

14 SEPTEMBER 2021

# Thailand Refinery

## แนวโน้ม GRM ขาขึ้นสร้างความโล่งอกถ้าไม่ใช่ดีใจ

### อัตรากำไรปรับตัวขึ้นในที่สุด

ในช่วง 2 อาทิตย์ที่ผ่านมา เราเห็นปัจจัยสำคัญ 2 ประการที่อาจจะเป็นจุดเริ่มต้นของแนวโน้ม Market GRM ขาขึ้นในอีก 1-4 เดือนข้างหน้า ปัจจัยแรกคือการที่ซาอุดีอาระเบียและยูเออีประกาศลด Crude Premiums สำหรับน้ำมันดิบอ้างอิงของตนเอง กล่าวคือ Arab and Murban ซึ่งโรงกลั่นไทยส่วนมากเลือกใช้ ปัจจัยที่สองคืออัตรากำไรที่เพิ่มขึ้นของ Middle Distillates น้ำมันอากาศยาน และดีเซลอีก USD1-2/บาร์เรล ปัจจัยดังกล่าวอาจส่งผลกระทบต่อทางบวกและมีนัยสำคัญต่อ Market GRM ของโรงกลั่นไทย เนื่องจากโรงกลั่นไทยผลิตน้ำมันอากาศยานและดีเซลได้มากถึงประมาณ 50-60% โดยเฉลี่ย

### Market GRM ที่เพิ่ม 2x m-m เป็น USD3-4/บาร์เรล น่าจะอยู่ยาวไปถึง 4Q21

เราใช้สูตรการคำนวณ GRM รายวันของ TOP จาก Bloomberg เพื่อเป็นตัวแทนสำหรับ Market GRM ของไทย เราพบว่า GRM ของ TOP ได้ปรับตัวสูงขึ้นเท่าตัวจาก USD2/บาร์เรลโดยเฉลี่ยในช่วง 1H21 เป็นกว่า USD4/บาร์เรลในเดือน ก.ย. 21 Market GRM รายสัปดาห์ของ TOP ได้ปรับขึ้นใกล้เคียงกันเป็นเกือบ USD4/บาร์เรลในเดือน ก.ย. 21 จาก USD2.0-2.5/บาร์เรลโดยเฉลี่ยในเดือน ม.ค. - ส.ค. 21 เราเชื่อว่าแนวโน้ม Market GRM ขาขึ้นจะต่อเนื่องไปในเดือน ก.ย. - ธ.ค. 21 โดยได้แรงหนุนจากความต้องการที่สูงขึ้นและความเป็นไปได้ที่สหรัฐฯ จะได้รับผลกระทบจากพายุเฮอริเคนที่คาดว่าจะเข้าชนโรงกลั่นและการผลิตก๊าซและน้ำมันขนาดใหญ่ในบริเวณอ่าวเม็กซิโก

### Murban Crude Premium อยู่ในช่วงขาลงพร้อมราคาที่มีความโปร่งใสมากขึ้น

ความเคลื่อนไหวของราคา Murban Crude และค่า Premium ได้มีบทบาทที่สำคัญที่สุดสำหรับทิศทางของ Market GRM ของโรงกลั่นไทย หลาย ๆ โรงกลั่นใช้ Murban ซึ่งคิดเป็น 30-50% ของการใช้น้ำมันดิบ โดยจัดเป็น Middle East Crude เราคาดว่า Murban Crude Premium จะปรับตัวลดลง USD1-2/บาร์เรลใน 6 เดือนข้างหน้าจากอุปทานที่เพิ่มขึ้นจากยูเออีเมื่อเริ่มมีการซื้อขายสัญญา Murban Futures ในเดือน มี.ค. 21 ปัจจัยดังกล่าวจะทำให้โรงกลั่นไทยบริหารต้นทุน Murban Crude ได้อย่างมีประสิทธิภาพเมื่อเทียบกับก่อนหน้านี้ที่ไม่มีสัญญาซื้อขายล่วงหน้า เราคิดว่าปัจจัยดังกล่าวจะให้ความเสี่ยงขาขึ้นในระดับสูงต่อ Market GRM ของโรงกลั่นไทยตั้งแต่ 4Q21 เป็นต้นไปเมื่อเศรษฐกิจโลกกลับมาเปิดและเที่ยวบินนานาชาติกลับมาเป็นปกติ ซึ่งน่าจะช่วยเพิ่มความต้องการน้ำมันอากาศยานและดีเซล

### TOP และ SPRC เป็นหุ้นเด่นพร้อมความเสี่ยงขาขึ้นของ GRM และระดับการประเมินมูลค่าที่มี

#### ส่วนลดเป็นจำนวนมาก

เราคิดว่ากลุ่มโรงกลั่นมีความน่าสนใจในแง่ของอัตราความเสี่ยงต่อผลตอบแทนจากระดับการประเมินมูลค่าที่ต่ำกว่า 1x ของค่า P/BV เทียบกับผลตอบแทนต่อส่วนผู้ถือหุ้นที่คาดว่าจะดีขึ้นและความเป็นไปได้ที่ Market GRM จะปรับตัวขึ้นจากความต้องการน้ำมันอากาศยานและดีเซลที่สูงขึ้นและ Crude Premium ที่ลดลง หุ้นเด่นของเราในกลุ่มโรงกลั่นไทยประกอบด้วย TOP และ SPRC จากความสัมพันธ์ระหว่างกำไรและการเปลี่ยนแปลงของ Market GRM ที่มีอยู่สูง หุ้นทั้งสองมีระดับการประเมินมูลค่าที่น่าสนใจที่เพียง 0.6x ของค่า 2021E P/BV สำหรับ TOP และ 0.4x ของค่า 2021E P/BV สำหรับ SPRC ซึ่งเป็นระดับที่ต่ำที่สุดใน 6 โรงกลั่นในตลาดไทย



Suwat Sinsadok

 suwat.sin@fssia.com  
 +66 2611 3558

Siriluck Pinthusoonthorn

 siriluck.pin@fssia.com  
 +66 2611 3562

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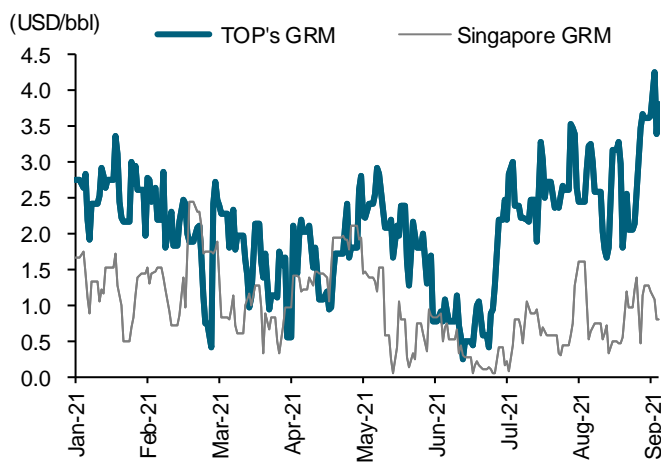
บทวิเคราะห์ฉบับนี้แปลมาจากบทวิเคราะห์ของ FSSIA ฉบับวันที่ 14 กันยายน 2021

## Sign of relief if not shout for joy

In the past two weeks, two major factors have arisen that could trigger the beginning of the market GRM uptrend in the next one to four months, in our view. The first is the announcement of the lower crude premiums by Saudi Arabia and the UAE for their major benchmark crudes, Arab and Murban, which are consumed by most Thai refiners. Second is the improving margins of middle distillates, jet fuel and diesel, by USD1-2/bbl. This could significantly and positively impact the market GRMs of Thai refiners, as jet and diesel make up the biggest yields at around 50-60% on average for Thai refiners.

