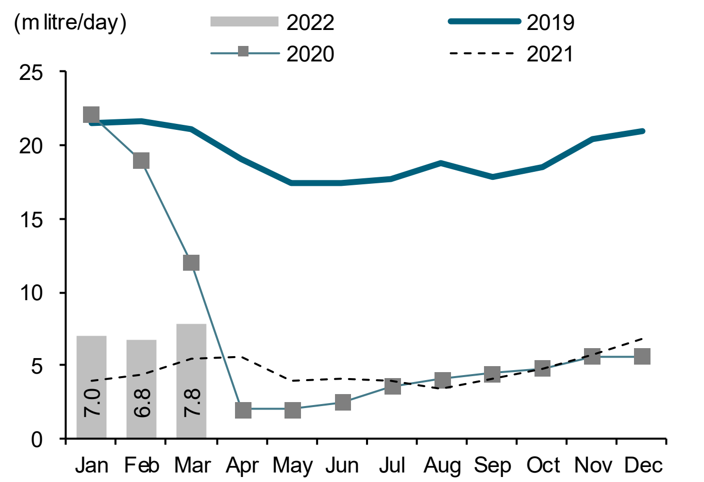
Exhibit 55: Thailand's diesel consumption



Source: DOEB

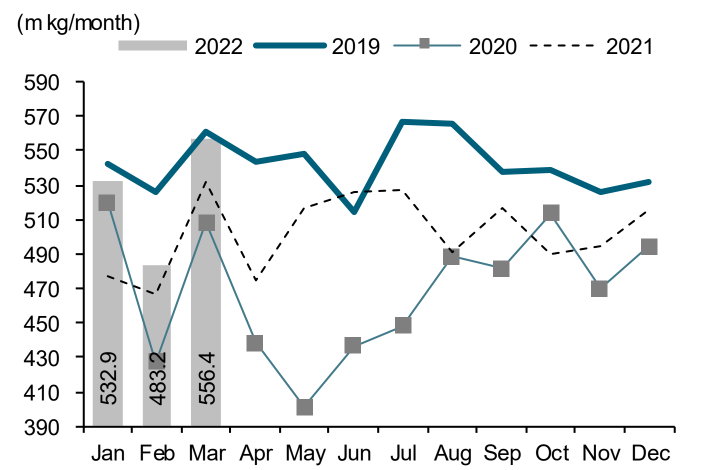
In Mar-22, jet fuel consumption recovered to around one-third of the pre-Covid level of 21mbpd as tourist arrivals recovered to nearly 2m in 4M22. We expect jet fuel demand to rise to 8-9mbpd in 4Q22, driven by the 5-7m tourist arrivals projected by the Tourism Authority of Thailand.

Exhibit 56: Thailand's jet fuel consumption



Source: DOEB

Exhibit 57: Thailand's LPG consumption



Source: DOEB

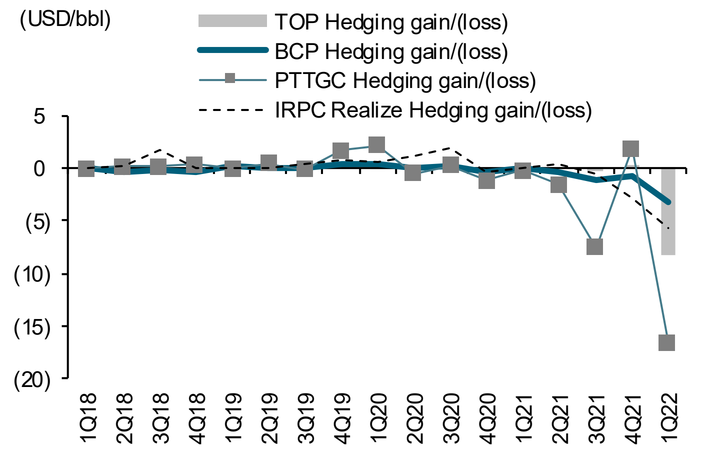
Two factors to watch in 2022: hedging losses and non-refinery earnings

Among the six Thai refiners, we think there are two key factors – hedging losses and non-refinery earnings – that should greatly differentiate their earnings from one another, and effectively allow the winners to fully capture the benefits of the GRM upcycle in 2022.

Factor #1: Hedging gains (losses). In 1Q22, all three refiners in the PTT group booked huge hedging losses. IRPC's hedging loss was THB3.4b (USD5.8/bbl), followed by TOP at THB7.4b (USD8.2/bbl), and PTTGC (USD16.6/bbl), and. PTTGC had the most significant hedging loss amount in 1Q22. This is likely to continue in 2Q22 given that PTTGC has over 15mbbl of hedging volume still outstanding, potentially leading to a USD15/bbl hedging loss in 2Q22, based on our estimate.

