

This publication was downloaded for exclusive use by: liew.jk@hartalega.com.my

16 May 2019

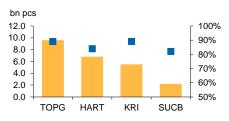
EQUITIES

Quick snapshot of TOPG and HART

	Top Glove	Hartalega
Ticker	TOPG MK	HART MK
Mkt cap (USD mn)	2,935	4,003
Rec.	OP	N
Target price	RM5.02	RM4.32
Price (14 May)	RM4.78	RM4.99
TSR	6.9%	-11%
EPS growth (3-yr CAGR)	9%	5%
PER (CY19E)	26x	35x
Div yield (CY19E)	1.9%	1.7%

Source: Factsheet, Macquarie Research, May 2019

If US imposes 25% tariff on Chinese vinyl and medical rubber gloves, TOPG is likely to be the largest beneficiary, in our view



- New nitrile capacity to be added in 2019
- ■Current utilisation rate (RHS)

Source: Company data, Macquarie Research, May 2019

Stronger USDMYR would benefit the rubber glove sector as 50-60% of its production costs are denominated in Ringgit, while the majority of revenue is in USD



Source: Bloomberg, Macquarie Research, May 2019

Analysts

Macquarie Capital Securities (Malaysia) Sdn. Bhd.

•

Denise Soon +60 3 2059 8845 denise.soon@macquarie.com Malaysia

Malaysia Rubber Glove Benefit from US-China trade fight?

Key points

- US hikes tariff from 10% to 25% on US\$200bn worth of Chinese imports; vinyl and medical rubber gloves are excluded, thus the impact is minimal.
- Both vinyl and medical rubber gloves are under the proposed tariff list, however, we think a structural demand shift to nitrile gloves is unlikely.
- We maintain our neutral stance on the sector; prefer Top Glove on margin and earnings resilience and cheaper valuation.

Event

• The trade war between the two largest economies, the United States and China, has intensified after the <u>US increased the level of tariffs from 10% to 25%</u> on the <u>previous tariff list</u>. We see the impact on this tariff hike to the Malaysia rubber glove sector as minimal as vinyl and medical rubber gloves are excluded. The proposed tariff list will only be finalised by end-June, thus the fundamentals of the sector remain unchanged.

Impact

- Vinyl and medical rubber gloves currently remain tax-exempted. Our checks show that only nitrile industrial gloves are now being taxed by a 25% tariff as the current higher 25% tariff is only imposed on the previous final list of goods that was announced in Sep-18. Nonetheless, vinyl and medical rubber gloves are now part of the USTR proposed list of goods that is worth another US\$300bn. It would only be finalised at the latest by end-June as the public consultation lasts until June 17 and the public hearing will commence on the same day.
- Immediate impact to glove sector is minimal. A higher tariff on nitrile industrial gloves is unlikely to swing the market dynamic of Malaysia nitrile gloves as only 5-6% of US-imported non-medical rubber gloves (3-3.5bn pcs/annum) are made by China as compared to Malaysia's total rubber glove export volume of c.160bn pcs.
- Impact may only be meaningful if US imposes tariff on vinyl gloves as 97% of US-imported vinyl gloves are made by China (Fig 2). The market thinks a narrowed price gap between vinyl and nitrile gloves would cause US buyers to structurally shift to Malaysia nitrile gloves. In this case, we think Top Glove and Hartalega would be the beneficiaries with a blue-sky valuation of RM7.57 and RM8.22, respectively, which is based on a +2STD PER (refer to page 2-3).
- ...however we think it is unlikely to cause a structural/short-term demand shift, despite having a narrower price gap. This is owing to: i) vinyl gloves are still cheaper with a price discount of 35-53%, ii) sufficient vinyl glove supply in China, iii) the stronger durability feature of nitrile gloves is not necessary for a low-risk task. Additionally, Malaysian glove players also did not benefit last year when vinyl and medical gloves were included on the July-18 proposed tariff list.

Outlook

We maintain our neutral stance on the glove sector and keep our forecast status
quo, as the proposed list of goods has yet to be finalised. Our preferred pick is
Top Glove given its margin and earnings resilience coupled with cheaper
valuation. Upside risk to our forecast and target price is a stronger USDMYR.
Every 10% change in USDMYR would lift earnings by 14-15% (Fig 10 & 11).

Macquarie Research Malaysia Rubber Glove

Analysis

• Vinyl and medical rubber gloves remain tax-exempted; proposed list still under review. To-date, only Chinese nitrile industrial gloves are being imposed the higher 25% tariff. Chinese vinyl and medical rubber gloves remain tax-exempted as both are excluded from the finalised tariff list that was released in Sep-18. However, President Trump is looking to add another US\$300bn worth of import goods and both vinyl and medical rubber gloves are part of the list. We understand the United States Trade Representative (USTR) has officially started a public consultation period until 17-June, which means the list will only be finalised at the latest by end-June.

