

Regional Sector Update

7 October 2019

Energy | Oil & Gas

Neutral (Maintained)

4/3/2 Ratings (Buy/Neutral/Sell): Negative

Last 12m Earnings Revision Trend: **Top Picks Target Price** PTT Exploration & Production

THB156.00 (PTTEP TB) - BUY Thai Oil (TOP TB) - BUY THB80.00 Keppel Corp (KEP SP-BUY) SGD7.30 Sembcorp Marine (SMM SP-BUY) SGD1.63

Analysts

Kannika Siamwalla, CFA +66 2088 9744 kannika.si@rhbgroup.com

Stocks Covered

Leng Seng Choon, CFA, PBM +65 6232 3890





leng.seng.choon@rhbgroup.com

Damaged site of Saudi Aramco's Abgaig facility



Source: BusinessDay

Regional Oil & Gas

Oil Market Remains Volatile And Weak

- Sector NEUTRAL; Top Picks: PTTEP, TOP, KEP, SMM. After the attacks on Saudi Arabia's oil facilities, geopolitical risks remain elevated. The current weak oil price indicates market concerns are on the global economic slowdown/oil demand. Our concerns are not so much for 2019F, but for 2020F where the call on OPEC is expected at 28-29mbpd. September total OPEC production averaged 28.32mbpd (-1.4mbpd MoM), compliance was at 291%. Our crude oil price forecasts are maintained at USD66/bbl for 2019-2020, and USD60/bbl for the long term.
- High production cut compliance. For September, total OPEC production averaged 28.32mbpd (-1.4mbpd MoM). Production cuts for OPEC's participating members (OPEC-11) were at 2.3mbpd, ie 291% compliant. The 14 Sep attacks on Saudi Arabia's critical oil facilities knocked out 5.7mbpd of global supplies for the month. This single event was the major reason for OPEC's and Saudi Arabia's total fall in production for the month.
- Update on Saudi Arabia's critical crude oil facilities. Saudi Arabia has indicated that it has already restored its oil output, and its production capacity is now at 11.3mbpd. Full 12mbpd production capacity is expected by November, if not earlier. The country is now producing 9.8-9.9mbpd, a level prior to the attacks.
- Russia's production for September was 11.54mbpd, down 200kbpd from the October baseline (87%-compliant). Russia has indicated that it will comply with production cuts in October (note: it also said the same thing for September).
- The demand and supply situation, as it currently stands:

Taking into consideration IEA's demand and supply numbers, with our estimated 3Q19 OPEC production average of 29.2mbpd, there should be a supply shortfall of c.1.58mbpd already in 3Q19. The 4Q19 call on OPEC is expected to rise to 30.3mbpd (+1.1mbpd QoQ), with the International Energy Agency's (IEA) expected demand at 1.8mbpd (Figure 1).

Even if additional demand is 1mbpd in 4Q19F, the additional call on OPEC would be 29.5mbpd (+0.3mbpd QoQ). As such, we are not overly concerned of the market balance situation for the rest of this year. However, we believe that OPEC+ will need to start thinking about 2020, when demand for OPEC crude oil may fall to the 28-29mbpd range. At such range, and with faltering global economy/oil demand, compliance amongst members could further deteriorate.

- OPEC and its alliance remain committed to the OPEC+ production cut agreement. Even if demand for 3Q19/4Q19 is not as strong as the agencies are currently expecting (+1.2mbpd/+1.8mbpd), we believe that OPEC+ has room to adjust its production within the scope of the production cut agreement, to result in a balanced market.
- Finally, Ecuador has announced that it will leave OPEC in Jan 2020. Ecuador produces 530kbpd and has breached production limits every month this year. Its departure indicates that it would like to pursue higher oil production than current levels.

Company	Rating	TP	% Upside (Downside)	P/E (x) Dec-19F	P/BV (x) Dec-19F	Yield (%) Dec-19F
PTTEP	Buy	THB156.00	33.91	9.47	1.10	4.24
TOP	Buy	THB80.00	18.52	19.29	1.08	3.50
KEP	Buy	SGD7.30	25.65	11.90	0.90	4.20
SMM	Buy	SGD1.63	38.14	(36.85)	1.10	0.00
PTTGC	Sell	THB46.00	(10.68)	13.21	0.75	3.77

Source: Company data, RHB

Figure 1: 3Q19 supply shortfall could be c. 1.5mbpd; concerns are for 2020 where further cuts will be required