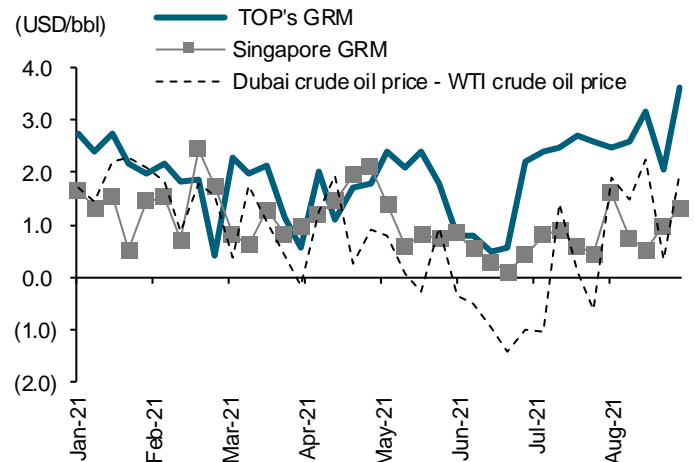
Using TOP's daily GRM calculation from Bloomberg as a key proxy for Thai market GRM, we have found that TOP's GRM has doubled from USD2/bbl on average in 1H21 to over USD4/bbl in Sep-21. TOP's weekly market GRM has similarly risen in the same direction to almost USD4/bbl in Sep-21, up from USD2.0-2.5/bbl on average in Jan-Aug-21.

**Exhibit 1: TOP's GRM vs Singapore GRM (daily)**



Source: Bloomberg

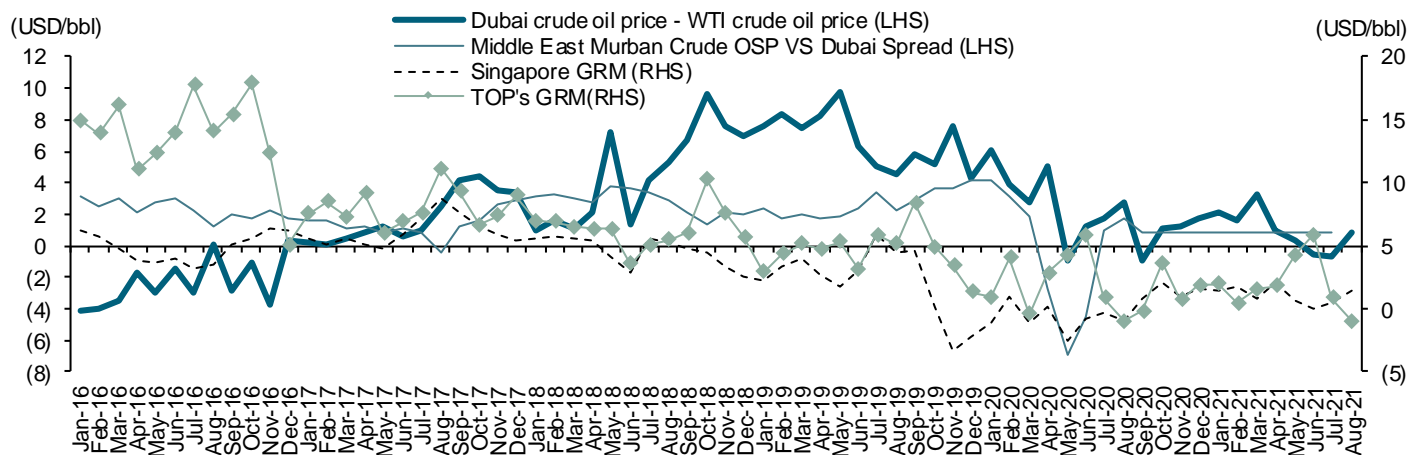
**Exhibit 2: TOP's GRM vs Singapore GRM (weekly)**



Source: Bloomberg

We believe the market GRM uptrend will continue in Sep-Dec-21, backed by rising demand and the potential disruptions in the US from a number of hurricanes that are expected to hit the refineries and large-scale oil & gas production in the Gulf of Mexico area.

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



Source: Bloomberg

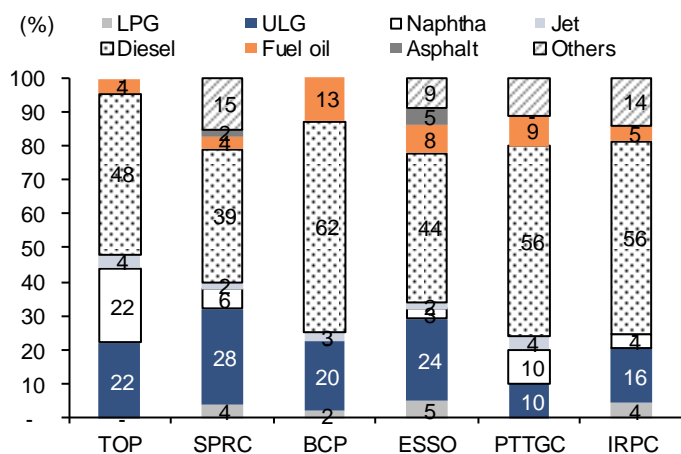
## Murban and Arab crude premiums on the downtrend in 4Q21

One of the most critical factors to impact Thai refiners' market GRMs are crude premiums, which are announced one month in advance for the Arab crude family (Arab Light and Arab Extra Light) produced by Saudi Arabia and the Murban crude produced by the UAE.

Both Arab crudes and Murban are low-density, sweeter crudes that are often priced higher than other heavy crudes produced by Middle East producers, as they yield more high-value products like gasoline, diesel, and jet fuel.

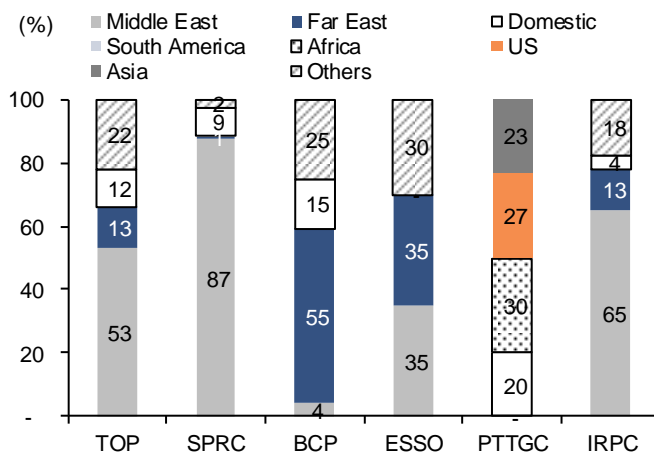
We believe the start of declining Murban crude premiums should provide a meaningful upside to the market GRMs of Thai refiners in 4Q21 onward once global economies reopen and international flights resume, likely boosting the demand for jet and diesel.