• Any immediate impact to demand? The average selling price of Chinese nitrile industrial gloves is similar to Malaysia at US\$19-20/thousands pcs. Although Chinese industrial nitrile gloves are now at least 25% higher than Malaysia, we do not expect this will have any material impact to the market dynamic of the Malaysia rubber glove sector as the US only imports 5-6% of its non-medical rubber gloves (latex and nitrile) from China (3-3.5bn pcs/annum) vs. Malaysia's total export volume of 160bn pcs/annum. In our view, the impact would only be meaningful if the US imposes a tariff on vinyl and medical rubber gloves as c.97% of US-imported vinyl gloves are from China (Fig 2).

Fig 1 United States: import volume breakdown; imported nearly 75bn pcs of plastic/vinyl gloves per year

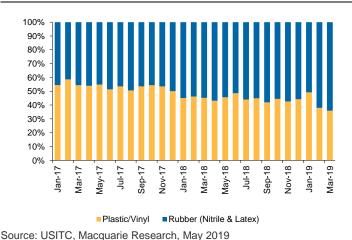
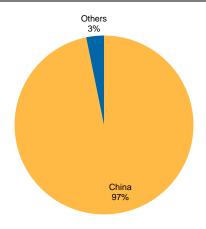


Fig 2 United States: 97% of vinyl gloves are purchased from China



Source: USITC, Macquarie Research, May 2019

• Overcapacity risk and price competition would be mitigated if the US imposes a 25% tariff on Chinese vinyl and medical rubber gloves. The 25% tariff would increase the final import price for the US customer and hence the price discount between both vinyl and nitrile gloves is narrowed from 69%-92% to 35%-53%. Assuming a narrowed price gap triggers a shift from vinyl to nitrile gloves – similar to the shift that happened in 2017, these new demands could easily ease the earlier concerns of overcapacity risk and price competition in the nitrile glove segment. Nitrile gloves are deemed as the closest substitutes for vinyl gloves given both are also latex-free (Fig 3). With the anticipated demand shift and scheduled expansion plans (Fig 5), we expect the concern of oversupply risk in 2019 would be mitigated (Fig 4) and the nitrile market is potentially to experience a shortage in 2Q-3Q19 as most of the new plants only commence in 4Q19 (Fig 5). This indicates to us pricing power would temporarily shift towards glove makers, and hence the margin per glove should start to recover.

Fig 3 Comparison between vinyl, nitrile and latex gloves

Type of glove	Vinyl glove	Nitrile glove	Latex glove
Estimated ASP (USD/000pcs)	12-13	22-23	17-18
Price discount to vinyl gloves		69%-92%	31%-50%
Raw material	PVC resin	32% acrylonitrile and 68% butadiene	Natural rubber latex
Type-1 allergy free (latex protein allergy)	Yes	Yes	No
Flexibility	Looser fit and less elasticity	Fit and puncture resistant	Fit and more elasticity
Barrier protection against infection and contamination	Poor	Good	Good
Purpose	Suitable for short-term and	Suitable in medical and high-risk task.	Suitable in medical and high-risk task.
	low risk task. i.e. Food	i.e. Food handling, examination,	i.e. Food handling, examination,
	handling, household cleaning	dental clinics and laboratories	dental clinics and laboratories

Source: Macquarie Research, May 2019

16 May 2019 2

Macquarie Research Malaysia Rubber Glove

Fig 4 Nitrile glove segment would experience a shortage if all the US customers shift from Chinese vinyl gloves to Malaysian nitrile gloves

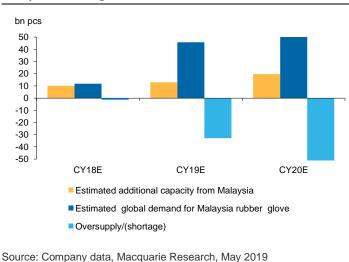


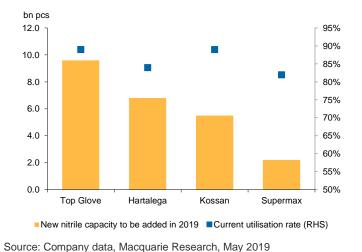
Fig 5 Capacity expansion plan for 2019-2020; most of the Malaysian glove players earlier delayed their expansion plans to 2H19