(mbpd)	1Q19	2Q19	3Q19	4Q19F	2019F	YoY	1Q20F	2Q20F	3Q20F	4Q20F	2020F	YoY
Demand	99	99.6	101.3	101.4	100.5	1.1	100	101.1	103	102.6	101.8	1.3
YoY change	0.3	0.8	1.2	1.8	1.1		1	1.5	1.7	1.2	1.3	
Supply												
Non-OPEC	63.8	64.6	65	65.6	64.7	1.8	66.1	67	67.5	67.7	67.2	2.5
YoY change	2.6	2.3	1.5	1.3	1.8		2.3	2.4	2.5	2.1	2.5	
NGLs	5.6	5.6	5.5	5.5	5.6	0.1	5.6	5.6	5.6	5.6	5.6	0
Call on OPEC	29.6	29.4	30.8	30.3	30.2	-1.7	28.3	28.5	29.9	29.3	29.00	-1.20
YoY change	-2.1	-2.2	-2.78	-2.5	-1.7		-1.3	-0.9	0.2	-0.4	-1.2	
Total supply	99	99.6	101.3	101.4	100.5	0.2	100	101.1	103	102.6	101.8	1.3
YoY change	0.6	0.2	-1.3	-1.2	-0.37		1	1.5	2.8	1.8	1.3	
Supply from OPEC	30.6	30	29.2	30.3	30.0	-1.9	28.3	28.5	29.9	29.3	29	(1.0)
Oversupply/shortfall	1	0.6	(1.6)	-	(0.2)		0	0	0	0	0	C

Source: IEA (data as of Aug 2019), RHB

Figure 2: Saudi oil capacity to return to normal by end-November

(mbpd)	Total capacity	Changes
Normal capacity	12.0	
Saturday (14 Sep)	6.3	(5.7)
Tuesday (17 Sep)	8.3	2.0
End September	11.0	2.7
End November	12.0	1.0

Source: ArabNews, RHB

September Production Cuts

September production cuts for OPEC participating members (OPEC-11) was 2.3mbpd, or 291%-compliant. Russia's production for the month was 11.54mbpd, down 200kbpd from the October baseline, and it was 87%-compliant.

For September, attacks on Saudi Arabia's critical oil facilities knocked out 5.7mbpd of global supplies. This single event was the major reason for OPEC's and Saudi Arabia's total fall in production for the month.

- i. Saudi Arabia's Oct 2018 production has averaged 8.3mbpd, marking a cut of 2.2mbpd from the October baseline and it was 706%-compliant. The country is now producing 9.8-9.9mbpd, ie a level prior to the attacks;
- Four other countries complied with or exceeded their production cut agreements for September – Angola, Equatorial Guinea, Kuwait and the United Arab Emirates;
- iii. Algeria and Congo production cuts were 84%- and 50%-compliant respectively;
- iv. Ecuador, Gabon, Iraq and Nigeria were producing at above their agreed production levels. Iraq's production was stable MoM at 4.7mbpd, while Nigeria's production fell slightly to 1.93mbpd (-20kbpd MoM, +130kbpd YoY).

Finally, Russia intends to fulfil the terms of the deal in October and reduce production by 228kbpd from Oct 2018 levels.

Figure 3: A high rate of compliance for production cut agreements

(kbpd)	October 18 baseline production	Voluntary adjustment	% of adjustment	Voluntary production level	1H19	3Q19	Sep-19	Sept cut from baseline	Aug Compliance	YTD ave production	YTD ave production cut	YTD compliance
					OPEC/IEA	OPEC/IEA/BB	Bloomberg					
OPEC 11, participating me	mbers											
Algeria	1,057	-32	-3.0%	1,025	1,021	1,024	1,030	-27	84%	1,022	-35	109%
Angola	1,528	-47	-3.1%	1,481	1,439	1,383	1,360	-168	357%	1,420	-108	229%
Congo	325	-10	-3.1%	315	329	321	320	-5	50%	327	2	-16%
Ecuador	524	-16	-3.1%	508	525	532	540	16	-100%	528	4	-22%
Eq. Guinea	127	-4	-3.1%	123	117	120	120	-7	175%	118	-9	233%
Gabon	187	-6	-3.2%	181	205	199	190	3	-50%	203	16	-261%
lraq	4,653	-141	-3.0%	4,512	4,660	4,771	4,780	127	-90%	4,697	44	-31%
Kuw ait	2,809	-85	-3.0%	2,724	2,707	2,674	2,690	-119	140%	2,696	-113	133%
Nigeria	1,738	-53	-3.0%	1,685	1,769	1,861	1,930	192	-362%	1,799	61	-116%
Saudi Arabia	10,633	-322	-3.0%	10,311	9,886	9,288	8,360	-2,273	706%	9,687	-946	294%
UAE	3,168	-96	-3.0%	3,072	3,068	3,075	3,070	-98	102%	3,070	-98	102%
OPEC 11	26,749	-812	-3.0%	25,937	25,725	25,248	24,390	-2,359	291%	25,566	-1,183	146%
Non-participating OPEC me	embers											
ran	3,296			3,296	2,560	2,179	2,130	-1,166		2,433	-863	
/enezuela	1,171			1,171	814	711	680	-491		780	-391	
∟ibya	1,114			1,114	1,102	1,085	1,120	6		1,096	-18	
Non-part. OPEC members	5,581			5,581	4,476	3,975	3,930	-1,651		4,309	-1,272	
Total OPEC 14	32,330	-812	-2.5%	31,518	30,200	29,223	28,320	-4,010	494%	29,874	-2,456	302%
Non-OPEC participating me	embers											
Azerbaijan	797	-20	-2.5%	777	770		N/A					
Bahrain	217	-5	-2.3%	212	210		N/A					
Brunei	115	-3	-2.6%	112	120		N/A					
Kazakhstan	2,028	-40	-2.0%	1,988	1,925		N/A					
Malaysia	698	-15	-2.1%	683	698		N/A					
Mexico	1,993	-40	-2.0%	1,953	1,928		N/A					
Oman	1,003	-25	-2.5%	978	980		N/A					
Russia	11,747	-230	-2.0%	11,517	11,585	11,552	11,547	-200	87%	11,578	-170	74%
Sudan	124	-3	-2.4%	121	103		N/A					
South Sudan	74	-2	-2.7%	72	113		N/A					
Others							N/A					
Total Non-OPEC alliance	18,796	-383	-2.0%	18,413	18,433	11,552	11,547	-200	52%	18,408	-389	101%
Total compliance												
OPEC-11 and Russia/alliance	45,545	-1195	-2.6%	44,350	44,158	36,800	35,937	-2559	214%	43,973	-1572	132%
OPEC-14 and Russia/allaince	51,126	-1195	-2.3%	49,931	48,633	40,775	39,867	-4210	352%	48,282	-2844	238%