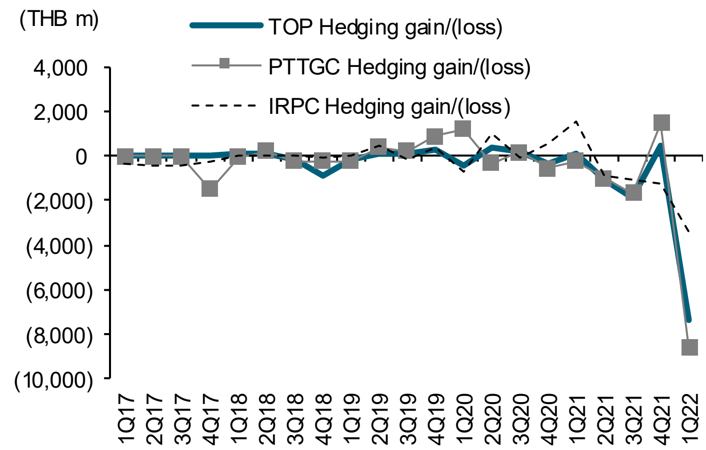
Unlike the two US-owned refiners SPRC and ESSO, which have no hedging policy, refiners under the PTT group (TOP, PTTGC, IRPC) have a broad hedging policy of 50% of their sales volume exposure in refined oil products.

Exhibit 58: Hedging gain (loss) per bbl for TOP, BCP, PTTGC, and BCP



Sources: TOP; BCP; PTTGC; IRPC

Exhibit 59: Hedging gains (losses) for TOP, PTTGC, and IRPC



Sources: TOP; PTTGC; IRPC

Hence, TOP now has 40-50% of its sales volume in 1H22 and 20% in 2H22 hedged via forward contracts on Murban crude purchases, with the aim of protecting its GRM. PTTGC hedged c50% of its refined product sales volume in 9M22 with a lower hedging volume in 4Q22 as PTTGC plans to shut down its refinery crude distillation unit (CDU). IRPC has a hedging position of around 30-40% of its sales volume for refined oil products and thus could incur a significant hedging loss again in 2Q22.

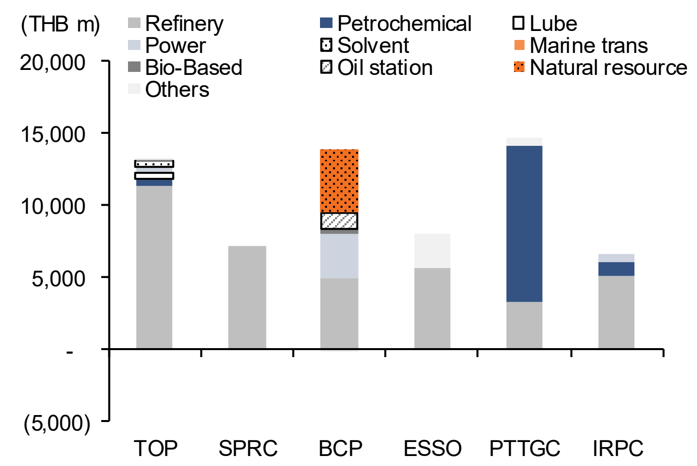
While the exact hedging volumes for TOP, PTTGC, and IRPC are undisclosed, we expect their hedging losses to remain high and likely be similar in scale as in 1Q22, given the wider hedging loss gap due to the sharp spikes in product crack spreads over the Dubai crude oil price in Apr-May 2022.

Only SPRC and ESSO will have no hedging losses in 2Q22 and 2H22, allowing them to fully capture the benefit of the industry GRM upcycle. BCP will likely have a smaller hedging loss than TOP, PTTGC, and IRPC, as BCP maintains only a small hedging volume position.

Factor #2: Non-refinery earnings (net loss). In Thailand, only SPRC is a pure refinery play without any other businesses. ESSO has a fully integrated refinery-oil station portfolio while BCP has a much more diversified business portfolio with upstream exploration & production, refinery, biofuel, oil stations, and power.