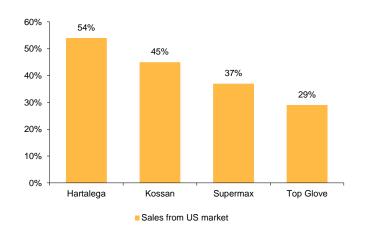
				Est. installed capacity	Target
	Company		Type of gloves	(bn pcs. p.a.)	commencement date
1H19	Top Glove	F32 1st phase	Nitrile/latex	2.2	2Q19
	Top Glove	F33	Nitrile	1.2	2Q19
	Kossan	Plant 18	Nitrile	2.5	2Q19
	Hartalega	Plant 5 (remaining 6 lines)	Nitrile	2.1	2Q19
			TOTAL	8.0	_
2H19	Top Glove	F32 2nd phase	Nitrile/Latex	1.2	3Q19
	Supermax	Plant 12	Nitrile	2.2	3Q19
	Hartalega	Plant 6	Nitrile	4.7	4Q19
	Top Glove	F2	Nitrile	0.8	4Q19
	Top Glove	F5A	Nitrile	2.0	4Q19
	Top Glove	F40 1st phase	Nitrile	2.2	4Q19
	Kossan	Plant 19	Nitrile	3.0	4Q19
	Hartalega	Plant 7	Specialty glove	2.6	Dec-19
			TOTAL	18.7	<u>-</u>
2020	Top Glove	F40 (2nd phase)	Nitrile	0.8	1Q20
	Supermax	Plant 12	Nitrile	2.2	1Q20
	Top Glove	F42 (1st phase)	PVC	2.0	2Q20
	Top Glove	F8A	Nitrile/Latex	3.2	3Q20
	Top Glove	F42 (1st phase)	Nitrile	4.8	4Q20
	Supermax	Sg Buloh	Nitrile	1.2	2H20
	Kossan	Bidor	Nitrile	4.0	2020
			TOTAL	18.2	-

• Who will be the largest beneficiary? Among the glove manufacturers, we view Top Glove and Hartalega as being the beneficiaries from the potential structural change in demand. Top Glove has the most additional nitrile glove capacity of 9.6bn pcs/annum (Fig 6) to absorb any potential new demand. While Hartalega's current utilisation rate has declined to 84%, indicating its factories also have spare capacity coupled with its stronger presence in the US market with a 25% market share and 54% of its sales are from the US market (Fig 7).

Fig 6 Top Glove is likely to be the largest beneficiary among other players as it has the most additional nitrile glove capacity in 2019

Fig 7 Hartalega has a better presence in the US market given that 54% of its sales are derived from the US





Source: Company data, Macquarie Research, May 2019

• Blue-sky valuation: Historically, we see sector PER multiples spiking to +2STD as a result of an improved earnings outlook which occurred in late-2015 on MYR/USD weakness and late-2017 on a demand shift from vinyl to nitrile gloves. Our analysis of earnings and share prices shows a strong correlation in glove producers' share prices in the period of earnings volatility. Assuming the US imposes a 25% tariff on vinyl gloves and causes demand shifts to Malaysian nitrile gloves, the market dynamic is likely to see a shortage situation and hence both Top Glove and Hartalega's +2STD multiples are likely being retested. Top Glove would be worth RM7.57 based on a +2STD PER of 33x, having assumed: i) EBITDA margins improve from the current 16.2% to 16.5%, the level of shortages of nitrile gloves during 2H17-1H18; and ii) its peak utilisation rate of 89%. Hartalega would be worth RM8.22 based on a +2STD PER of 47x, assuming: i) EBITDA margin recovers from the current 20.5% to 24.5%; and ii) its peak utilisation rate of 90%.

16 May 2019 3 Macquarie Research Malaysia Rubber Glove

Fig 8 Top Glove: PER band

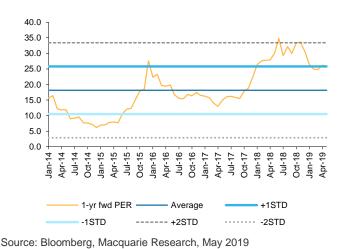
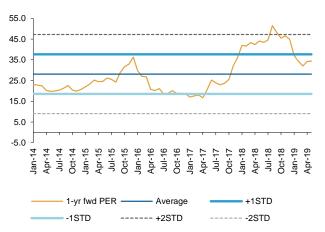


Fig 9 Hartalega: PER band



Source: Bloomberg, Macquarie Research, May 2019

• ...however we think it is unlikely to happen... Although the price gap narrowed, we do not think US customers will structurally shift from vinyl to nitrile gloves, underpinned by: i) vinyl gloves are widely used in non-medical sectors, e.g. food handling, which are low-risk tasks and do not require a strong durability glove feature; and ii) the Chinese vinyl glove market has a sufficient supply of vinyl gloves compared to two years ago. Recall that the Chinese government environmental enforcement led to several factory shutdowns, and hence the market experienced a shortage of vinyl gloves in 2017. However, these factories fully resumed their production in 2018. Additionally, we think this proposed list is unlikely to trigger any surge in demand of nitrile gloves as Malaysian makers did not benefit last year when vinyl and medical rubber gloves were proposed to be taxed 10% in July-18.