Note: Russia's production is quoted in tonnes and, therefore, discrepancies in conversion are possible

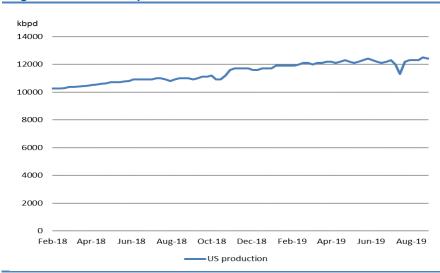
Source: OPEC, IEA, Bloomberg, Russia's Ministry of Energy, RHB



Global Crude Oil Production Data

The charts below provide the latest preliminary production data as per Bloomberg data, unless otherwise stated. Official production numbers will be provided by OPEC mid-month, every month.

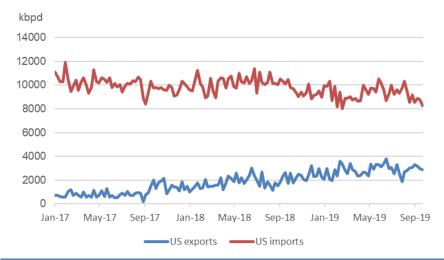
Figure 4: US crude oil production



- US average production increased MoM to 12.42mbpd (+65kbpd MoM, +1.4mbpd YoY)
- YTD September average production was at 12.15mbpd (+1.5mbpd YoY)
- Note: EIA expects monthly growth in Lower 48 onshore production to slow down to average 50kbpd per month, from 4Q19F through end-2020F – down from an average of 110kbpd per month achieved during Aug 2018 through Jul 2019

Source: EIA, RHB

Figure 5: US sees exports improve while imports continue to fall YTD

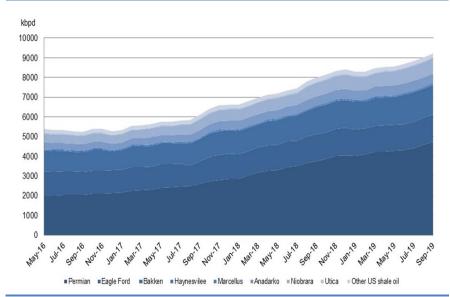


- US crude oil export averaged 3.08mbpd (+393.8kbpd MoM, +940.5kbpd YoY) for September
- YTD average US crude oil export was 2.8mbpd (+1.03mbpd YoY), as at September
- US crude oil import averaged 8.6mbpd (-832kbpd MoM, -1.7mbpd YoY)
- YTD average crude imports was 9.2mbpd (-914.9kbpd YoY).

Source: IEA, RHB

7 October 2019

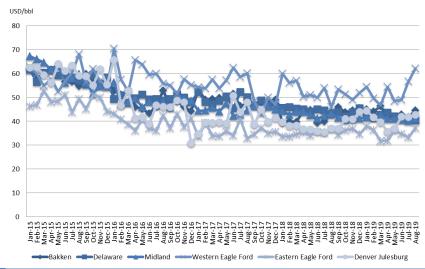
Figure 6: US shale production inched higher MoM



- ◆ US shale oil production in September averaged 9.2mbpd (+208kbpd MoM, +1.2mbpd YoY)
- YTD-September US shale oil production averaged 8.5mbpd (+1.27mbpd YoY)
- US shale production is increasing at a decelerating rate as it seems that producers may be reaching limits on accelerating output and minimising costs. Shale oil producers are now focusing on cash flows and capital discipline