**Exhibit 4: Production yields of Thai refiners as of 2Q21**



Source: Companies

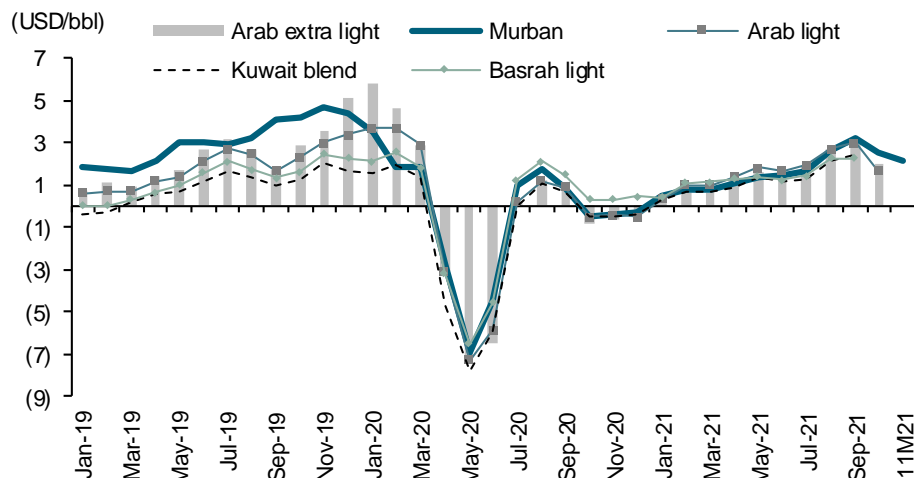
**Exhibit 5: Crude mix breakdown of Thai refiners as of 2Q21**



Source: Companies

**Why Murban is the most essential crude type for Thai refiners.** The movement of the Murban crude price and its premium have played the most significant role in the direction of Thai refiners' market GRMs. Murban is used by many Thai refiners, accounting for 30-50% of their crude consumption classified under Middle East crude. The exceptions are BCP and PTTGC which consume different light crudes from other sources. BCP consumes crude from domestic sources and Far East producers, while PTTGC consumes crude from domestic sources and Far East, West African, and US producers.

**Exhibit 6: Crude premiums of Middle East producers**



Source: TOP

We believe there are two benefits that have led to Murban becoming the most consumed crude type by Thai refiners.

**Benefit #1: Light, sweet crude with a high yield of middle distillate products.**

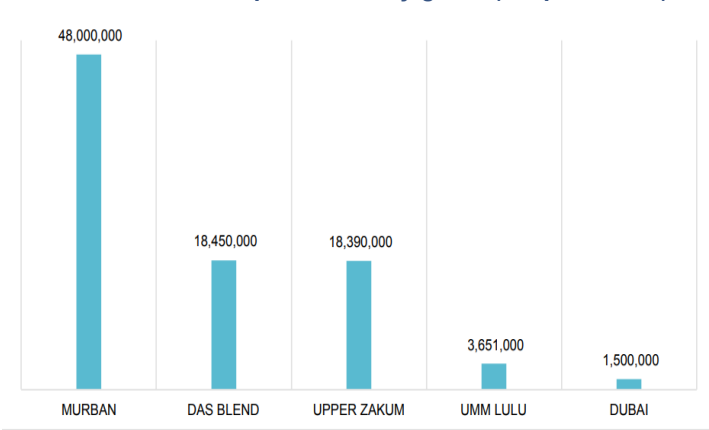
Murban, with an American Petroleum Index (API) gravity of 40, is lighter (less dense) than Brent, West Texas Intermediate (WTI), and Dubai Mercantile Exchange (DME) Oman, but Murban also has a higher sulphur content than Brent and WTI, meaning that it is sourer. The higher sulphur content likely contributes to Murban trading at lower prices relative to Brent.

The UAE currently has 2 million barrels per day (mbpd) of Murban crude oil production capacity, approximately half of the country’s total crude oil production. The UAE state oil firm, Abu Dhabi National Oil Company (ADNOC), has committed to supply half of its Murban crude oil to Fujairah for export and plans to increase Murban crude oil production to 2.5mbpd by 2030, according to OPEC.

Murban is ADNOC's largest crude by volume, with a production capacity of about 2 mbpd out of the company's total capacity of around 4mbpd. It is produced from 2,000 onshore wells in 12 fields, and ADNOC describes the grade as light and sweet.

**Benefit #2: Low transportation risk via Fujairah.** The Murban Bab Oil Field is an oil field in Abu Dhabi. The primary physical delivery point for Murban is Fujairah, UAE. Fujairah is a coastal oil storage and shipping hub on the UAE’s coastline on the eastern side of the Strait of Hormuz, facing the Gulf of Oman and Arabian Sea. Ships bound for Fujairah do not need to navigate the Strait of Hormuz – a waterway subject to shipping constraint risks – making Fujairah a more attractive shipping location than other ports within the Persian Gulf that require navigating the Strait of Hormuz.

Exhibit 7: UAE crude production by grade (bbl per month)



Source: Oxford Institute for Energy Study (OIES)

Exhibit 8: Middle Eastern OSPs and characteristics

Producers	Pricing basis	Method	Issued
Saudi Aramco	Platts Dubai	Prospective	1 month before loading
	+ DME Oman		
KPC	Platts Dubai	Prospective	1 month before loading
	+ Platts Oman		
SOMO	Platts Dubai	Prospective	1 month before loading
	+ Platts Oman		
NIOC	Platts Dubai	Prospective	1 month before loading
	+ Platts Oman		
Oman	DME Oman	Prospective	2 months before loading
ADNOC	Outright value	Retrospective	1 month after loading
QP	Outright value	Retrospective	1 month after loading

Source: Oxford Institute for Energy Study (OIES)

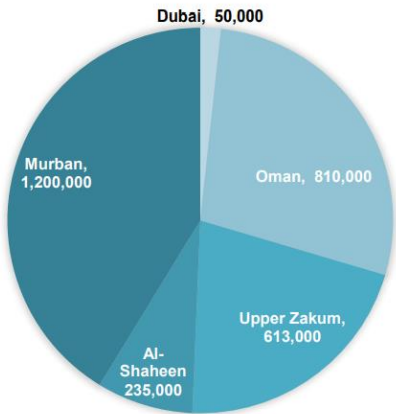
**From Dubai to Murban as a crude price benchmark.** According to the article “Murban: the benchmark for the Middle East?”, dated October 2019 by the Oxford Institute for Energy Study (OIES), more than 90% of Murban is exported to the Asia-Pacific region. Exports are shared in the rough proportion of one-third by ADNOC, one-third by BP and Total, and one-third by Asian firms, given the diversified equity ownership of ADNOC’s crude production and the UAE’s political stability, thereby reducing the risk of manipulation.

Most Middle Eastern crude sales to Asia are priced against the Platts Dubai benchmark. Dubai (30.4° API gravity and 2.13% sulphur) was established as a price assessment by Platts in the mid-1980s following the cessation of Saudi Arabian Light crude trading on the spot market. Over the years, as production of Dubai crude fell, the contract underwent several ‘upgrades’ to increase liquidity by way of adding deliverable crudes to the Dubai basket, and by splitting a 500,000-barrel cargo into 20 partials of 25,000 barrels each.

Today, Dubai crude constitutes the smallest portion of the basket, with around 1.5m barrels of production per month. Other grades added over the years into the ‘Dubai’ oil price basket include Oman, Upper Zakum, Al-Shaheen, and Murban, raising the total production profile of the basket to around 3mbpd.