Fig 10 Top Glove: every 10% change in USDMYR would impact our earnings and valuation by 15%

Δin	Ne	t profit (RMn	Fair value (RM) based on CY20E	
USDMYR	FY19E	FY20E	FY21E	25x PER
-0.20	404.4	448.5	524.1	4.63
-0.10	421.4	467.4	546.0	4.82
	438.3	486.3	567.9	5.02
+0.10	455.2	505.2	589.8	5.21
+0.20	472.2	524.2	611.7	5.41

Source: Macquarie Research, May 2019

Fig 11 Hartalega: every 10% change in USDMYR would impact our earnings and valuation by 14%

Δ in USDMYR	Net	profit (RM	Fair Value (RM) based on CY20E	
OSDMIK	FY20E	FY21E	FY22E	28x PER
-0.20	450.7	483.9	489.4	4.02
-0.10	467.0	501.8	507.8	4.17
	483.4	519.8	526.3	4.32
+0.10	499.7	537.8	544.7	4.47
+0.20	516.1	555.7	563.0	4.61

Source: Macquarie Research, May 2019

Fig 12 Valuation comparison

				12m tgt		Mkt cap	P/E	(x)	P/B	(x)	ROE	(%)	Div yiel	ld (%)
Name	Bbg Code	Rec.	(lcy)	(lcy)	(%)	(US\$m)	CY19E	CY20E	CY19E	CY20E	CY19E	CY20E	CY19E	CY20E
Top Glove	TOPG MK	OP	4.78	5.02	5%	2,935	26.4	23.4	4.5	4.1	17.7	18.2	1.9	2.1
Hartalega	HART MK	UP	4.99	4.32	-13%	4,003	34.7	32.4	6.9	6.3	20.8	20.4	1.7	1.9
Kossan	KRI MK	NR	3.69	n/a	n/a	1,150	20.0	17.5	3.5	2.7	16.1	17.6	2.0	2.3
Supermax	SUCB MK	NR	1.48	n/a	n/a	500	13.5	12.4	1.7	1.7	13.0	13.8	3.0	3.5
				Mkt cap v	veighted	average	28.7	26.1	5.3	4.8	18.6	18.9	1.9	2.1

Closing price as at 14 May 2018, Data for NR stocks is Bloomberg consensus.

Source: Bloomberg, Company data, Macquarie Research, May 2019

16 May 2019 4

Macquarie Research Malaysia Rubber Glove

Important disclosures:

Recommendation definitions

Macquarie – Asia, USA, Europe and Mazi Macquarie (SA):

Outperform – expected return >10% Neutral – expected return from -10% to +10% Underperform – expected return <-10%

Macquarie - Australia/New Zealand

Outperform – expected return >10% Neutral – expected return from 0% to 10% Underperform – expected return <0%

Note: expected return is reflective of a Medium Volatility stock and should be assumed to adjust proportionately with volatility risk

Volatility index definition*

This is calculated from the volatility of historical price movements.

Very high-highest risk – Stock should be expected to move up or down 60–100% in a year – investors should be aware this stock is highly speculative.

High – stock should be expected to move up or down at least 40–60% in a year – investors should be aware this stock could be speculative.

Medium – stock should be expected to move up or down at least 30–40% in a year.

Low-medium – stock should be expected to move up or down at least 25–30% in a year.

Low – stock should be expected to move up or down at least 15–25% in a year.

* Applicable to select stocks in Asia/Australia/NZ

Recommendations – 12 months
Note: Quant recommendations may differ from
Fundamental Analyst recommendations

Financial definitions

All "Adjusted" data items have had the following adjustments made:

Added back: goodwill amortisation, provision for catastrophe reserves, IFRS derivatives & hedging, IFRS impairments & IFRS interest expense Excluded: non recurring items, asset revals, property revals, appraisal value uplift, preference dividends & minority interests

EPS = adjusted net profit / efpowa*
ROA = adjusted ebit / average total assets
ROA Banks/Insurance = adjusted net profit /average

ROE = adjusted net profit / average shareholders funds Gross cashflow = adjusted net profit + depreciation *equivalent fully paid ordinary weighted average number of shares

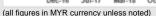
All Reported numbers for Australian/NZ listed stocks are modelled under IFRS (International Financial Reporting Standards).

Recommendation proportions - For quarter ending 31 March 2019

	AU/NZ	ASIA	KOA	USA	CA	EUK	
Outperform	48.45%	56.50%	47.06%	51.94%	68.53%	51.76%	(for global coverage by Macquarie, 3.69% of stocks followed are investment banking clients)
Neutral	35.27%	30.15%	32.94%	42.78%	24.48%	38.19%	(for global coverage by Macquarie, 2.76% of stocks followed are investment banking clients)
Underperform	16.28%	13.35%	20.00%	5.28%	6.99%	10.05%	(for global coverage by Macquarie, 0.89% of stocks followed are investment banking clients)

Note: This table does not reflect the announced cessation of research services effective April 29, 2019, through our affiliate Macquarie Capital Markets Canada Ltd.





HART MK vs KLCI, & rec history



(all figures in MYR currency unless noted)

Note: Recommendation timeline – if not a continuous line, then there was no Macquarie coverage at the time or there was an embargo period. Source: FactSet, Macquarie Research, May 2019

12-month target price methodology

TOPG MK: RM5.02 based on a PER methodology HART MK: RM4.32 based on a PER methodology

Company-specific disclosures:

TOPG MK: Macquarie may be an Issuer of Structured Warrants on securities mentioned in this report **HART MK:** Macquarie may be an Issuer of Structured Warrants on securities mentioned in this report

Important disclosure information regarding the subject companies covered in this report is available at www.macquarie.com/research/disclosures.