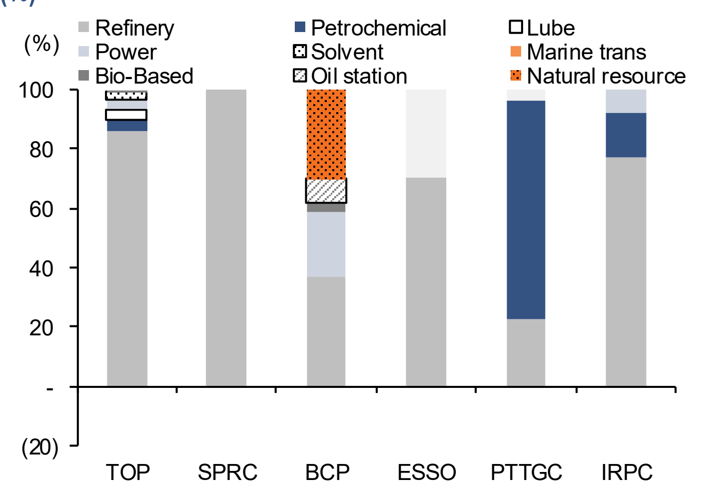
The refiners in PTT group have asset portfolios that are highly diversified to create more sustainable earnings over the long-term, based on management's guidance. TOP has refinery, lube, aromatics, power, and biofuel operations while PTTGC and IRPC focus more on petrochemical businesses, with PTTGC as a leading producer of olefin products and aromatics. IRPC is a smaller integrated refinery and petrochemical producer focused on specialty aromatics products such as styrene monomer chains and polypropylene chains.

Exhibit 60: EBITDA breakdown of Thai refiners as of 1Q22



Source: Companies

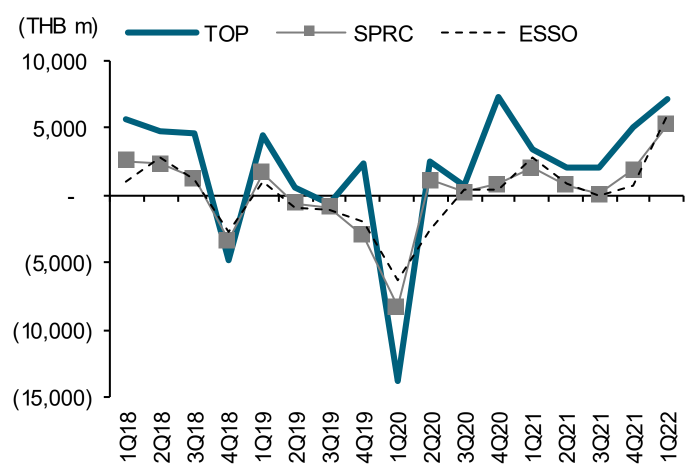
Exhibit 61: EBITDA breakdown of Thai refiners as of 1Q22 (%)



Source: Companies

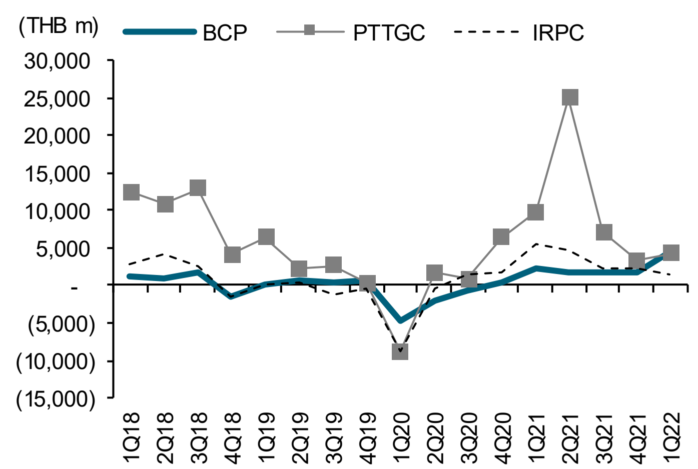
Expect earnings dilutions from aromatics, lube, and biofuels for TOP, PTTGC, and IRPC in 2022. As a result, we think TOP, PTTGC, and IRPC will not only suffer from projected large hedging losses, but also from diluted refinery earnings due to lower non-refinery business gains, including aromatics (margin downcycle in 2022-23), lube (weak demand and higher supply), and biofuels, both for ethanol and methyl ester (B100) due to the high cost of cassava and molasses feedstock for ethanol and palm oil for B100.

Exhibit 62: Quarterly net profits of TOP, SPRC, and ESSO



Sources: TOP; SPRC; ESSO

Exhibit 63: Quarterly net profits of BCP, PTTGC, and IRPC

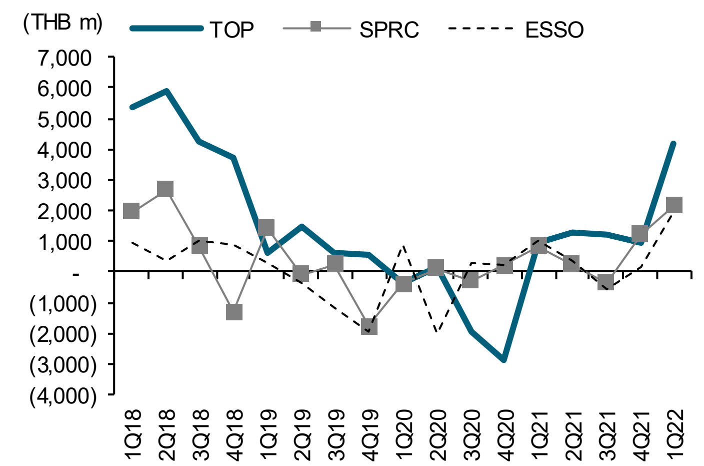


Sources: BCP; PTTGC; IRPC

Oil station earnings to further strengthen refinery net profits for ESSO and BCP, our top picks. Unlike other non-refinery businesses with weaker earnings outlooks in 2022, we think downstream oil stations should see stronger earnings growth in 2022-23 thanks to the demand recovery, an improving marketing margin, and rising EBITDA from their non-oil businesses, mainly food & beverages.