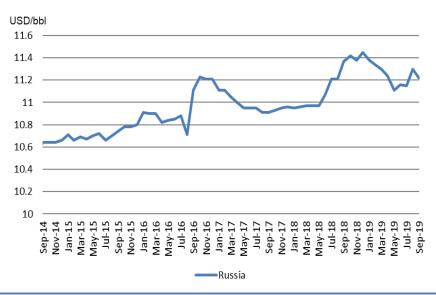
Source: Bloomberg, RHB

Figure 7: US shale oil producers broke even inches higher at USD44.68/bbl



- The US' average shale breakeven point averaged at USD44.68/bbl (+USD2.25/bbl MoM,+USD3.10/bbl YoY)
- The inching up of costs from last year's lows are within our expectations, as demand increases for raw materials and wages spiral upwards

Figure 8: Russia's crude oil production climbed to 11.29mbpd



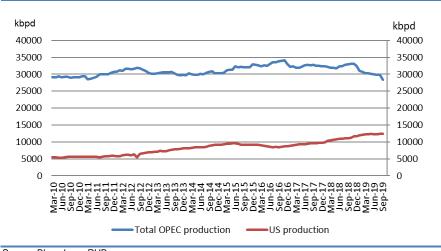
- Russia's crude oil production averaged 11.22mbpd (-0.08mbpd MoM, -0.15mbpd YoY) for September. Russia was 87%compliant
- Russia reduced oil production by 200kbpd from the Oct 2018 production baseline, where its quota was 228kbpd.
- Russia intends to fulfill the terms of the deal in October, and reduce production by 228kbpd from Oct 2018 production levels

Source: Bloomberg, CDU TEK, RHB

Russia's Energy Minister Alexander Novak, according to TASS, said that:

- i. "Black swans" affect the oil market more than fundamental factors. The pressure of geopolitical factors is increasing, which makes forecasting more difficult;
- Global economic growth of 3% has affected oil demand. The slowdown in the US's, EU's and China's growth is due to trade wars and the mutual introduction of duties on imported goods;
- iii. Russia expects oil demand growth to be 1-1.1mbpd for 2019, vs 1.5mbpd in 2018. For 2020, oil demand is expected to increase by 1.4mbpd.

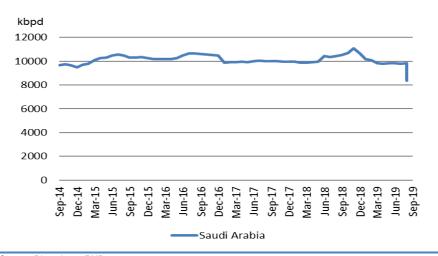
Figure 9: Total OPEC production vs US production



- ◆ Total OPEC crude oil production averaged 28.32mbpd (-1.59mbpd MoM,-4.58mbpd YoY), as at September. The much lower production from OPEC was a result of attacks on Saudi Arabia's critical oil facilities on 14 Sep
- This is compared to the US' average production, which increased MoM to 12.42mbpd (+65kbpd MoM, +1.4mbpd YoY)
- For OPEC-11, total production was at 24.39mbpd, 2.3mbpd lower than the Oct 2018's baseline, or 219%-compliant



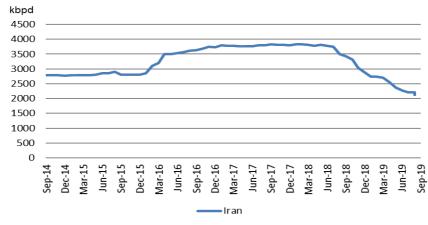
Figure 10: Saudi Arabia's production fell to 8.36mbpd (-1.47mbpd MoM)



- Saudi Arabia's production averaged 8.36mbpd (-1.47mbpd MoM, -2.17mbpd YoY), as at September. The much lower production from OPEC was a result of attacks on Saudi Arabia's critical oil facilities on 14 Sep
- Saudi Arabia's production was 2.27mbpd less than its Oct 2018 baseline, indicating 706% compliance

Source: Bloomberg, RHB

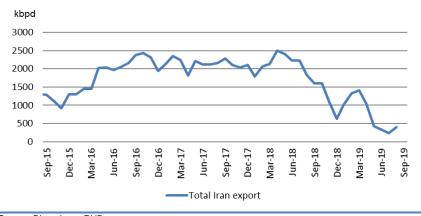
Figure 11: Iran's crude oil production fell slightly MoM



- Iran's crude oil production was stable MoM averaging 2.1mbpd (-80kbpd MoM, -1.3mbpd YoY), as at September
- It was down 1.1mbpd from its Oct 2018 level Iran has been exempted from the voluntary production cuts

Source: Bloomberg, RHB

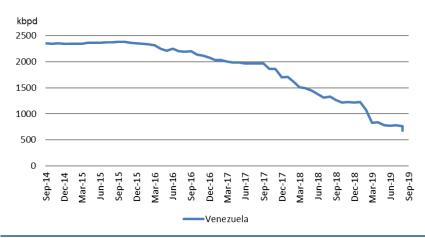
Figure 12: Iran's total crude oil exports slipped to average 171kbpd



- Iran's crude oil exports were at 171kbpd (+220kbpd MoM, -1.4mbpd YoY)
- Its exports to China were 137.6kbpd (-27.8kbpd MoM, -395.6kbpd YoY). There were no reported exports to India or the EU