Target price risk disclosures:

TOPG MK: Any inability to compete successfully in their markets may harm the business. This could be a result of many factors which may include geographic mix and introduction of improved products or service offerings by competitors. The results of operations may be materially affected by global economic conditions generally, including conditions in financial markets. The company is exposed to market risks, such as changes in interest rates, foreign exchange rates and input prices. From time to time, the company will enter into transactions, including transactions in derivative instruments, to manage certain of these exposures.

HART MK: Any inability to compete successfully in their markets may harm the business. This could be a result of many factors which may include geographic mix and introduction of improved products or service offerings by competitors. The results of operations may be materially affected by global economic conditions generally, including conditions in financial markets. The company is exposed to market risks, such as changes in interest rates, foreign exchange rates and input prices. From time to time, the company will enter into transactions, including transactions in derivative instruments, to manage certain of these exposures.

Analyst certification:

We hereby certify that all of the views expressed in this report accurately reflect our personal views about the subject company or companies and its or their securities. We also certify that no part of our compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this report. The Analysts responsible for preparing this report receive compensation from Macquarie that is based upon various factors including Macquarie Group Ltd total revenues, a portion of which are generated by Macquarie Group's Investment Banking activities.

General disclaimers:

Macquarie Securities (Australia) Ltd; Macquarie Capital (Europe) Ltd; Macquarie Capital (Ireland) DAC; Macquarie Capital Markets North America Ltd; Macquarie Capital (USA) Inc; Macquarie Capital Limited, Taiwan Securities Branch; Macquarie Capital Securities (Singapore) Pte Ltd; Macquarie Securities (NZ) Ltd; Mazi Macquarie Securities (RF) (Pty) Ltd; Macquarie Capital Securities (India) Pvt Ltd; Macquarie Capital Securities (Malaysia) Sdn Bhd; Macquarie Securities Korea Limited and Macquarie Securities (Thailand) Ltd are not authorized deposit-taking institutions for the purposes of the

16 May 2019 5

Macquarie Research Malaysia Rubber Glove

Banking Act 1959 (Commonwealth of Australia), and their obligations do not represent deposits or other liabilities of Macquarie Bank Limited ABN 46 008 583 542 (MBL) or MGL. MBL does not guarantee or otherwise provide assurance in respect of the obligations of any of the above mentioned entities. MGL provides a guarantee to the Monetary Authority of Singapore in respect of the obligations and liabilities of Macquarie Capital Securities (Singapore) Pte Ltd for up to SGD 35 million. This research has been prepared for the general use of the wholesale clients of the Macquarie Group and must not be copied, either in whole or in part, or distributed to any other person. If you are not the intended recipient you must not use or disclose the information in this research in any way. If you received it in error, please tell us immediately by return e-mail and delete the document. We do not guarantee the integrity of any e-mails or attached files and are not responsible for any changes made to them by any other person. MGL has established and implemented a conflicts policy at group level (which may be revised and updated from time to time) (the "Conflicts Policy") pursuant to regulatory requirements (including the FCA Rules) which sets out how we must seek to identify and manage all material conflicts of interest. Nothing in this research shall be construed as a solicitation to buy or sell any security or product, or to engage in or refrain from engaging in any transaction. In preparing this research, we did not take into account your investment objectives, financial situation or particular needs. Macquarie salespeople, traders and other professionals may provide oral or written market commentary or trading strategies to our clients that reflect opinions which are contrary to the opinions expressed in this research. Macquarie Research produces a variety of research products including, but not limited to, fundamental analysis, macro-economic analysis, quantitative analysis, and trade ideas. Recommendations contained in one type of research product may differ from recommendations contained in other types of research, whether as a result of differing time horizons, methodologies, or otherwise. Before making an investment decision on the basis of this research, you need to consider, with or without the assistance of an adviser, whether the advice is appropriate in light of your particular investment needs, objectives and financial circumstances. There are risks involved in securities trading. The price of securities can and does fluctuate, and an individual security may even become valueless. International investors are reminded of the additional risks inherent in international investments, such as currency fluctuations and international stock market or economic conditions, which may adversely affect the value of the investment. This research is based on information obtained from sources believed to be reliable but we do not make any representation or warranty that it is accurate, complete or up to date. We accept no obligation to correct or update the information or opinions in it. Opinions expressed are subject to change without notice. No member of the Macquarie Group accepts any liability whatsoever for any direct, indirect, consequential or other loss arising from any use of this research and/or further communication in relation to this research. Clients should contact analysts at, and execute transactions through, a Macquarie Group entity in their home jurisdiction unless governing law permits otherwise. The date and timestamp for above share price and market cap is the closed price of the price date. #CLOSE is the final price at which the security is traded in the relevant exchange on the date indicated. Members of the Macro Strategy team are Sales & Trading personnel who provide desk commentary that is not a product of the Macquarie Research