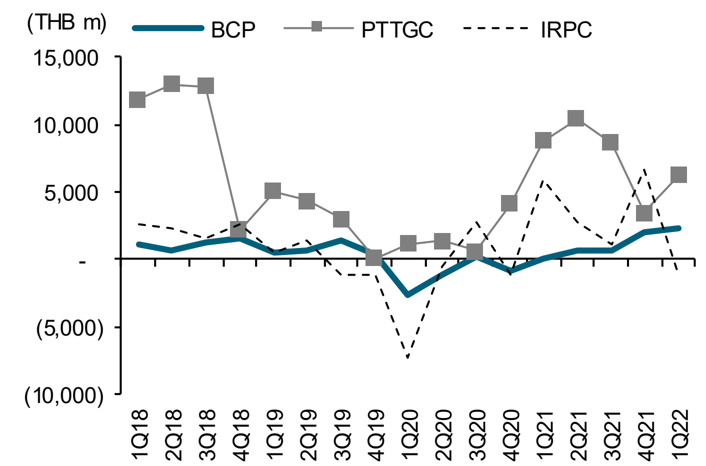
SPRC stands out as a pure play to fully benefit from the GRM strength in 2022. With its high gasoline yield, low-cost structure, and an improving utilisation rate, we expect SPRC to post strong EBITDA growth in 2022 on the back of the strong GRM.

Exhibit 64: Quarterly core net profits of TOP, SPRC, and ESSO



Sources: Companies; FSSIA estimates

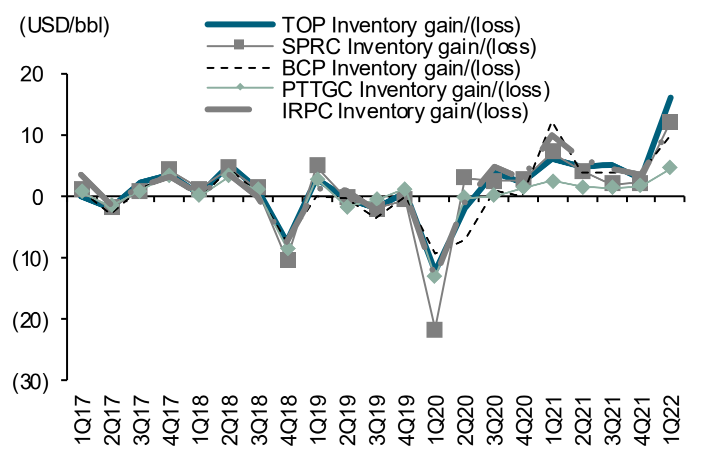
Exhibit 65: Quarterly core net profits of BCP, PTTGC, and IRPC



Sources: Companies; FSSIA estimates

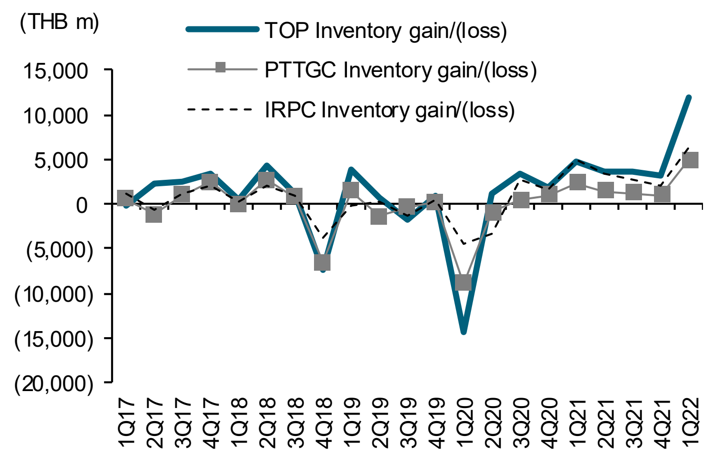
Inventory gain remains a key supporting factor for accounting GRM. With the uptrend in the global crude oil price that is likely to stay above USD100/bbl in 2022, we think the inventory gains for Thai refiners could further support their reported net profits in 2022.

