

15 June 2018

Hong Kong

## EQUITIES

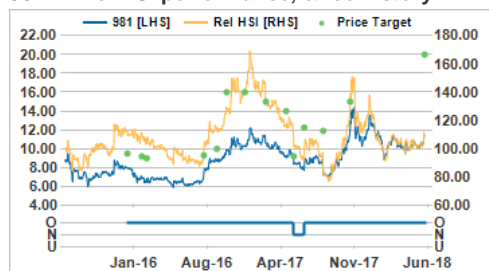
981 HK Outperform  
Price (at 02:08, 15 Jun 2018 GMT) HK\$11.48

Valuation	HK\$	20.00
- Price to Book		
12-month target	HK\$	20.00
Upside/Downside	%	+74.2
12-month TSR	%	+74.2
Volatility Index		High
GICS sector		
Semiconductors & Semiconductor Equipment		
Market cap	HK\$m	56,619
Market cap	US\$m	7,214
Free float	%	61
30-day avg turnover	US\$m	49.6
Number shares on issue	m	4,932

## Investment fundamentals

Year end 31 Dec		2017A	2018E	2019E	2020E
Revenue	m	3,101.2	3,450.1	3,931.1	4,552.3
EBIT	m	124.9	89.2	231.6	332.8
EBIT growth	%	-63.2	-28.6	159.6	43.7
Reported profit	m	179.7	130.9	243.4	336.8
EPS rep	¢	3.8	2.7	4.9	6.8
EPS rep growth	%	-56.8	-31.0	86.0	38.4
PER rep	x	38.0	55.1	29.6	21.4
Total DPS	¢	0.0	0.0	0.0	0.0
Total div yield	%	0.0	0.0	0.0	0.0
ROA	%	1.1	0.7	1.8	2.4
ROE	%	3.9	2.5	4.5	5.9
EV/EBITDA	x	8.3	7.5	5.6	4.6
Net debt/equity	%	13.9	31.9	38.3	44.3
P/BV	x	1.4	1.4	1.3	1.2

## 981 HK rel HSI performance, &amp; rec history



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, June 2018  
(all figures in USD unless noted, TP in HKD)

## Analysts

Macquarie Capital Limited



**Allen Chang** +852 3922 1136  
allen.chang@macquarie.com

Macquarie Capital Limited, Taiwan Securities Branch



**Lynn Luo** +886 2 2734 7534  
lynn.luo@macquarie.com



**Patrick Liao** +886 2 2734 7515  
patrick.liao@macquarie.com

## SMIC

PT up to HK\$20; 28nm growing, 14nm on the way

## Key points

- ▶ We reiterate our non-consensus bullish view on SMIC and raise PT to HK\$20 on the back of structural uptrend.
- ▶ Technology migration will be driven by its customers of HiSilicon, Spreadtrum, Qualcomm, GigaDevice, and by products 28nm/40nm.
- ▶ Key argument – continuous technology migration is the key to drive re-rating, being conservative is not a way to win.

## Conclusion

- **We raise PT to HK\$20 and 2019-20 EPS by 3%/5% on higher 28/14nm revenue and GM.** We analysed SMIC's 28/14nm and mature nodes from perspective of customers, applications, and production yield rates, and expect wafer revenue/GM (excluding licensing revenue) to recover from seasonally weak 1H (Figs 2~3).