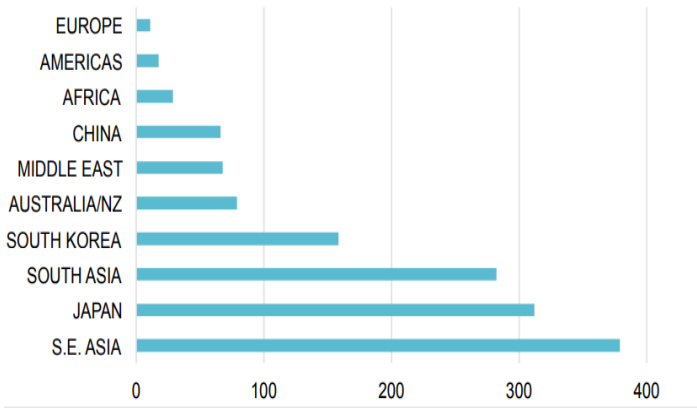
According to OIES, equity holders in Murban oil field production with refining systems in Europe sometimes also ship the grade westward into their own systems, economics permitting. Murban is not the only lighter lower-sulphur option available to Asian refiners, but its liquidity, usability, and spot availability are its most attractive features. It is also frequently used in Asia as an informal baseline for trading several other light crudes available on the spot market. This includes ADNOC’s Umm Lulu and Qatar Land.

Exhibit 9: Dubai basket and volumes of crude available for export (bpd)



Source: Oxford Institute for Energy Study (OIES)

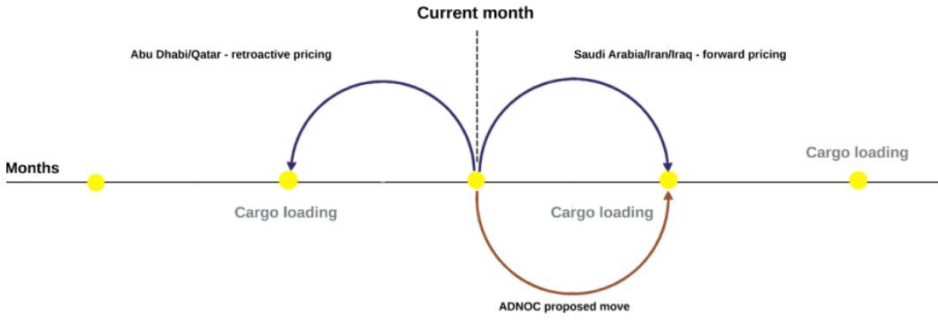
Exhibit 10: Murban offtake by region, 2016–20 (mbpd)



Source: Oxford Institute for Energy Study (OIES)

Murban is a highly fungible crude as well. Its specifications and API put it in the middle of the basket of global light sour crudes with a high distillate and naphtha yield. The grade has been run by around 60 refiners in Asia, including four refiners in Thailand (TOP, SPRC, ESSO, and IRPC) and is one of the most fungible crudes east of Suez (other comparable grades such as Das Blend can be taken by only 30 or so refiners in Asia, and Upper Zakum by 10 or 15, for instance). It is imported into almost every country in North, Far East, South East and South Asia.

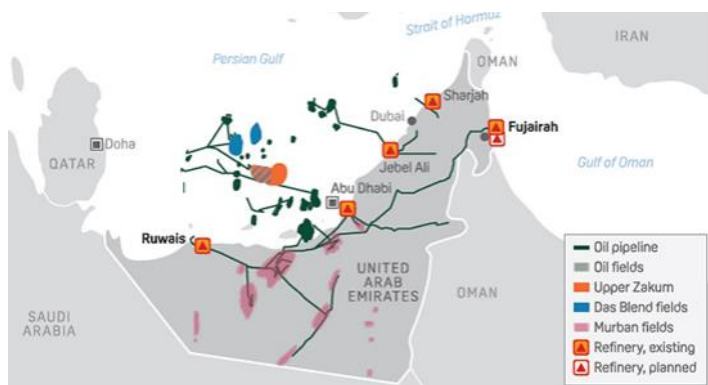
Exhibit 11: ADNOC pricing vs regional peers



Sources: Bloomberg; OIES

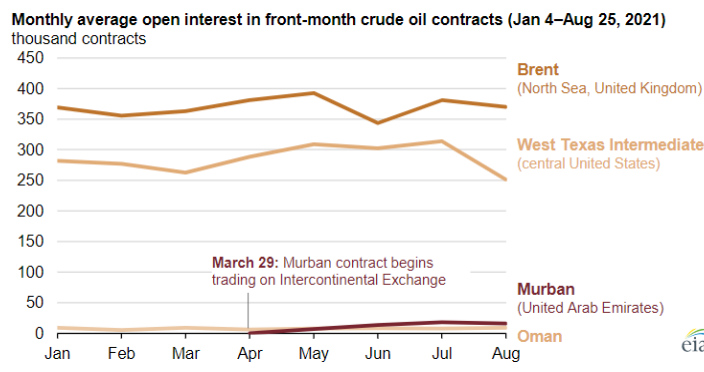
As a testament to its widespread usage, the Aramco/Petronas Refinery and Petrochemical Integrated Development (RAPID) complex in Malaysia, with a 300kbpd refinery and 3.3mtpa of petrochemical capacity, bought several million barrels worth of Murban over a period of two to three months in 2020 on the spot market as a quick replacement for its usual diet of Arab Medium and Basrah Light, after a fire limited its crude processing capabilities. The crude is probably exceeded in its usability across the continent only by Basrah Light (a high-sulphur, medium-gravity crude produced by Iraq).

#### Exhibit 12: UAE's major crude field locations



Source: Oxford Institute for Energy Study (OIES)

#### Exhibit 13: New UAE-based crude oil futures contract introduced in March



Source: EIA

**New UAE-based crude oil futures contract introduced in March 2021.** The trading of Murban futures contracts allows market participants to purchase or sell crude oil ahead of a future physical delivery date, which we believe helps them manage the financial risks of price changes between buying or selling a contract and taking crude oil deliveries. In essence, it could allow Thai refiners to manage their Murban crude costs in a more effective way than without the futures price trading before.

According to the US Energy Information Administration (EIA), in 29 Mar-21, the Intercontinental Exchange, Inc., (ICE) Futures Abu Dhabi (IFAD) exchange began trading a new Murban crude oil futures contract, which delivers at Fujairah in the UAE, and which may potentially serve as an additional benchmark crude oil contract for crude oil exports out of the Persian Gulf. This new contract represents a potential alternative to other regional contracts, most notably the Dubai Mercantile Exchange's (DME) Oman crude oil contract and Platts Dubai crude oil pricing basket.

The official selling prices (OSP) for Murban exports will be based on the futures contract settlement, which will go to delivery two months later. Murban will be the second physically delivered futures contract to trade on a regional exchange after the DME's Oman crude futures.

Both DME Oman and Platts Dubai contracts have had low trading volumes compared with Brent and WTI, which have historically served as the major benchmarks for crude oil pricing. The Brent contract reflects a basket of North Sea crude oils, and the WTI contract reflects a crude oil stream produced in Texas and southern Oklahoma.

Since the IFAD Murban contract began trading at the end of March, the front-month contract has traded at a lower price relative to Brent on average but at a higher price than both WTI and DME Oman.

In addition to crude oil quality, the point of delivery also affects crude oil benchmark pricing. For example, WTI usually sells at lower prices relative to the Brent global benchmark because it is priced at landlocked Cushing, Oklahoma. In addition to paying for the crude oil itself, buyers must pay to transport the crude oil to a coastal location if they intend to ship it to overseas export markets. To remain competitive with benchmarks that do not require this extra transportation cost, such as the Brent or Murban contracts, WTI contracts are priced lower.