Exhibit 66: Quarterly inventory gain (loss) per bbl for five Thai refiners



Source: Companies

Exhibit 67: Quarterly inventory gains (losses)



Source: Companies

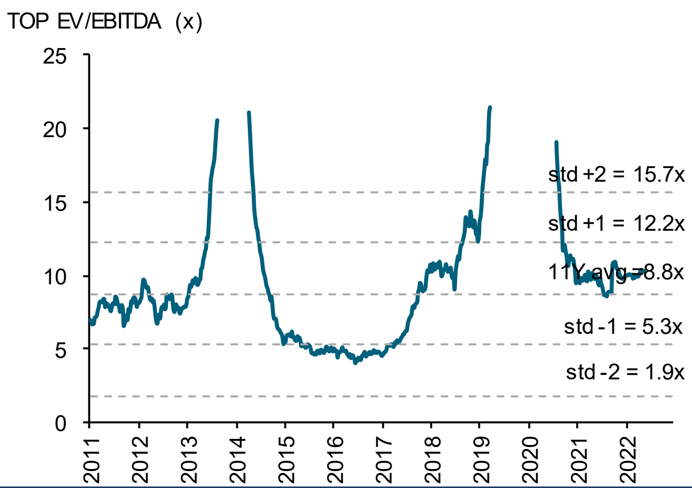
Refinery + oil stations = wins for ESSO and BCP

With little to no potential for hedging losses, stronger earnings from oil stations, and significant room for refinery utilisation rate increases, we prefer ESSO and BCP as our top picks in the Thai refinery sector.

ESSO stands out as our most preferred refiner in Thailand's refinery sector based on 1) its strong GRM outlook based on high yields of gasoline (28-30%), diesel and jet (>50%); 2) rising earnings for its oil stations on higher marketing margins and sales volumes, along with the expansion in the number of its oil stations to a target of 800 by the end of 2022, up from 739 in 1Q22; and 3) the ability to maximise its refinery utilisation rate to over 80%, up from 70% in 1Q22, given the higher sales volumes of its oil stations, the commercial segment, and exports.

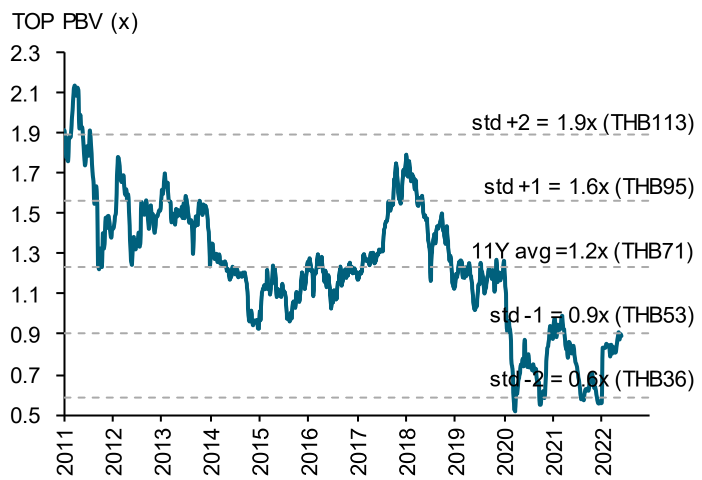
BCP emerges as our second preferred pick in the Thai refinery sector based on 1) its strong GRM outlook thanks to the low crude premium, high production yields of gasoline and middle distillates, and a higher utilisation rate above 100%; 2) increasing earnings from oil stations due to the non-oil financial turnaround, higher sales volumes, and an improving marketing margin; and 3) stronger earnings from power subsidiary BCPG (BCPG TB, BUY, TP THB17) on its capacity expansion via multiple M&As.

Exhibit 68: TOP's prospective EV/EBITDA band



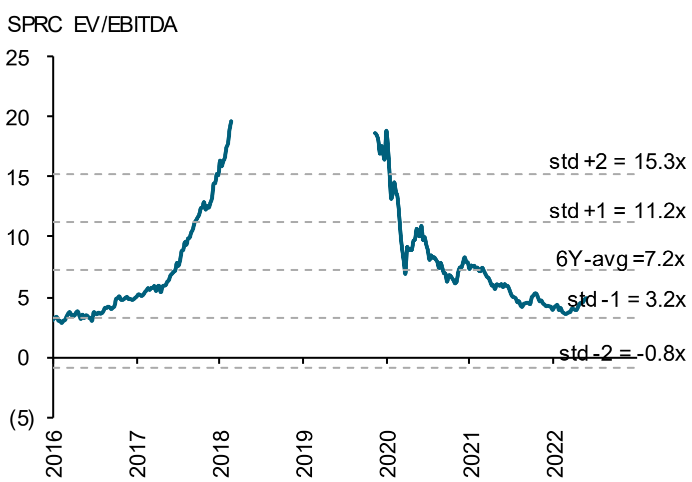
Sources: TOP; Bloomberg; FSSIA estimates