## Impact

- **28nm HKC ramping up:** We expect a strong ramp up of 28nm HKC in 2Q, driven by HiSilicon's TV and STB SoCs, and migrating to 28nm HKC+ in 4Q18. We expect 28nm to contribute 6.5%/9.7% of revenue in 2Q18/2H18 (vs 3.2% in 1Q18), overall wafer GM to improve to 17.4% in 4Q18 (vs 15.6% in 1Q18) with improving production yield rate and overall utilization up to 88% in 4Q18 (vs 81% in 1Q18). We expect HiSilicon, Spreadtrum, and Qualcomm to drive SMIC's 28nm HKC+ smartphone and connectivity ICs in 2019, contributing 15.9% of revenue.
- **14nm on the way:** SMIC's 14nm will start risk production in 1H19, and we expect HiSilicon to migrate its high-end TV/STB SoCs to 14nm in 1H20, and HiSilicon, Spreadtrum, and Qualcomm to adopt SMIC's 14nm on mid-range smartphone SoCs in 2020, driving 14nm to contribute 1.4% of revenue in 2020. We expect AI/blockchain start-ups in China to use SMIC's 28/14nm, such as deep learning processor and AI edge device ASICs.
- **Mature nodes – MCU and High Voltage upgrading to 40nm:** SMIC is migrating MCUs from 55nm to 40nm in 2018 and further migrating to 28nm in 2019, aiming at automotive MCUs. Its HV (high voltage) process is migrating from 8" fabs to 40/55nm on 12" fabs in 2018, targeting at AMOLED driver IC and TDDI. We expect IC design customers such as GigaDevice and Chipone to be key drivers of 40nm MCU and HV. We expect 40nm revenue to grow 18%/21% YoY and to contribute 23%/23% of revenue in 2018/19.

## Earnings and target price revision

- New PT HK\$20 is based on 2.2x 2019E PB (from 1.7x 2018E PB), technology upgrade to drive re-rating. We raise 2019-20 EPS on higher revenue/GM.

## Price catalyst

- 12-month price target: HK\$20.00 based on 2.2x 2019E Price to Book.
- Catalyst: 2Q18 results, 28nm and 14nm development progress.

## Action and recommendation

- Maintain Outperform.

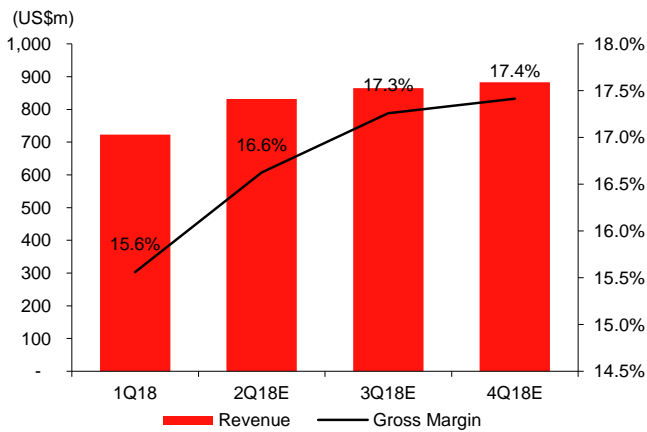
Fig 1 SMIC technology roadmap

Product	Logic	RF	MCU	eNVM	NOR Flash	NAND Flash	CIS	BCD	HV	RFSOI
14nm	Δ									
24nm						Δ				
28nm	○	Δ	~						~	
38nm						○				
40nm	○	○	Δ	~					Δ	
55nm	○	○	○	○	Δ				Δ	
65nm	○	○			○					
90nm	○	○			○					
95nm	○	○								
0.11um	○	○	Δ	~			○			
0.13um	○	○	○	○						○
0.15um	○	○							Δ	
0.18um	○	○	○	○				○		
0.25um	○	○						○		
0.35um	○	○	○					○	○	
<b>Applications</b>	CPU, GPU, FPGA, AP	WiFi, RF, LAN, WAN	IoT, mobile, consumer	Smart card, IoT	Wearables, smartphone	PC, mobile, server	Auto, mobile, security	Power mgmt.	AMOLED/LCD driver IC, TDDI	Connectivity