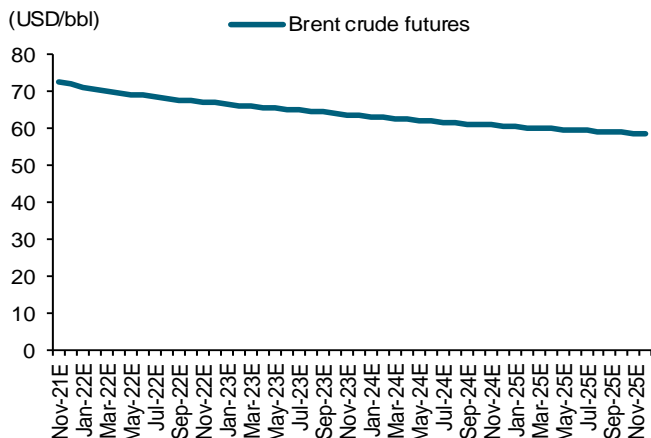


## Crude price is diving

We believe the crude oil price is now on a gradual downtrend after having risen from the bottom of USD36/bbl in Nov-20 to over USD70/bbl Jul-21, driven by the supply cuts of OPEC+. In Apr-21, OPEC+ agreed to cut a total of 2mbpd of oil production during May–Jul-21.

Then, in Jul-21, OPEC+ decided to reverse the cut by raising production by 0.4mbpd a month during the Aug-21 to Apr-22 period, and raising it by 0.43mbpd from May-22 to the end of 2022. The new oil production output quotas apply to several members from May 2022, including the UAE, Saudi Arabia, Russia, Kuwait and Iraq. The UAE should see its baseline production, from which the cuts are being calculated, increase to 3.5mbpd from May-22, up from 3.168mbpd in Jul-21.

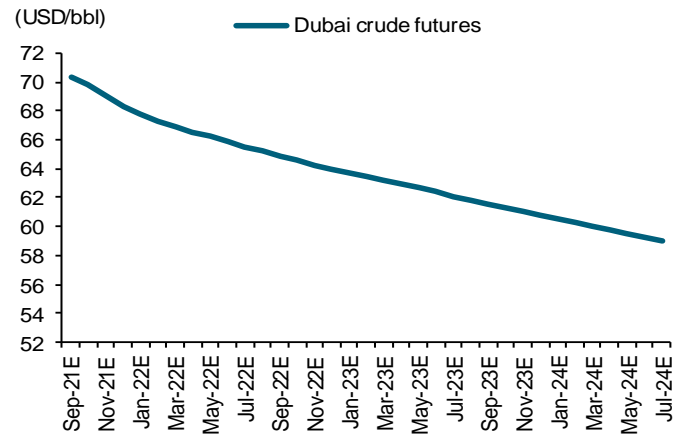
**Exhibit 14: Futures – Brent crude price**



Price as of 9 Sep 2021

Source: Bloomberg

**Exhibit 15: Futures – Dubai crude price**

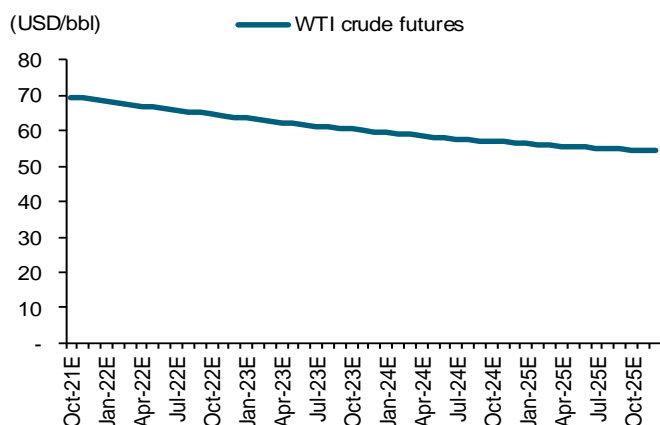


Price as of 9 Sep 2021

Source: Bloomberg

As a result of the reversal of the OPEC+ strategy to raise the oil production by 0.4mbpd a month in 2H21-2022, we believe the oil price is likely to decline from its current peak of USD70-73/bbl down to USD60-65/bbl by end-2022 for Brent and Dubai, the two key benchmark oil prices used by Thai refiners for their crude procurement. With an oil futures price in contango shapes, we believe it would benefit Thai refiners. The gradually flat to declining oil price trajectory should allow refiners to adjust their refined product prices in tandem with the oil price drop. Once the global demand for jet, diesel, and gasoline in Asia recover, we think the market GRM should rebound strongly to drive up the earnings of Thai refiners.

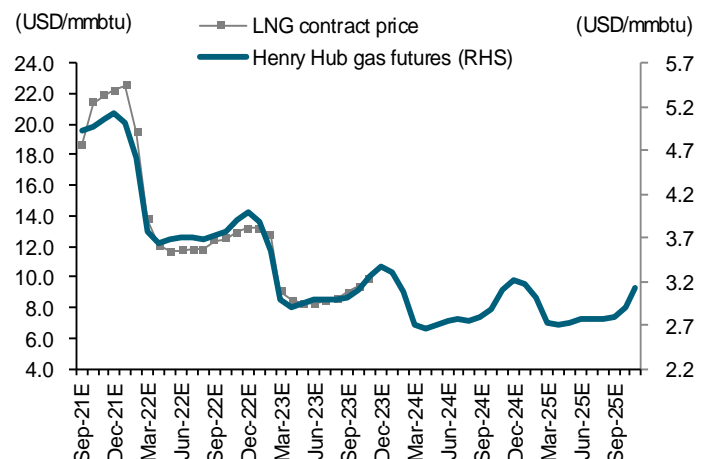
**Exhibit 16: Futures – WTI crude price**



Price as of 9 Sep 2021

Source: Bloomberg

**Exhibit 17: Futures – LNG contract price and Henry Hub gas price**



Price as of 9 Sep 2021

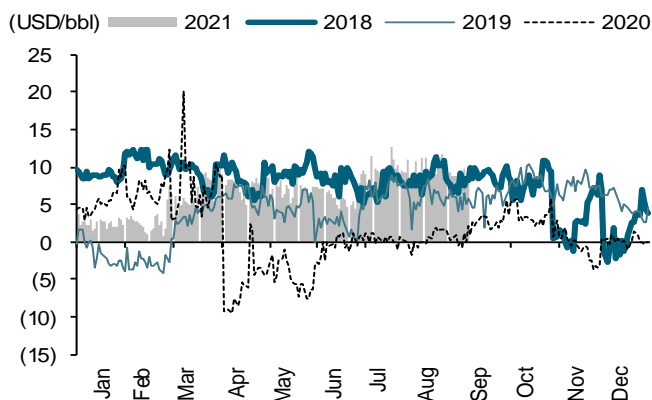
Source: Bloomberg

## Product margins are on the rise

We remain convinced that the refined product margins of gasoline, diesel, and jet over crude price should rebound meaningfully starting from Sep-21, led by gasoline on the sharp rise in US driving activities that have recently driven the country's gasoline retail price to the highest level in six years.

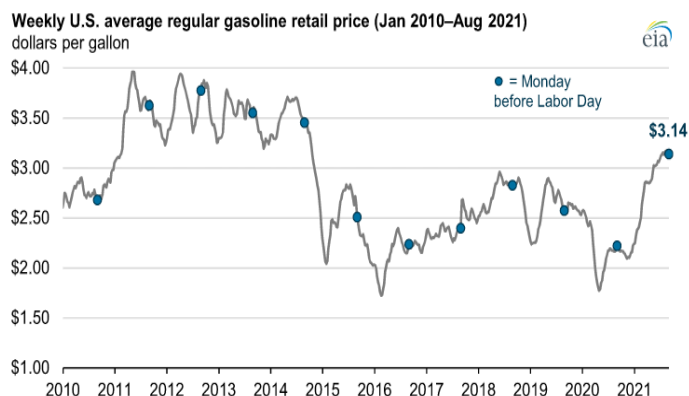
On 30 Aug-21, the Monday before the Labor Day weekend, the US retail price of regular gasoline averaged USD3.15 per gallon (gal), an increase of 92 cents/gal (42%) compared with the same time in 2020, according to the EIA's "Gasoline and Diesel Fuel Update". Pre-Labor Day gasoline prices increased to their highest levels since 2014.