Exhibit 69: TOP's prospective P/BV band



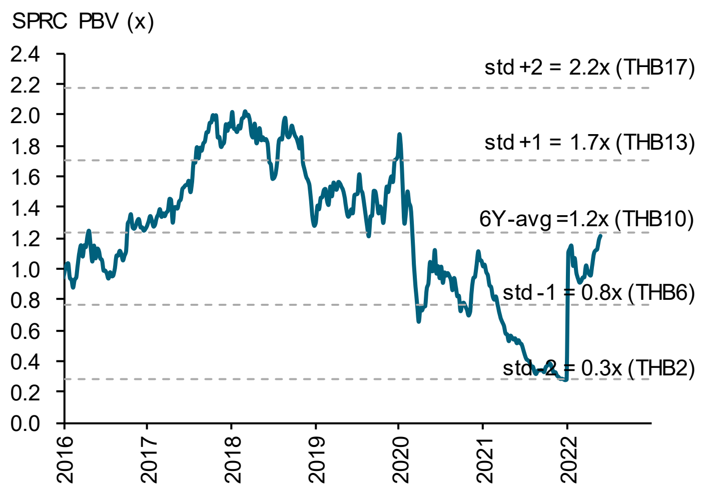
Sources: TOP; Bloomberg; FSSIA estimates

Exhibit 70: SPRC's prospective EV/EBITDA band



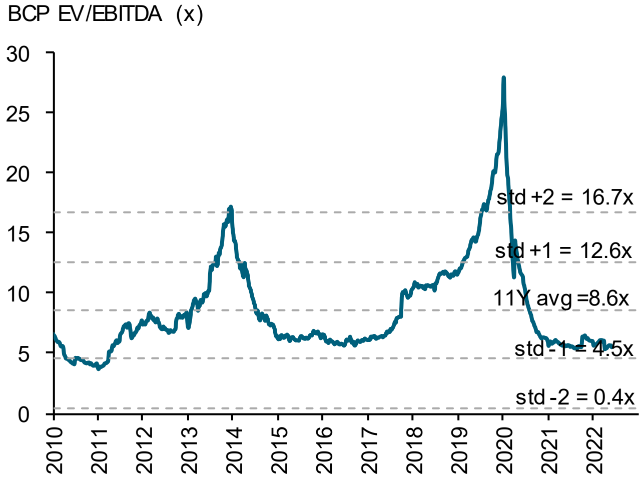
Sources: SPRC; Bloomberg; FSSIA estimates

Exhibit 71: SPRC's prospective P/BV band



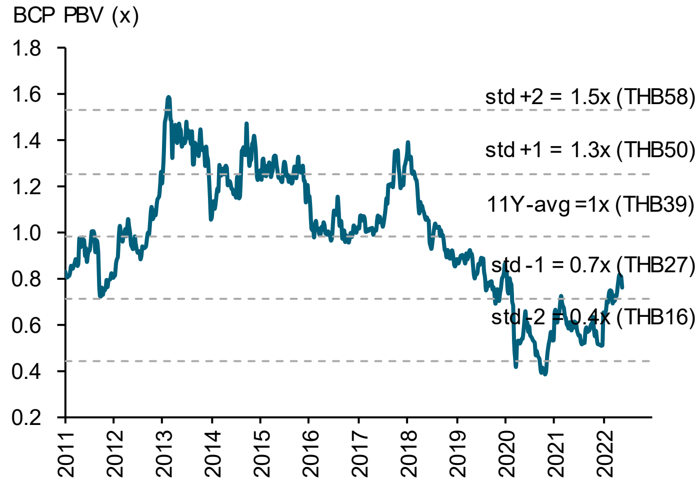
Sources: SPRC; Bloomberg; FSSIA estimates

Exhibit 72: BCP's prospective EV/EBITDA band



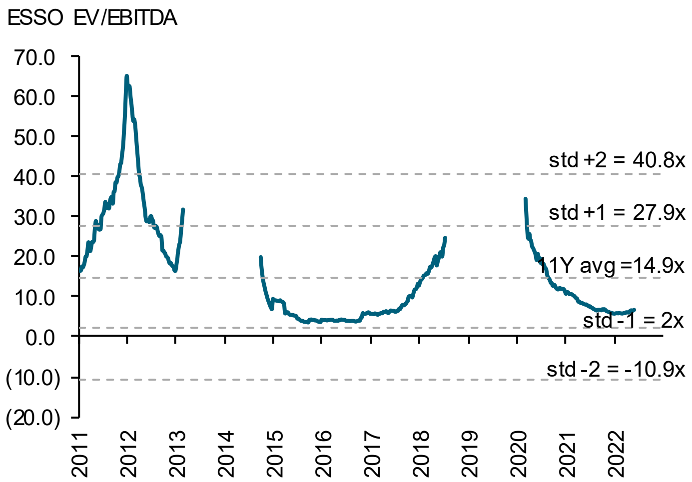
Sources: BCP; Bloomberg; FSSIA estimates