○: in production Δ: in development ~: future plan

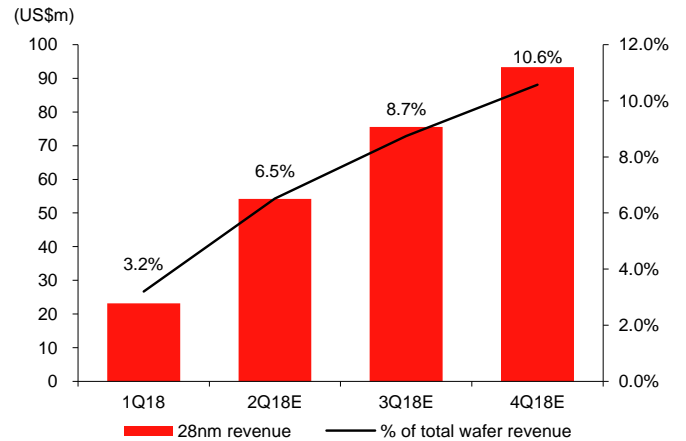
Source: Company data, Macquarie Research, June 2018

Fig 2 SMIC wafer revenue and GM trend (excluding licensing revenue in 1Q/2Q18) – recovery in 2Q-4Q18



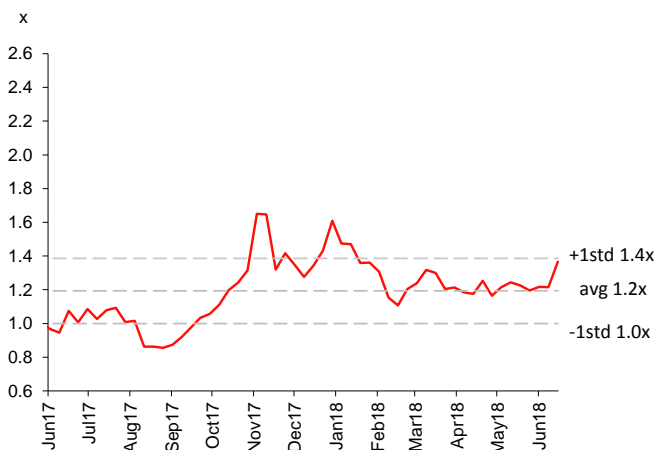
Source: Company data, Macquarie Research, June 2018

Fig 3 SMIC 28nm revenue and contribution – recovery in 2Q-4Q18



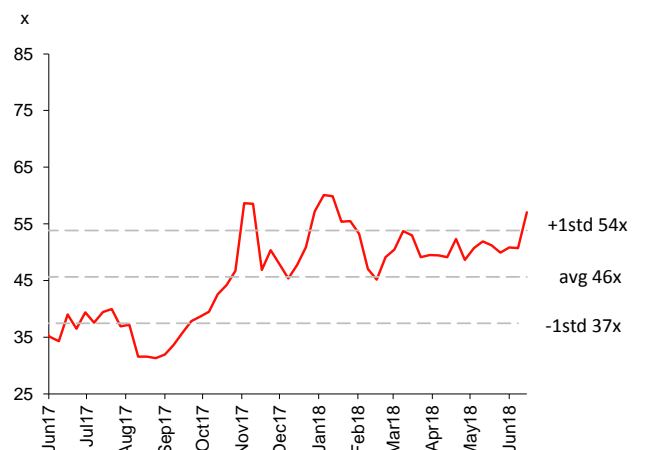
Source: Company data, Macquarie Research, June 2018

Fig 4 SMIC PB chart



Source: Company data, Macquarie Research, June 2018

Fig 5 SMIC PE chart



Source: Company data, Macquarie Research, June 2018

Fig 6 Macquarie Research vs. Bloomberg consensus

(US\$m)	2018E			2019E			2020E		
	MQ	Con.	Diff	MQ	Con.	Diff	MQ	Con.	Diff
Sales	3,450	3,435	0%	3,931	3,829	3%	4,552	4,480	2%
Gross profit	701	697	1%	822	763	8%	985	985	0%
Operating profit	89	18	392%	232	22	935%	333	132	152%
Net income	131	86	53%	243	77	216%	337	119	183%
<b>Margin</b>									
Gross margin	20.3%	20.3%		20.9%	19.9%		21.6%	22.0%	
Operating margin	2.6%	0.5%		5.9%	0.6%		7.3%	2.9%	
Net margin	3.8%	2.5%		6.2%	2.0%		7.4%	2.7%	