department or subject to FINRA Rule 2241 or any other regulation regarding independence in the provision of equity research. Country-specific disclaimers: Australia: In Australia, research is issued and distributed by Macquarie Securities (Australia) Ltd (AFSL No. 238947), a participating organization of the Australian Securities Exchange. Macquarie Securities (Australia) Limited staff involved with the preparation of research have regular interaction with companies they cover. Additionally, Macquarie Group Limited does and seeks to do business with companies covered by Macquarie Research. There are robust information barriers in place to protect the independence of Macquarie Research's product. However, recipients of Macquarie Research should be aware of this potential conflict of interest. New Zealand: In New Zealand, research is issued and distributed by Macquarie Securities (NZ) Ltd, a NZX Firm. United Kingdom: In the United Kingdom, research is issued and distributed by Macquarie Capital (Europe) Ltd, which is authorised and regulated by the Financial Conduct Authority (No. 193905). Germany: In Germany, this research is issued and/or distributed by Macquarie Capital (Ireland) DAC, which is authorised and regulated by the Central Bank of Ireland (No. C186531). France: In France, research is issued and distributed by Macquarie Capital (Ireland) DAC, which is authorised and regulated by the Central Bank of Ireland (No. C186531). Hong Kong & Mainland China: In Hong Kong, research is issued and distributed by Macquarie Capital Limited, which is licensed and regulated by the Securities and Futures Commission. In Mainland China, Macquarie Securities (Australia) Limited Shanghai Representative Office only engages in non-business operational activities excluding issuing and distributing research. Only non-A share research is distributed into Mainland China by Macquarie Capital Limited. Japan: In Japan, research is Issued and distributed by Macquarie Capital Securities (Japan) Limited, a member of the Tokyo Stock Exchange, Inc. and Osaka Exchange, Inc. (Financial Instruments Firm, Kanto Financial Bureau (kin-sho) No. 231, a member of Japan Securities Dealers Association). India: In India, research is issued and distributed by Macquarie Capital Securities (India) Pvt. Ltd. (CIN: U65920MH1995PTC090696), 92, Level 9, 2 North Avenue, Maker Maxity, Bandra Kurla Complex, Bandra (East), Mumbai - 400 051, India, which is a SEBI registered Research Analyst having registration no. INH000000545. Malaysia: In Malaysia, research is issued and distributed by Macquarie Capital Securities (Malaysia) Sdn. Bhd. (Company registration number: 463469-W) which is a Participating Organisation of Bursa Malaysia Berhad and a holder of Capital Markets Services License issued by the Securities Commission. Taiwan: In Taiwan, research is issued and distributed by Macquarie Capital Limited, Taiwan Securities Branch, which is licensed and regulated by the Financial Supervisory Commission. No portion of the report may be reproduced or quoted by the press or any other person without authorisation from Macquarie. Nothing in this research shall be construed as a solicitation to buy or sell any security or product. The recipient of this report shall not engage in any activities which may give rise to potential conflicts of interest to the report. Research Associate(s) in this report who are registered as Clerks only assist in the preparation of research and are not engaged in writing the research. Macquarie may be in past one year or now being an Issuer of Structured Warrants on securities mentioned in this report. Thailand: In Thailand, research is produced, issued and distributed by Macquarie Securities (Thailand) Ltd. Macquarie Securities (Thailand) Ltd. is a licensed securities company that is authorized by the Ministry of Finance, regulated by the Securities and Exchange Commission of Thailand and is an exchange 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. Macquarie Securities (Thailand) Ltd does not endorse the result of the Corporate Governance Report of Thai Listed Companies but this Report can be accessed at: http://www.thaiiod.com/en/publications.asp?type=4. South Korea: In South Korea, unless otherwise stated, research is prepared, issued and distributed by Macquarie Securities Korea Limited, which is regulated by the Financial Supervisory Services. Information on analysts in MSKL is disclosed at http://dis.kofia.or.kr/websquare/index.jsp?w2xPath=/wg/fundMgr/DISFundMgrAnalystStut.xml&divisionId= MDIS03002001000000&serviceId=SDIS03002001000. South Africa: In South Africa, research is issued and distributed by Mazi Macquarie Securities (RF) (Pty) Ltd, a member of the JSE Limited. Singapore: In Singapore, research is issued and distributed by Macquarie Capital Securities (Singapore) Pte Ltd (Company Registration Number: 198702912C), a Capital Markets Services license holder under the Securities and Futures Act to deal in securities and provide custodial services in Singapore. Pursuant to the Financial Advisers (Amendment) Regulations 2005, Macquarie Capital Securities (Singapore) Pte Ltd is exempt from complying with sections 25, 27 and 36 of the Financial Advisers Act. All Singapore-based recipients of research produced by Macquarie Capital (Europe) Limited, Mazi Macquarie Securities (RF) (Pty) Ltd and Macquarie Capital (USA) Inc. represent and warrant that they are institutional investors as defined in the Securities and Futures Act. United States: In the United States, research is issued and distributed by Macquarie Capital (USA) Inc., which is a registered broker-dealer and member of FINRA. Macquarie Capital (USA) Inc., accepts responsibility for the content of each research report prepared by one of its non-US affiliates when the research report is distributed in the United States by Macquarie Capital (USA) Inc. Macquarie Capital (USA) Inc.'s affiliate's analysts are not registered as research analysts with FINRA, may not be associated persons of Macquarie Capital (USA) Inc., and therefore may not be subject to FINRA rule restrictions on communications with a subject company, public