Exhibit 73: BCP's prospective P/BV band



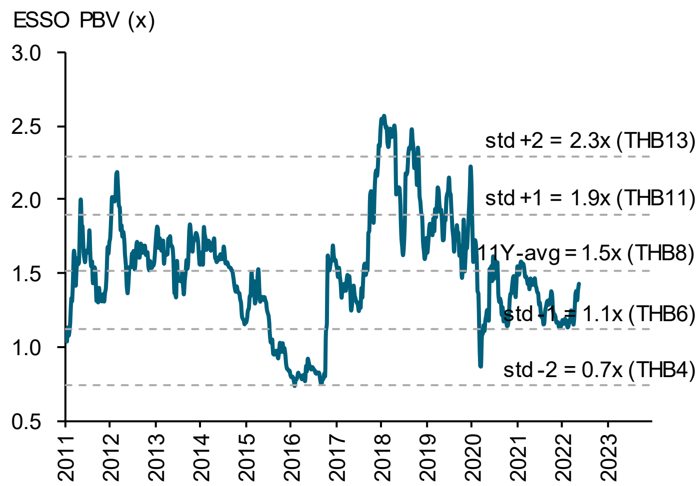
Sources: BCP; Bloomberg; FSSIA estimates

Exhibit 74: ESSO's prospective EV/EBITDA band



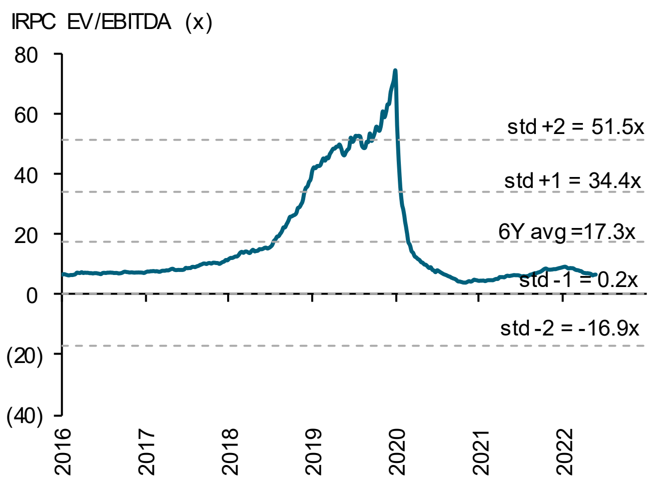
Sources: ESSO; Bloomberg; FSSIA estimates

Exhibit 75: ESSO's prospective P/BV band



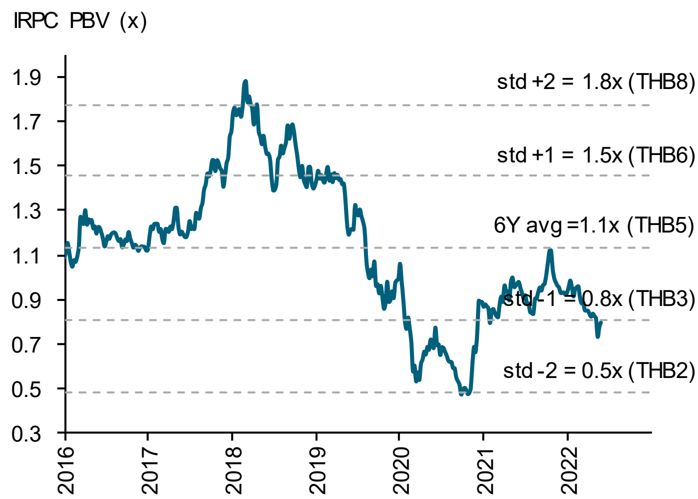
Sources: ESSO; Bloomberg; FSSIA estimates

Exhibit 76: IRPC's prospective EV/EBITDA band



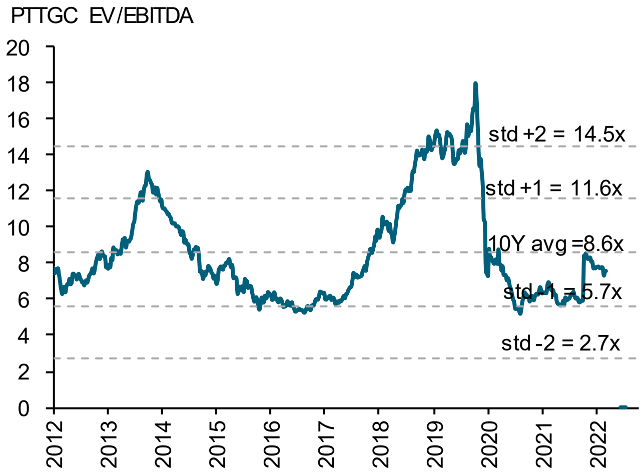
Sources: IRPC; Bloomberg; FSSIA estimates