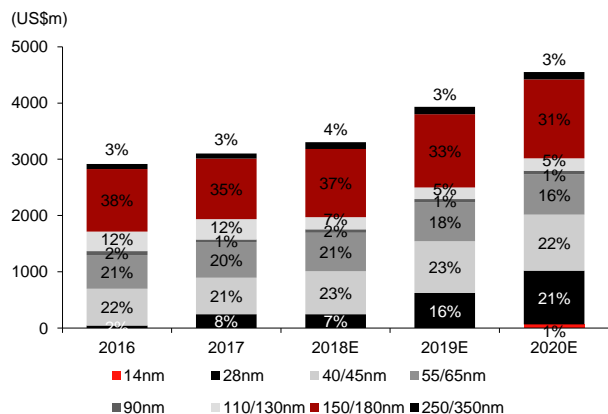
Source: Bloomberg, Macquarie Research, June 2018

Fig 7 Earnings Revision

(US\$m)	2018E	Revised		2018E	Prior		Change %		
		2019E	2020E		2019E	2020E	2018E	2019E	2020E
Sales	3,450	3,931	4,552	3,388	3,912	4,522	2%	0%	1%
Gross profit	701	822	985	657	812	966	7%	1%	2%
Operating profit	89	232	333	89	225	317	0%	3%	5%
Net income	131	243	337	131	236	320	0%	3%	5%
<b>Margin</b>									
Gross margin	20.3%	20.9%	21.6%	19.4%	20.8%	21.4%			
Operating margin	2.6%	5.9%	7.3%	2.6%	5.8%	7.0%			
Net margin	3.8%	6.2%	7.4%	3.9%	6.0%	7.1%			

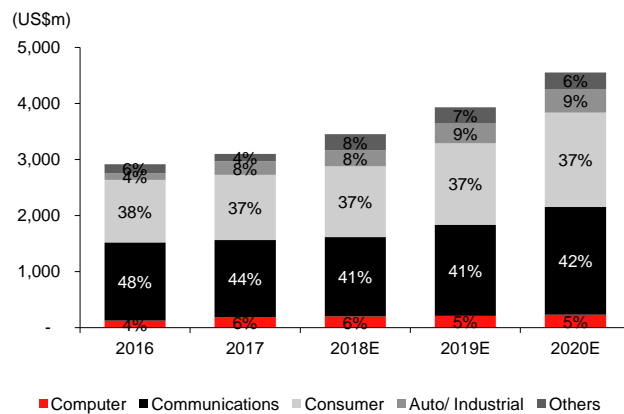
Source: Macquarie Research, June 2018

Fig 8 Revenue mix by technology nodes



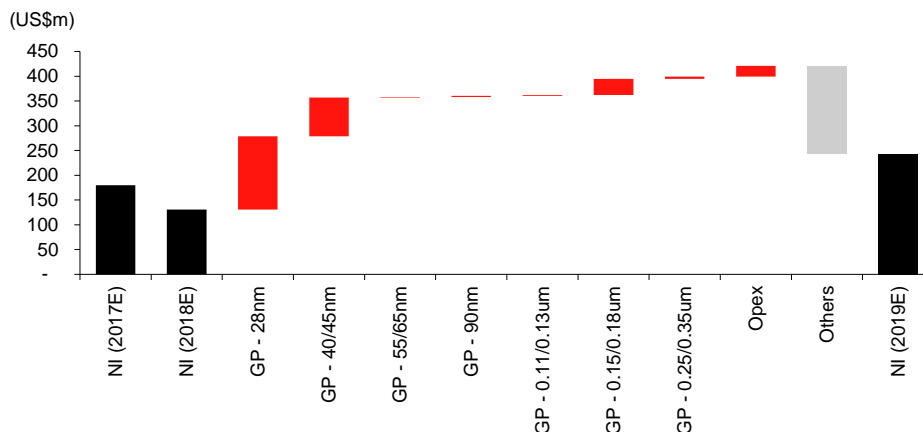
Source: Company data, Macquarie Research, June 2018