**Exhibit 18: 92 Octane Gasoline fob Spot Price – Dubai crude oil price**



Source: Bloomberg

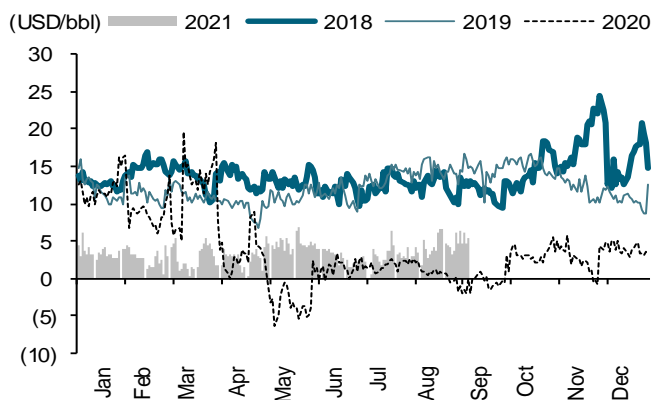
**Exhibit 19: US pre-Labor Day retail gasoline prices at highest level since 2014**



Source: EIA

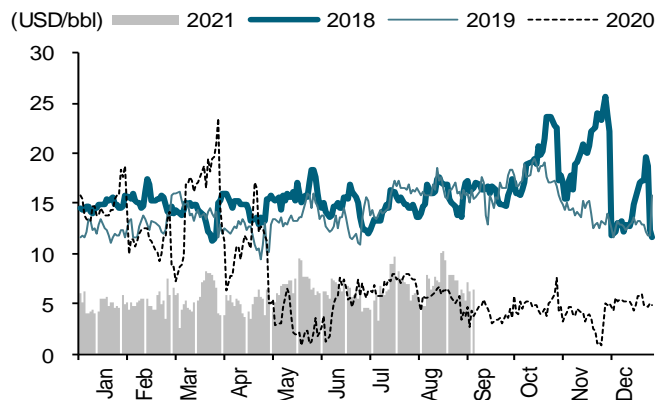
After the onset of the Covid-19 pandemic in Mar-20, the US retail gasoline prices fell and eventually declined to below USD2.00/gal – they remained below USD2.50/gal through the end of 2020. The increasing mobility because of rising Covid-19 vaccination rates in the US, lower gasoline inventories, and higher crude oil prices have all contributed to the rapidly increasing gasoline prices. The US average regular gasoline retail prices increased to above USD3.00/gal at the beginning of May-21.

**Exhibit 20: Jet Kerosene fob Spot Price – Dubai crude oil price**



Source: Bloomberg

**Exhibit 21: Gasoil 0.5% Sulphur fob SG Spot Price – Dubai crude oil price**



Source: Bloomberg



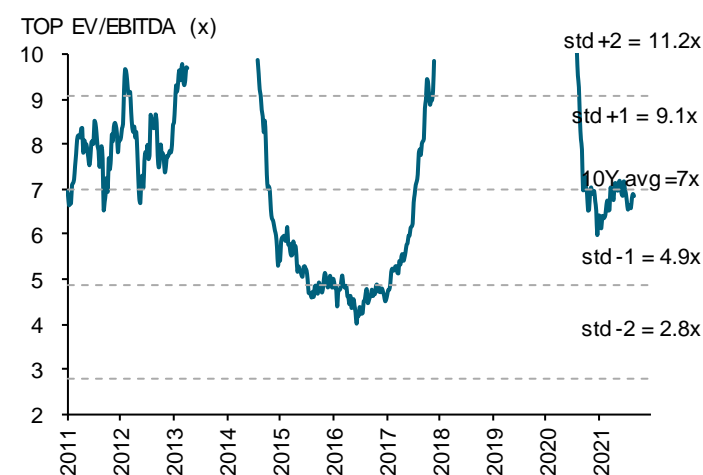
We believe the gasoline-crude margin should stay elevated at above USD10/bbl in Sep–Dec-21, based on our projected strong demand for gasoline in the US in Sep–Oct-21 and a rising demand for gasoline in Asia in 4Q21 onward due to higher economic activities after countries reopen. This would support the market GRMs for Thai refiners during the gradual demand recovery period for jet fuel from a higher number of international flights, and for diesel from the seasonal demand for use as a heating fuel in the winter.

### Attractive valuations with highly visible improvement in market GRMs

We think the refinery sector is attractive in terms of risk-reward ratio over petrochemical and upstream oil & gas producers, based on 1) their depressed valuations at below 1x P/BV vs the projected improving ROEs; and 2) the likely improving market GRMs on the back of higher jet fuel and diesel demand and lower crude premiums, which are now increasingly visible.

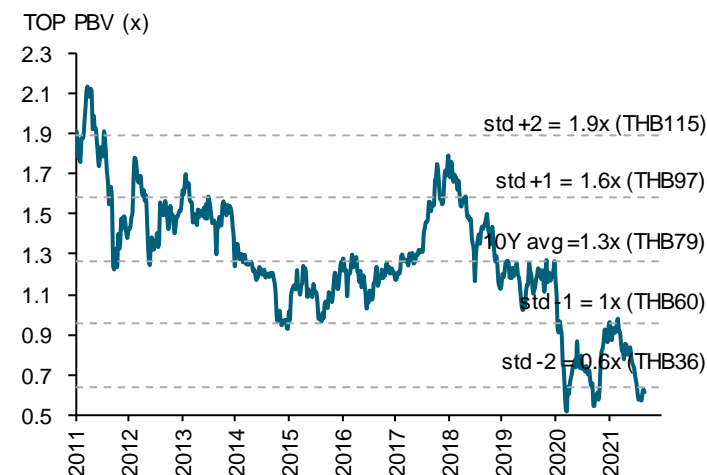
Our top picks in the Thai refinery sector are TOP and SPRC, owing to their high earnings exposures and resiliency to the changes in market GRMs. Their valuations are attractive at 0.6x 2021E P/BV for TOP and 0.4x 2021E P/BV for SPRC – the most depressed levels among six listed refinery companies in Thailand.