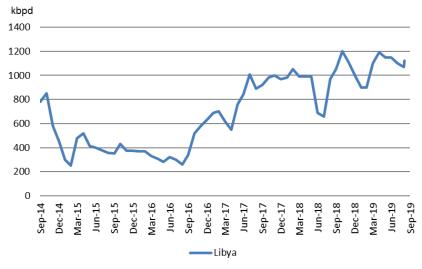
Figure 13: Venezuela's oil production fell further to average 680kbpd



- Venezuela's crude oil production was at 680kbpd (+-80kbpd MoM, -580kbpd YoY).
- Production was 491kbpd lower from Oct 2018's level. Venezuela is exempted from the voluntary production cut agreement

Source: Bloomberg, RHB

Figure 14: Libya's oil production increased slightly to 1.12mbpd



- ◆ Libya's oil production was at 1.12mbpd (+50kbpd MoM, +70kbpd YoY).
- It was 6kbpd higher than Oct 2018's level.
 Libya has been exempted from the voluntary production cuts

RHB Guide to Investment Ratings

Buy: Share price may exceed 10% over the next 12 months

Trading Buy: Share price may exceed 15% over the next 3 months, however longer-

term outlook remains uncertain

Neutral: Share price may fall within the range of +/- 10% over the next

12 months

Take Profit: Target price has been attained. Look to accumulate at lower levels Sell: Share price may fall by more than 10% over the next 12 months

Not Rated: Stock is not within regular research coverage

Investment Research Disclaimers

RHB has issued this report for information purposes only. This report is intended for circulation amongst RHB and its affiliates' clients generally or such persons as may be deemed eligible by RHB to receive this report and does not have regard to the specific investment objectives, financial situation and the particular needs of any specific person who may receive this report. This report is not intended, and should not under any circumstances be construed as, an offer or a solicitation of an offer to buy or sell the securities referred to herein or any related financial instruments.

This report may further consist of, whether in whole or in part, summaries, research, compilations, extracts or analysis that has been prepared by RHB's strategic, joint venture and/or business partners. No representation or warranty (express or implied) is given as to the accuracy or completeness of such information and accordingly investors should make their own informed decisions before relying on the same.

This report is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to the applicable laws or regulations. By accepting this report, the recipient hereof (i) represents and warrants that it is lawfully able to receive this document under the laws and regulations of the jurisdiction in which it is located or other applicable laws and (ii) acknowledges and agrees to be bound by the limitations contained herein. Any failure to comply with these limitations may constitute a violation of applicable laws.

All the information contained herein is based upon publicly available information and has been obtained from sources that RHB believes to be reliable and correct at the time of issue of this report. However, such sources have not been independently verified by RHB and/or its affiliates and this report does not purport to contain all information that a prospective investor may require. The opinions expressed herein are RHB's present opinions only and are subject to change without prior notice. RHB is not under any obligation to update or keep current the information and opinions expressed herein or to provide the recipient with access to any additional information. Consequently, RHB does not guarantee, represent or warrant, expressly or impliedly, as to the adequacy, accuracy, reliability, fairness or completeness of the information and opinion contained in this report. Neither RHB (including its officers, directors, associates, connected parties, and/or employees) nor does any of its agents accept any liability for any direct, indirect or consequential losses, loss of profits and/or damages that may arise from the use or reliance of this research report and/or further communications given in relation to this report. Any such responsibility or liability is hereby expressly disclaimed.

Whilst every effort is made to ensure that statement of facts made in this report are accurate, all estimates, projections, forecasts, expressions of opinion and other subjective judgments contained in this report are based on assumptions considered to be reasonable and must not be construed as a representation that the matters referred to therein will occur. Different assumptions by RHB or any other source may yield substantially different results and recommendations contained on one type of research product may differ from recommendations contained in other types of research. The performance of currencies may affect the value of, or income from, the securities or any other financial instruments referenced in this report. Holders of depositary receipts backed by the securities discussed in this report assume currency risk. Past performance is not a guide to future performance. Income from investments may fluctuate. The price or value of the investments to which this report relates, either directly or indirectly, may fall or rise against the interest of investors.

This report does not purport to be comprehensive or to contain all the information that a prospective investor may need in order to make an investment decision. The recipient of this report is making its own independent assessment and decisions regarding any securities or financial instruments referenced herein. Any investment discussed or recommended in this report may be unsuitable for an investor depending on the investor's specific investment objectives and financial position. The material in this report is general information intended for recipients who understand the risks of investing in financial instruments. This report does not take into account whether an investment or course of action and any associated risks are suitable for the recipient. Any recommendations contained in this report must therefore not be relied upon as investment advice based on the recipient's personal circumstances. Investors should make their own independent evaluation of the information contained herein, consider their own investment objective, financial situation and particular needs and seek their own financial, business, legal, tax and other advice regarding the appropriateness of investing in any securities or the investment strategies discussed or recommended in this report.