Fig 9 Revenue mix by applications



Source: Company data, Macquarie Research, June 2018

Fig 10 2019E waterfall chart



Source: Company data, Macquarie Research, June 2018

Fig 11 SMIC quarterly P&amp;L

(US\$m)	1Q17	2Q17	3Q17	4Q17	1Q18	2Q18E	3Q18E	4Q18E	2016	2017	2018E	2019E	2020E
Net Sales	793	751	770	787	831	872	865	883	2,914	3,101	3,450	3,931	4,552
Gross profit	221	194	177	148	220	178	149	154	850	741	701	822	985
Op income	77	22	23	3	42	27	10	10	339	125	89	232	333
Pretax income	65	36	30	(3)	43	29	28	12	310	128	112	248	344
Net income	70	36	26	48	29	37	33	32	377	180	131	243	337
EPS (US¢)	1.50	0.78	0.56	1.01	0.60	0.76	0.66	0.64	8.91	3.85	2.66	4.94	6.83
<b>Profitability</b>													
Gross Margin	27.8%	25.8%	23.0%	18.9%	26.5%	20.5%	17.3%	17.4%	29.2%	23.9%	20.3%	20.9%	21.6%
Operating Margin	9.8%	2.9%	2.9%	0.4%	5.1%	3.1%	1.1%	1.2%	11.6%	4.0%	2.6%	5.9%	7.3%
Pretax Margin	8.2%	4.8%	3.9%	-0.4%	5.2%	3.3%	3.3%	1.4%	10.6%	4.1%	3.2%	6.3%	7.5%
Net Margin	8.8%	4.8%	3.4%	6.1%	3.5%	4.3%	3.8%	3.6%	12.9%	5.8%	3.8%	6.2%	7.4%
<b>Sequential growth</b>													
Net Sales	-3%	-5%	2%	2%	6%	5%	-1%	2%	30%	6%	11%	14%	16%
Gross profit	-10%	-12%	-9%	-16%	48%	-19%	-16%	3%	24%	-13%	-5%	17%	20%
Op income	58%	-72%	5%	-86%	1232%	-36%	-64%	9%	53%	-63%	-29%	160%	44%
Pretax income	31%	-44%	-17%	nm	nm	-33%	-2%	-58%	34%	-59%	-13%	122%	38%
Net income	-33%	-48%	-29%	84%	-38%	27%	-12%	-3%	49%	-52%	-27%	86%	38%
<b>Key assumption</b>													
Capacity (k)	1,265	1,315	1,344	1,328	1,343	1,384	1,415	1,415	4,316	5,252	5,558	5,974	6,631
Utilization	92%	86%	84%	86%	88%	87%	86%	88%	92%	82%	85%	92%	94%
Shipment (k)	1,096	1,014	1,076	1,125	1,084	1,205	1,221	1,241	3,958	4,311	4,749	5,483	6,264
ASP (US\$)	724	741	715	700	668	690	708	712	736	719	695	717	727