appearances, and trading securities held by a research analyst account. Information regarding futures is provided for reference purposes only and is not a solicitation for purchases or sales of futures. Any persons receiving this report directly from Macquarie Capital (USA) Inc. and wishing to effect a transaction in any security described herein should do so with Macquarie Capital (USA) Inc. Important disclosure information regarding the subject companies covered in this report is available at www.macquarie.com/research/disclosures, or contact your registered representative at 1-888-MAC-STOCK, or write to the Supervisory Analysts, Research Department, Macquarie Securities, 125 W.55th Street, New York, NY 10019. © Macquarie Group

16 May 2019



Equities

Asia Research

Head of Equity Research

Jake Lynch (Asia – Head)	(852) 3922 3583
Hiroyuki Sakaida (Japan – Head)	(813) 3512 6695
Conrad Werner (ASEAN - Head)	(65) 6601 0182

Automobiles, Auto Parts

Janet Lewis (China, Japan)	(813) 3512 7856
Allen Yuan (China)	(8621) 2412 9009
James Hong (Korea)	(822) 3705 8661
Amit Mishra (India)	(9122) 6720 4084
Robert Pranata (Indonesia)	(6221) 2598 8366

Banks and Financials

Scott Russell (Asia)	(852) 3922 3567
Dexter Hsu (China, Taiwan)	(8862) 2734 7530
Keisuke Moriyama (Japan)	(813) 3512 7476
Jeff Kim (Korea)	(822) 3705 8676
Suresh Ganapathy (India)	(9122) 6720 4078
Conrad Werner (Singapore)	(65) 6601 0182
Jayden Vantarakis (Indonesia)	(6221) 2598 8310
Anand Pathmakanthan (Malaysia)	(603) 2059 8833
Gilbert Lopez (Philippines)	(632) 857 0892
Peach Patharavanakul (Thailand)	(662) 694 7753

Basic Materials, Commodities

David Ohiaa (Ohiaa Haaa Kaaa)	(050) 2022 4022
David Ching (China, Hong Kong)	(852) 3922 1823
Harunobu Goroh (Japan)	(813) 3512 7886
Yasuhiro Nakada (Japan)	(813) 3512 7862
Anna Park (Korea)	(822) 3705 8669
Sumangal Nevatia (India)	(9122) 6720 4093
Jayden Vantarakis (Indonesia)	(6221) 2598 8310

Conglomerates

David Ng (China, Hong Kong)	(852) 3922 1291
Gilbert Lopez (Philippines)	(632) 857 0892
Conrad Werner (Singapore)	(65) 6601 0182

Consumer, Gaming

Linda Huang (Asia)	(852) 3922 4068
Terence Chang (China, Hong Kong)	(852) 3922 3581
Sunny Chow (China, Hong Kong)	(852) 3922 3768
Edward Engel (China, Hong Kong)	(852) 3922 5750
Leon Rapp (Japan)	(813) 3512 7879
Kwang Cho (Korea)	(822) 3705 4953
Amit Sinha (India)	(9122) 6720 4085
Robert Pranata (Indonesia)	(6221) 2598 8366
Richardo Walujo (Indonesia)	(6221) 2598 8369
Denise Soon (Malaysia)	(603) 2059 8845
Karisa Magpayo (Philippines)	(632) 857 0899
Chalinee Congmuang (Thailand)	(662) 694 7993

Emerging Leaders

Corinne Jian (Asia)	(8862) 2734 7522
Marcus Yang (China)	(8621) 2412 9087
Kwang Cho (Korea)	(822) 3705 4953
Conrad Werner (ASEAN)	(65) 6601 0182
Bo Denworalak (Thailand)	(662) 694 7774

Infrastructure, Industrials, Transportation

Patrick Dai (China)	(8621) 2412 9082
Eric Zong (China, Hong Kong)	(852) 3922 4749
Kunio Sakaida (Japan)	(813) 3512 7873
James Hong (Korea)	(822) 3705 8661
Corinne Jian (Taiwan)	(8862) 2734 7522
Inderieetsingh Bhatia (India)	(9122) 6720 4087

Internet, Media and Software

Wendy Huang (Asia)	(852) 3922 3378
John Wang (China, Hong Kong)	(852) 3922 3578
Frank Chen (China, Hong Kong)	(852) 3922 1433
Ellie Jiang (China, Hong Kong)	(852) 3922 4110
Andy Kim (Korea)	(822) 3705 8690
Alankar Garude (India)	(9122) 6720 4134