This report may contain forward-looking statements which are often but not always identified by the use of words such as "believe", "estimate", "intend" and "expect" and statements that an event or result "may", "will" or "might" occur or be achieved and other similar expressions. Such forward-looking statements are based on assumptions made and information currently available to RHB and are subject to known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievement to be materially different from any future results,

performance or achievement, expressed or implied by such forward-looking statements. Caution should be taken with respect to such statements and recipients of this report should not place undue reliance on any such forward-looking statements. RHB expressly disclaims any obligation to update or revise any forward-looking statements, whether as a result of new information, future events or circumstances after the date of this publication or to reflect the occurrence of unanticipated events.

The use of any website to access this report electronically is done at the recipient's own risk, and it is the recipient's sole responsibility to take precautions to ensure that it is free from viruses or other items of a destructive nature. This report may also provide the addresses of, or contain hyperlinks to, websites. RHB takes no responsibility for the content contained therein. Such addresses or hyperlinks (including addresses or hyperlinks to RHB own website material) are provided solely for the recipient's convenience. The information and the content of the linked site do not in any way form part of this report. Accessing such website or following such link through the report or RHB website shall be at the recipient's own risk.

This report may contain information obtained from third parties. Third party content providers do not guarantee the accuracy, completeness, timeliness or availability of any information and are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, or for the results obtained from the use of such content. Third party content providers give no express or implied warranties, including, but not limited to, any warranties of merchantability or fitness for a particular purpose or use. Third party content providers shall not be liable for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including lost income or profits and opportunity costs) in connection with any use of their content.

The research analysts responsible for the production of this report hereby certifies that the views expressed herein accurately and exclusively reflect his or her personal views and opinions about any and all of the issuers or securities analysed in this report and were prepared independently and autonomously. The research analysts that authored this report are precluded by RHB in all circumstances from trading in the securities or other financial instruments referenced in the report, or from having an interest in the company(ies) that they cover.

The contents of this report is strictly confidential and may not be copied, reproduced, published, distributed, transmitted or passed, in whole or in part, to any other person without the prior express written consent of RHB and/or its affiliates. This report has been delivered to RHB and its affiliates' clients for information purposes only and upon the express understanding that such parties will use it only for the purposes set forth above. By electing to view or accepting a copy of this report, the recipients have agreed that they will not print, copy, videotape, record, hyperlink, download, or otherwise attempt to reproduce or re-transmit (in any form including hard copy or electronic distribution format) the contents of this report. RHB and/or its affiliates accepts no liability whatsoever for the actions of third parties in this respect.

The contents of this report are subject to copyright. Please refer to Restrictions on Distribution below for information regarding the distributors of this report. Recipients must not reproduce or disseminate any content or findings of this report without the express permission of RHB and the distributors.

The securities mentioned in this publication may not be eligible for sale in some states or countries or certain categories of investors. The recipient of this report should have regard to the laws of the recipient's place of domicile when contemplating transactions in the securities or other financial instruments referred to herein. The securities discussed in this report may not have been registered in such jurisdiction. Without prejudice to the foregoing, the recipient is to note that additional disclaimers, warnings or qualifications may apply based on geographical location of the person or entity receiving this report.

The term "RHB" shall denote, where appropriate, the relevant entity distributing or disseminating the report in the particular jurisdiction referenced below, or, in every other case, RHB Investment Bank Berhad and its affiliates, subsidiaries and related companies.

RESTRICTIONS ON DISTRIBUTION

Malaysia

This report is issued and distributed in Malaysia by RHB Investment Bank Berhad ("RHBIB"). The views and opinions in this report are our own as of the date hereof and is subject to change. If the Financial Services and Markets Act of the United Kingdom or the rules of the Financial Conduct Authority apply to a recipient, our obligations owed to such recipient therein are unaffected. RHBIB has no obligation to update its opinion or the information in this report.

Thailand

This report is issued and distributed in the Kingdom of Thailand by RHB Securities (Thailand) PCL, a licensed securities company that is authorised by the Ministry of Finance, regulated by the Securities and Exchange Commission of Thailand and is a member of the Stock Exchange of Thailand. The Thai Institute of Directors Association has disclosed the Corporate Governance Report of Thai Listed Companies made pursuant to the policy of the Securities and Exchange Commission of Thailand. RHB Securities (Thailand) PCL does not endorse, confirm nor certify the result of the Corporate Governance Report of Thai Listed Companies.



Indonesia

This report is issued and distributed in Indonesia by PT RHB Sekuritas Indonesia. This research does not constitute an offering document and it should not be construed as an offer of securities in Indonesia. Any securities offered or sold, directly or indirectly, in Indonesia or to any Indonesian citizen or corporation (wherever located) or to any Indonesian resident in a manner which constitutes a public offering under Indonesian laws and regulations must comply with the prevailing indonesian laws and regulations.

This report is issued and distributed in Singapore by RHB Securities Singapore Pte Ltd which is a holder of a capital markets services licence and an exempt financial adviser regulated by the Monetary Authority of Singapore. RHB Securities Singapore Pte Ltd may distribute reports produced by its respective foreign entities, affiliates or other foreign research houses pursuant to an arrangement under Regulation 32C of the Financial Advisers Regulations. Where the report is distributed in Singapore to a person who is not an Accredited Investor, Expert Investor or an Institutional Investor, RHB Securities Singapore Pte Ltd accepts legal responsibility for the contents of the report to such persons only to the extent required by law. Singapore recipients should contact RHB Securities Singapore Pte Ltd in respect of any matter arising from or in connection with the report.