**Exhibit 22: TOP – EV/EBITDA band**



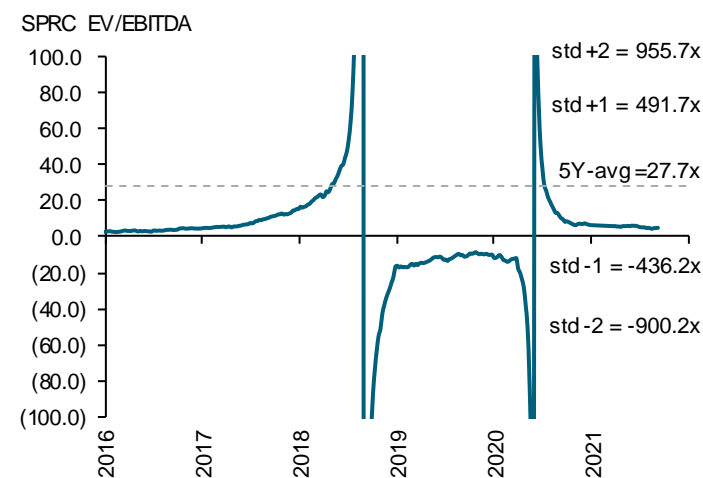
Sources: Bloomberg; FSSIA estimates

**Exhibit 23: TOP – forward P/BV band**



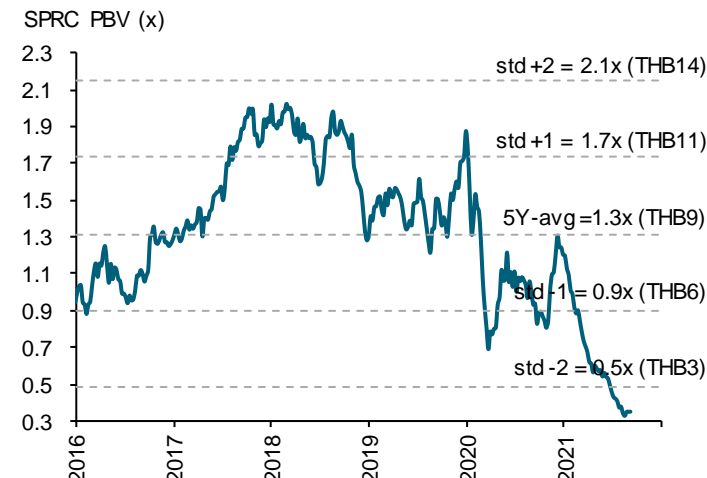
Sources: Bloomberg; FSSIA estimates

**Exhibit 24: SPRC – EV/EBITDA band**



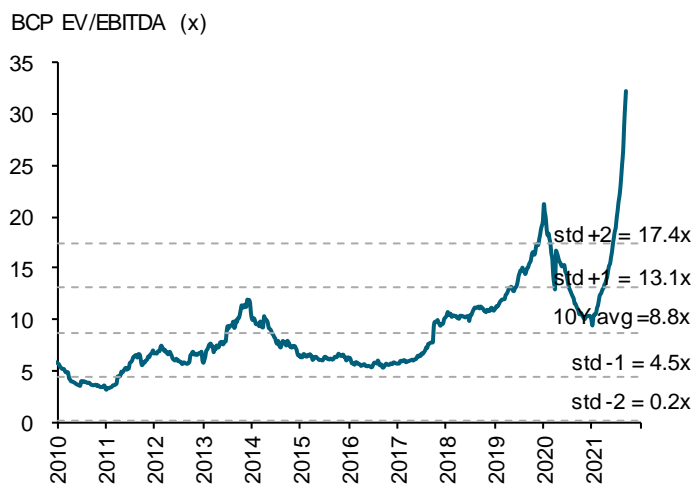
Sources: Bloomberg; FSSIA estimates

**Exhibit 25: SPRC – forward P/BV band**



Sources: Bloomberg; FSSIA estimates

Exhibit 26: BCP – EV/EBITDA band



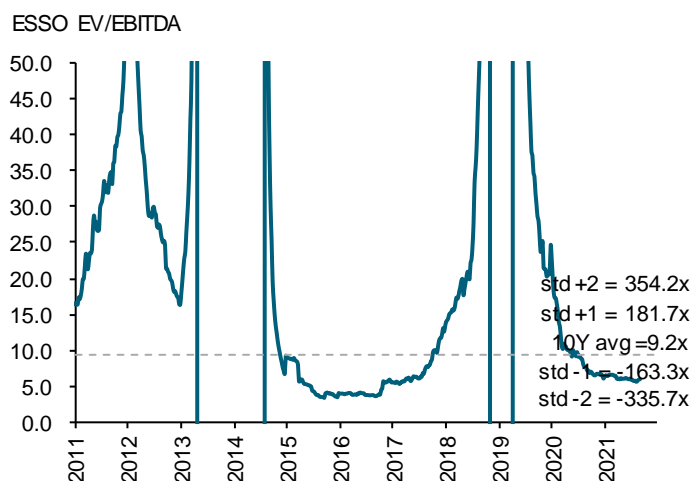
Sources: Bloomberg; FSSIA estimates

Exhibit 27: BCP – forward P/BV band



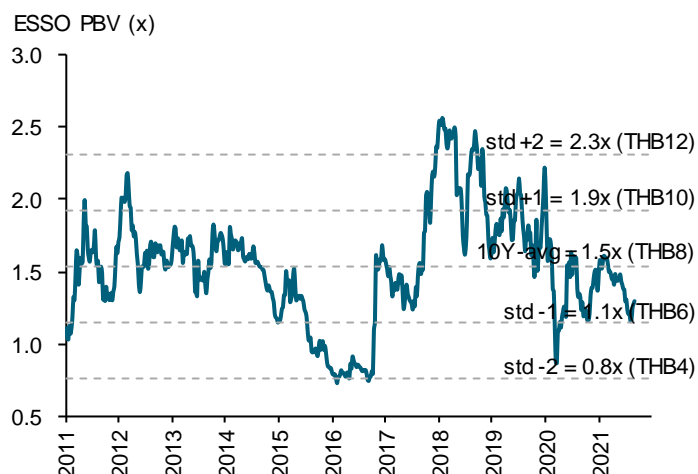
Sources: Bloomberg; FSSIA estimates

Exhibit 28: ESSO – EV/EBITDA band



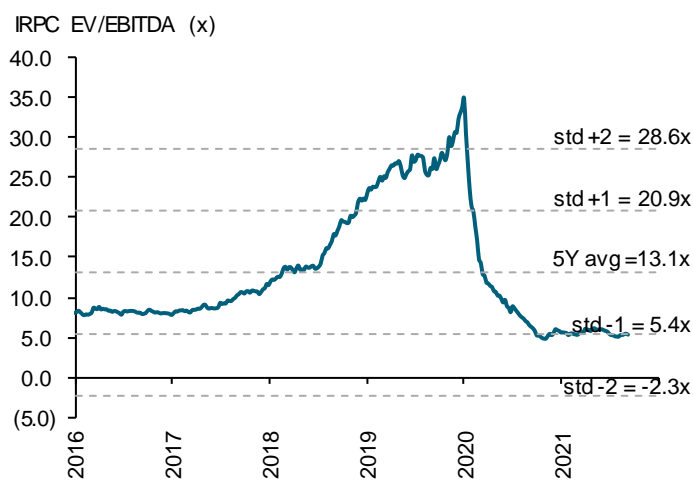
Sources: Bloomberg; FSSIA estimates

Exhibit 29: ESSO – forward P/BV band



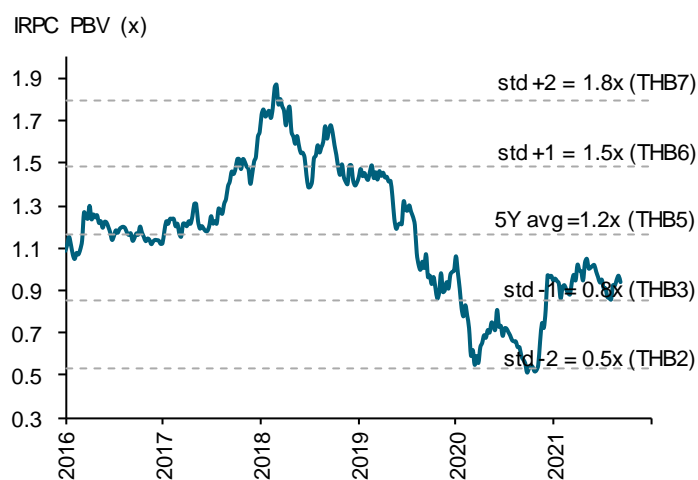
Sources: Bloomberg; FSSIA estimates

Exhibit 30: IRPC – EV/EBITDA band



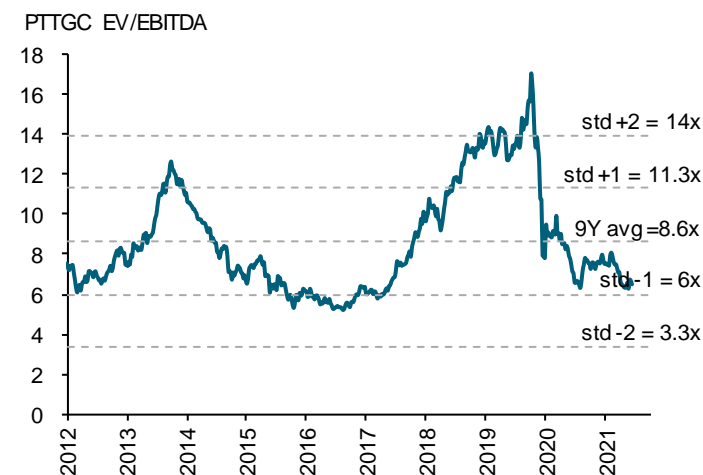
Sources: Bloomberg; FSSIA estimates

Exhibit 31: IRPC – forward P/BV band



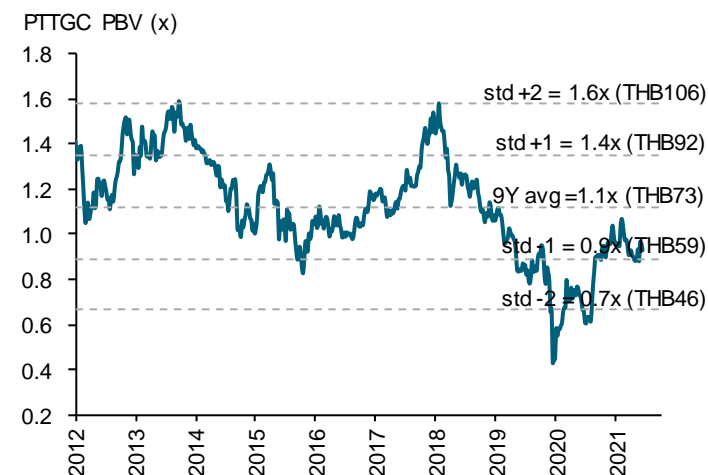
Sources: Bloomberg; FSSIA estimates

Exhibit 32: PTTGC – EV/EBITDA band



Sources: Bloomberg; FSSIA estimates

Exhibit 33: PTTGC – forward P/BV band



Sources: Bloomberg; FSSIA estimates

Exhibit 34: Peer comparisons

Company	BBG code	Rec	Share Price	Target price	Upside	Market Cap	3Y EPS CAGR	----- PE -----		----- ROE -----		---- PBV ----		EV / EBITDA	
								21E	22E	21E	22E	21E	22E	21E	22E
			(LCY)	(LCY)	(%)	(USD m)	(%)	(x)	(x)	(%)	(%)	(x)	(x)	(x)	(x)
THAILAND															
Thai Oil	TOP TB	BUY	49.25	67.00	36	3,053	NA	7.9	8.5	10.6	9.3	0.8	0.8	7.3	7.8
Star Petroleum	SPRC TB	BUY	9.00	11.00	22	1,186	43.7	8.0	6.6	17.5	19.4	1.3	1.2	6.4	3.9
Bangchak Corp	BCP TB	BUY	26.50	38.00	43	1,093	NA	13.9	6.4	5.6	11.5	0.8	0.7	9.4	7.3
Esso Thailand	ESSO TB	BUY	8.05	14.30	78	847	59.2	6.4	6.1	26.3	22.2	1.5	1.3	4.9	4.3
Ptt Global Chem	PTTGC TB	BUY	60.50	75.00	24	8,249	NA	8.4	10.8	11.2	8.7	0.9	1.0	10.5	9.9
Irpc	IRPC TB	BUY	3.92	5.00	28	2,434	NA	7.3	6.5	14.0	14.8	1.0	0.9	5.7	5.0
Tipco Asphalt	TASCO TB	BUY	18.10	22.50	24	868	(5.7)	12.8	9.4	14.8	19.1	1.9	1.7	9.9	7.0
Thailand avg						17,731	20.5	8.6	9.0	12.5	11.7	1.0	1.0	8.7	7.9
INDIA															
Bharat Petrom	BPCL IN	NA	498.10	NA	NA	14,692	36.8	10.7	11.8	24.7	16.3	2.3	1.9	8.4	9.6
Hindustan Petro	HPCL IN	NA	270.65	NA	NA	5,221	35.0	5.1	5.9	24.1	16.9	1.1	1.0	5.5	7.0
Indian Oil	IOCL IN	NA	114.00	NA	NA	14,593	NA	7.0	6.5	14.6	13.9	1.0	0.9	6.7	6.1
India avg						34,506	36.3	8.3	8.7	20.3	15.4	1.6	1.3	7.2	7.7