Oil, Gas and Petrochemicals

Aditya Suresh (Asia)	(852) 3922 1265
Anna Park (Asia)	(822) 3705 8669
Yasuhiro Nakada (Japan)	(813) 3512 7862
Corinne Jian (Taiwan)	(8862) 2734 7522
Ben Shane Lim (Malaysia)	(603) 2059 8868
Yupapan Polpornprasert (Thailand)	(662) 694 7729

Pharmaceuticals and Healthcare

David Ng (China, Hong Kong)	(852) 3922 1291
Xiang Gao (China, Hong Kong)	(8621) 2412 9006
Corinne Jian (China)	(8862) 2734 7522
Mi Hyun Kim (Korea)	(822) 3705 8689
Alankar Garude (India)	(9122) 6720 4134
Richardo Walujo (Indonesia)	(6221) 259 88 369

Property, REIT

David Ng (China, Hong Kong)	(852) 3922 1291
Kelvin Tam (China)	(852) 3922 1181
Nicholas Ting (Hong Kong)	(852) 3922 1398
Keisuke Moriyama (Japan)	(813) 3512 7476
Derrick Heng (Singapore)	(65) 6601 0436
Abhishek Bhandari (India)	(9122) 6720 4088
Richard Danusaputra (Indonesia)	(6221) 2598 8368
Aiman Mohamad (Malaysia)	(603) 2059 8986
Kervin Sisayan (Philippines)	(632) 857 0893
Bo Denworalak (Thailand)	(662) 694 7774

Technology

Damian Thong (Asia, Japan)	(813) 3512 7877
Jeffrey Ohlweiler (Greater China)	(8862) 2734 7512
Kaylin Tsai (Greater China)	(8862) 2734 7523
Patrick Liao (Greater China)	(8862) 2734 7515
Hiroshi Taguchi (Japan)	(813) 3512 7867
Daniel Kim (Korea)	(822) 3705 8641
Abhishek Bhandari (India)	(9122) 6720 4088

Telecoms

Ν

Prem Jearajasingam (ASEAN)	(603) 2059 8989
Nathania Nurhalim (Indonesia)	(6221) 2598 8365
Kervin Sisayan (Philippines)	(632) 857 0893

Utilities, Renewables

12 6695
412 9082
22 3571
412 9025
720 4087
7 0899

Strategy, Country

Viktor Shvets (Asia, Global)	(852) 3922 3883
David Ng (China, Hong Kong)	(852) 3922 1291
Hiroyuki Sakaida (Japan)	(813) 3512 6695
Daniel Kim (Korea)	(822) 3705 8641
Jeffrey Ohlweiler (Taiwan)	(8862) 2734 7512
Inderjeetsingh Bhatia (India)	(9122) 6720 4087
Conrad Werner (ASEAN, Singapore)	(65) 6601 0182
Jayden Vantarakis (Indonesia)	(6221) 2598 8310
Anand Pathmakanthan (Malaysia)	(603) 2059 8833
Gilbert Lopez (Philippines)	(632) 857 0892
Peach Patharavanakul (Thailand)	(662) 694 7753

Find our research at

www.macquarieresearch.com www.thomson.com/financial Macquarie: Thomson: www.knowledge.reuters.com MAC GO http://www.factset.com/home.aspx Reuters: Bloomberg:

Factset:

CapitallQ www.capitaliq.com Email macresearch@macquarie.com for access

Asia Sales

Regional Heads of Sales

Miki Edelman (Global)	(1 212) 231 6121
Amelia Mehta (Asia)	(65) 6601 0211
Alan Chen (Asia)	(852) 3922 2019
Christina Lee (US)	(44 20) 3037 4873
Mothlib Miah (UK/Europe)	(44 20) 3037 4893
Sandeep Bhatia (India)	(9122) 6720 4101
Tim Huang (Indonesia)	(6221) 2598 8303
Thomas Renz (Geneva)	(41 22) 818 7712
Leslie Hoy (Japan)	(813) 3512 7919
Tomohiro Takahashi (Japan)	(813) 3512 7823

Regional Heads of Sales cont'd

DJ Kwak (Korea)	(822) 3705 8608
Nik Hadi (Malaysia)	(603) 2059 8888
Gino C Rojas (Philippines)	(632) 857 0861
Paul Colaco (San Francisco)	(1 415) 762 5003
Eric Lin (Taiwan)	(8862) 2734 7590
Angus Kent (Thailand)	(662) 694 7601

Sales Trading

Mark Weekes (Asia) (852) 3922 2084 (6221) 515 1555 Stanley Dunda (Indonesia)

Sales Trading cont'd

Suhaida Samsudin (Malaysia) Michael Santos (Philippines) Chris Reale (New York) Marc Rosa (New York) Justin Morrison (Singapore) Brendan Rake (Thailand) Mike Keen (UK/Europe)

(603) 2059 8888 (632) 857 0813 (1 212) 231 2555 (1 212) 231 2555 (65) 6601 0288 (662) 694 7707 (44 20) 3037 4905