Hong Kong

This report is issued and distributed in Hong Kong by RHB Securities Hong Kong Limited (興業僑豐證券有限公司) (CE No.: ADU220) ("RHBSHK") which is licensed in Hong Kong by the Securities and Futures Commission for Type 1 (dealing in securities) and Type 4 (advising on securities) regulated activities. Any investors wishing to purchase or otherwise deal in the securities covered in this report should contact RHBSHK. RHBSHK is a wholly owned subsidiary of RHB Hong Kong Limited; for the purposes of disclosure under the Hong Kong jurisdiction herein, please note that RHB Hong Kong Limited with its affiliates (including but not limited to RHBSHK) will collectively be referred to as "RHBHK." RHBHK conducts a full-service, integrated investment banking, asset management, and brokerage business. RHBHK does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this research report. Investors should consider this report as only a single factor in making their investment decision. Importantly, please see the company-specific regulatory disclosures below for compliance with specific rules and Importantly, please see the regulations under the Hong Kong jurisdiction. Other than company-specific disclosures relating to RHBHK, this research report is based on current public information that we consider reliable, but we do not represent it is accurate or complete, and it should not be relied on as such.

United States

This report was prepared by RHB and is being distributed solely and directly to "major" U.S. institutional investors as defined under, and pursuant to, the requirements of Rule 15a-6 under the U.S. Securities and Exchange Act of 1934, as amended (the "Exchange Act"). Accordingly, access to this report via Bursa Marketplace or any other Electronic Services Provider is not intended for any party other than "major" US institutional investors, nor shall be deemed as solicitation by RHB in any manner. RHB is not registered as a broker-dealer in the United States and does not offer brokerage services to U.S. persons. Any order for the purchase or sale of the securities discussed herein that are listed on Bursa Malaysia Securities Berhad must be placed with and through Auerbach Grayson ("AG"). Any order for the purchase or sale of all other securities discussed herein must be placed with and through such other registered U.S. broker-dealer as appointed by RHB from time to time as required by the Exchange Act Rule 15a-6. This report is confidential and not intended for distribution to, or use by, persons other than the recipient and its employees, agents and advisors, as applicable. Additionally, where research is distributed via Electronic Service Provider, the analysts whose names appear in this report are not registered or qualified as research analysts in the United States and are not associated persons of Auerbach Grayson AG or such other registered U.S. broker-dealer as appointed by RHB from time to time and therefore may not be subject to any applicable restrictions under Financial Industry Regulatory Authority ("FINRA") rules on communications with a subject company, public appearances and personal trading. Investing in any non-U.S. securities or related financial instruments discussed in this research report may present certain risks. The securities of non-U.S. issuers may not be registered with, or be subject to the regulations of, the U.S. Securities and Exchange Commission. Information on non-U.S. securities or related financial instruments may be limited. Foreign companies may not be subject to audit and reporting standards and regulatory requirements comparable to those in the United States. The financial instruments discussed in this report may not be suitable for all investors. Transactions in foreign markets may be subject to regulations that differ from or offer less protection than those in the United States.

DISCLOSURE OF CONFLICTS OF INTEREST

RHB Investment Bank Berhad, its subsidiaries (including its regional offices) and associated companies, ("RHBIB Group") form a diversified financial group, undertaking various investment banking activities which include, amongst others, underwriting, securities trading, market making and corporate finance advisory

As a result of the same, in the ordinary course of its business, any member of the RHBIB Group, may, from time to time, have business relationships with or hold positions in the securities (including capital market products) or perform and/or solicit investment, advisory or other services from any of the subject company(ies) covered in this research report.

While the RHBIB Group will ensure that there are sufficient information barriers and internal controls in place where necessary, to prevent/manage any conflicts of interest to ensure the independence of this report, investors should also be aware that such conflict of interest may exist in view of the investment banking activities undertaken by the RHBIB Group as mentioned above and should exercise their own judgement before making any investment decisions.

Malaysia

Save as disclosed in the following link (RHB Research conflict disclosures – Sep 2019) and to the best of our knowledge, RHBIB hereby declares that:

- RHBIB does not have a financial interest in the securities or other capital market products of the subject company(ies) covered in this report.
- 2. RHBIB is not a market maker in the securities or capital market products of the subject company(ies) covered in this report.
- None of RHBIB's staff or associated person serve as a director or board member* of the subject company(ies) covered in this report
 - *For the avoidance of doubt, the confirmation is only limited to the staff of research department
- Save as disclosed below, RHBIB did not receive compensation for investment banking or corporate finance services from the subject company in the past 12 months.
- RHBIB did not receive compensation or benefit (including gift and special cost arrangement e.g. company/issuer-sponsored and paid trip) in relation to the production of this report.