TAIWAN															
Formosa Petro	6505 TT	NA	97.30	NA	NA	33,483	89.6	17.7	20.1	15.9	15.1	2.6	2.5	10.8	11.6
Taiwan avg						33,483	89.6	17.7	20.1	15.9	15.1	2.6	2.5	10.8	11.6
SOUTH KOREA															
Sk Innovation	096770 KS	NA	249,500.00	NA	NA	19,965	NA	36.9	19.2	4.4	7.6	1.4	1.3	10.0	9.1
Gs Holdings	078930 KS	NA	42,000.00	NA	NA	3,386	417.5	3.8	4.4	12.5	9.5	0.4	0.4	7.5	7.6
S-Oil Corp	010950 KS	NA	98,900.00	NA	NA	9,752	NA	8.6	9.8	21.2	17.2	1.7	1.5	6.0	6.7
South Korea avg						33,103	417.5	25.2	14.9	10.2	10.6	1.4	1.3	8.5	8.2
Refinery under coverage						17,731	20.5	8.6	9.0	12.5	11.7	1.0	1.0	8.7	7.9
Average (all)						118,823	89.07	15.70	13.68	15.09	13.42	1.73	1.59	8.82	8.98

Share prices as of 13 Sep 2021

Sources: 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	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	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	AMANA	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	HL	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	AMANA	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	SEAOL	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

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### ANALYST(S) CERTIFICATION

#### Suwat Sinsadok 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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Company	Ticker	Price	Rating	Valuation & Risks
Thai Oil	TOP TB	THB 49.25	BUY	Downside risks to our EV/EBITDA-based TP are a sharp rise in oil price and weak demand for refined oil products.
Star Petroleum Refining	SPRC TB	THB 9.00	BUY	TP is based on EV/EBITDA. Downside risks are a sharp rise in oil price and weak demand for refined oil products.
Bangchak Corp	BCP TB	THB 26.50	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.
Esso Thailand	ESSO TB	THB 8.05	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.
PTT Global Chemical	PTTGC TB	THB 60.50	BUY	The key downside risks to our EV/EBITDA-based TP are the weaker-than-expected HDPE price and HDPE-naphtha margin.
IRPC PCL	IRPC TB	THB 3.92	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.
Tipco Asphalt	TASCO TB	THB 18.10	BUY	Downside risks to our EV/EBITDA multiple based TP include 1) a lower asphalt margin due to a oversupply in Asia on the back of faster recovery of utilisation rate for global refiners; and 2) a lower-than-expected supply of alternative crudes and asphalt.

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 13-Sep-2021 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.