Exhibit 77: IRPC's prospective P/BV band



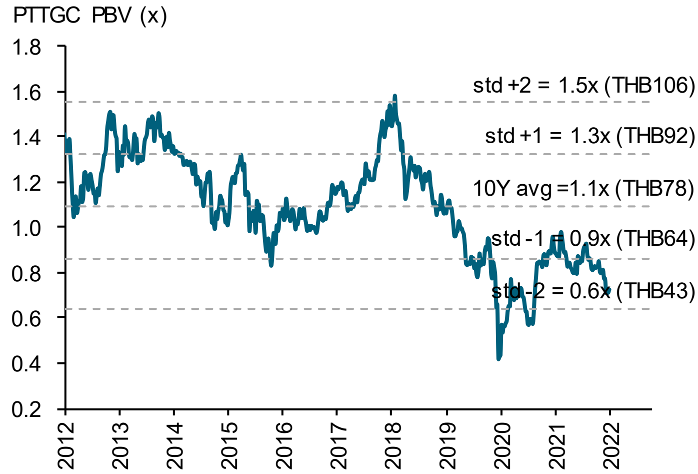
Sources: IRPC; Bloomberg; FSSIA estimates

Exhibit 78: PTTGC's prospective EV/EBITDA band



Sources: PTTGC; Bloomberg; FSSIA estimates

Exhibit 79: PTTGC's prospective P/BV band



Sources: PTTGC; Bloomberg; 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	ICHI	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	SEAOIL	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	TSC	TSR	TSTE	TSTH	TTA
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	AMANAH	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	WIIK	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	TPIPP	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	AMANAH	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	WIIK	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 th e 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.

This report has been prepared by FSS International Investment Advisory Company Limited (FSSIA). The information herein has been obtained from sources believed to be reliable and accurate; however FSS makes no representation as to the accuracy and completeness of such information. Information and opinions expressed herein are subject to change without notice. FSS has no intention to solicit investors to buy or sell any security in this report. In addition, FSS does not guarantee returns nor price of the securities described in the report nor accept any liability for any loss or damage of any kind arising out of the use of such information or opinions in this report. Investors should study this report carefully in making investment decisions.

 Investment in securities has risks. Investors are advised to consider carefully before making investment decisions.

Company	Ticker	Price	Rating	Valuation & Risks
Esso Thailand	ESSO TB	THB 9.95	BUY	The downside risks to our SoTP-based TP on ESSO include 1) lower-than-expected demand for petroleum products; 2) a higher crude premium; and 3) unplanned shutdowns of its refinery and petrochemical plants.
Bangchak Corp	BCP TB	THB 32.25	BUY	The downside risks to our SoTP-based TP include: 1) lower-than-expected demand for petroleum products; 2) higher crude premiums; and 3) unplanned shutdowns of the company's refinery plants.
IRPC PCL	IRPC TB	THB 3.38	REDUCE	Key risks to our bearish view and EV/EBITDA-based target price are rising margins of PP-naphtha, SM and ABS-benzene, and a higher market GRM.
PTT Global Chemical	PTTGC TB	THB 47.50	REDUCE	The key upside risks to our EV/EBITDA-based TP are a stronger-than-expected HDPE price and HDPE-naphtha margin.
Star Petroleum Refining	SPRC TB	THB 11.80	BUY	TP is based on EV/EBITDA. Downside risks are a sharp rise in oil price and weak demand for refined oil products.
Thai Oil	TOP TB	THB 57.00	BUY	Downside risks to our EV/EBITDA-based TP are a sharp fall in oil price and weak demand for refined oil products.
PTT PCL	PTT TB	THB 37.50	BUY	Risks to our SoTP-based valuation are the oil price and potential earnings downside from government intervention.
BCPG	BCPG TB	THB 11.80	BUY	The downside risks to our SoTP-based TP include: 1) lower-than-expected demand for electricity in Thailand, the Philippines and Indonesia; and 2) government intervention by way of electricity tariff subsidies.

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 Finansia 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 Finansia Syrus Securities Public Company Limited, which is the parent company of FSSIA.

All share prices are as at market close on 27-May-2022 unless otherwise stated.

RECOMMENDATION STRUCTURE

Stock ratings

Stock ratings are based on absolute upside or downside, which we define as (target price* - current price) / 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.