Thailand

RHB Securities (Thailand) PCL and/or its directors, officers, associates, connected parties and/or employees, may have, or have had, interests and/or commitments in the securities in subject company(ies) mentioned in this report or any securities related thereto. Further, RHB Securities (Thailand) PCL may have, or have had, business relationships with the subject company(ies) mentioned in this report. As a result, investors should exercise their own judgment carefully before making any investment decisions

Indonesia

PT RHB Sekuritas Indonesia is not affiliated with the subject company(ies) covered in this report both directly or indirectly as per the definitions of affiliation above. Pursuant to the Capital Market Law (Law Number 8 Year 1995) and the supporting regulations thereof, what constitutes as affiliated parties are as follows:

- Familial relationship due to marriage or blood up to the second degree, both
- horizontally or vertically; Affiliation between parties to the employees, Directors or Commissioners of the 2 parties concerned:
- 3. Affiliation between 2 companies whereby one or more member of the Board of Directors or the Commissioners are the same;
- Affiliation between the Company and the parties, both directly or indirectly, controlling or being controlled by the Company;
- Affiliation between 2 companies which are controlled, directly or indirectly, by the 5. same party: or
- Affiliation between the Company and the main Shareholders. 6.

PT RHB Sekuritas Indonesia is not an insider as defined in the Capital Market Law and the information contained in this report is not considered as insider information prohibited by law. Insider means:

- a commissioner, director or employee of an Issuer or Public Company;
- b.
- a substantial shareholder of an Issuer or Public Company; an individual, who because of his position or profession, or because of a c. business relationship with an Issuer or Public Company, has access to inside information; and
- an individual who within the last six months was a Person defined in letters a, b or c, above.

Singapore

Save as disclosed in the following link (RHB Research conflict disclosures – Sep 2019) and to the best of our knowledge, RHB Securities Singapore Pte Ltd hereby declares that:

- RHB Securities Singapore Pte Ltd, its subsidiaries and/or associated companies do not make a market in any issuer covered in this report.
- 2. RHB Securities Singapore Pte Ltd, its subsidiaries and/or its associated companies and its analysts do not have a financial interest (including a shareholding of 1% or more) in the issuer covered in this report.
- 3 RHB Securities, its staff or connected persons do not serve on the board or trustee positions of the issuer covered in this report.
- RHB Securities Singapore Pte Ltd, its subsidiaries and/or its associated companies do not have and have not within the last 12 months had any corporate finance advisory relationship with the issuer covered in this report or any other relationship that may create a potential conflict of interest.
- 5. RHB Securities Singapore Pte Ltd, or person associated or connected to it do not have any interest in the acquisition or disposal of, the securities, specified securities based derivatives contracts or units in a collective investment scheme covered in this report.
- RHB Securities Singapore Pte Ltd and its analysts do not receive any 6. compensation or benefit in connection with the production of this research report or recommendation.

Hong Kong

The following disclosures relate to relationships between RHBHK and companies covered by Research Department of RHBSHK and referred to in this research report:



RHBSHK hereby certifies that no part of RHBSHK analyst compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this research report.

RHBHK had an investment banking services client relationships during the past 12 months with: -.

RHBHK has received compensation for investment banking services, during the past 12 months from: -.

RHBHK managed/co-managed public offerings, in the past 12 months for: -.

On a principal basis. RHBHK has a position of over 1% market capitalization of: -.

Additionally, please note the following:

Ownership and material conflicts of interest: RHBSHK policy prohibits its analysts and associates reporting to analysts from owning securities of any company covered by the analyst.

Analyst as officer or director: RHBSHK policy prohibits its analysts, and associates reporting to analysts from serving as an officer, director, advisory board member or employee of any company covered by the analyst.

RHBHK salespeople, traders, and other non-research professionals may provide oral or written market commentary or trading strategies to RHB clients that reflect opinions that are contrary to the opinions expressed in this research report.



KUALA LUMPUR

RHB Investment Bank Bhd

Level 3A, Tower One, RHB Centre Jalan Tun Razak Kuala Lumpur 50400 Malaysia

Tel: +603 9280 8888 Fax: +603 9200 2216

HONG KONG

RHB Securities Hong Kong Ltd.

12th Floor, World-Wide House 19 Des Voeux Road Central Hong Kong

Tel: +852 2525 1118 Fax: +852 2810 0908

SINGAPORE

RHB Securities Singapore Pte Ltd.

10 Collyer Quay #09-08 Ocean Financial Centre Singapore 049315

Tel: +65 6533 1818 Fax: +65 6532 6211

JAKARTA

PT RHB Sekuritas Indonesia

Revenue Tower 11th Floor, District 8 - SCBD Jl. Jendral Sudirman Kav 52-53 Jakarta 12190 Indonesia

Tel: +6221 509 39 888 Fax: +6221 509 39 777

BANGKOK

RHB Securities (Thailand) PCL

10th Floor, Sathorn Square Office Tower 98, North Sathorn Road, Silom Bangrak, Bangkok 10500 Thailand

Tel: +66 2088 9999 Fax:+66 2088 9799