Source: Company data, Macquarie Research, June 2018

Fig 12 SMIC balance sheet

US\$m	2014	2015	2016	2017	2018E	2019E	2020E
Cash & equivalents	841	1,308	2,464	2,174	993	629	801
Receivables	456	500	646	616	774	811	827
Inventory	316	387	464	623	787	800	846
Other current assets	685	395	59	718	60	70	81
<b>Total current assets</b>	<b>2,298</b>	<b>2,590</b>	<b>3,684</b>	<b>4,169</b>	<b>3,276</b>	<b>2,579</b>	<b>2,755</b>
Fixed assets	3,130	3,904	5,687	6,523	7,953	9,358	10,680
LT investments	0	0	0	0	10	24	40
Other non-current assets	341	621	744	1,226	1,181	1,181	1,181
<b>Total non-current assets</b>	<b>3,471</b>	<b>4,525</b>	<b>6,432</b>	<b>7,749</b>	<b>9,144</b>	<b>10,564</b>	<b>11,901</b>
<b>Total assets</b>	<b>5,769</b>	<b>7,115</b>	<b>10,115</b>	<b>11,918</b>	<b>12,421</b>	<b>13,143</b>	<b>14,655</b>
Short term debt	162	113	687	467	546	719	1,463
Payables	794	1,048	941	1,050	1,245	1,482	1,842
Other current liabilities	194	214	353	390	418	487	558
<b>Total current liabilities</b>	<b>1,150</b>	<b>1,375</b>	<b>1,981</b>	<b>1,907</b>	<b>2,209</b>	<b>2,688</b>	<b>3,863</b>
Long term debt	1,127	1,302	2,124	2,644	2,645	2,645	2,645
Other liabilities	184	249	607	646	676	676	676
<b>Total LT liabilities</b>	<b>1,311</b>	<b>1,551</b>	<b>2,731</b>	<b>3,290</b>	<b>3,321</b>	<b>3,321</b>	<b>3,321</b>
<b>Total liabilities</b>	<b>2,462</b>	<b>2,925</b>	<b>4,712</b>	<b>5,197</b>	<b>5,530</b>	<b>6,009</b>	<b>7,184</b>
Common stocks	2,948	3,730	4,151	5,169	5,339	5,583	5,920
Minority equity	359	460	1,253	1,552	1,551	1,551	1,551
<b>Total equity</b>	<b>3,308</b>	<b>4,190</b>	<b>5,403</b>	<b>6,721</b>	<b>6,891</b>	<b>7,134</b>	<b>7,471</b>
<b>Total liabilities and equity</b>	<b>5,769</b>	<b>7,115</b>	<b>10,115</b>	<b>11,918</b>	<b>12,421</b>	<b>13,143</b>	<b>14,655</b>

Source: Company data, Macquarie Research, June 2018

Fig 13 SMIC cash flow

US\$ m	2014	2015	2016	2017	2018E	2019E	2020E
Net profit	153	253	377	180	131	243	337
Depreciation & Amortization	549	524	730	963	1107	1369	1621
Associate share of (profits)/ loss	0	0	-51	13	-624	392	69
Change in net working capital	-64	448	146	-642	558	247	359
Others	0	0	0	0	0	0	0
<b>Total operating cash flow</b>	<b>639</b>	<b>1,225</b>	<b>1,201</b>	<b>514</b>	<b>1,172</b>	<b>2,251</b>	<b>2,387</b>
Capex	-653	-1494	-2695	-2459	-2300	-2400	-2500
(Purchase) Sale of ST investment	0	0	0	0	-10	-14	-16
(Purchase) Sale of LT investment	-407	-84	59	178	-192	-374	-443
Others	0	0	0	0	0	0	0
<b>Total investment cash flow</b>	<b>-1060</b>	<b>-1578</b>	<b>-2636</b>	<b>-2281</b>	<b>-2502</b>	<b>-2788</b>	<b>-2958</b>
Increase (decrease) in debt	117	126	1,396	300	81	173	744
Cash dividends	0	0	0	0	0	0	0
Change in share capital	0	0	0	0	0	0	0
Others	562	725	1,255	1,231	110	0	0
<b>Total financing cash flow</b>	<b>680</b>	<b>850</b>	<b>2,651</b>	<b>1,530</b>	<b>191</b>	<b>173</b>	<b>744</b>
Net cash flow	258	498	1,216	-236	-1,139	-364	172
FX change	0	0	0	0	0	0	0
<b>Net cash flow after FX change</b>	<b>258</b>	<b>498</b>	<b>1,216</b>	<b>-236</b>	<b>-1,139</b>	<b>-364</b>	<b>172</b>

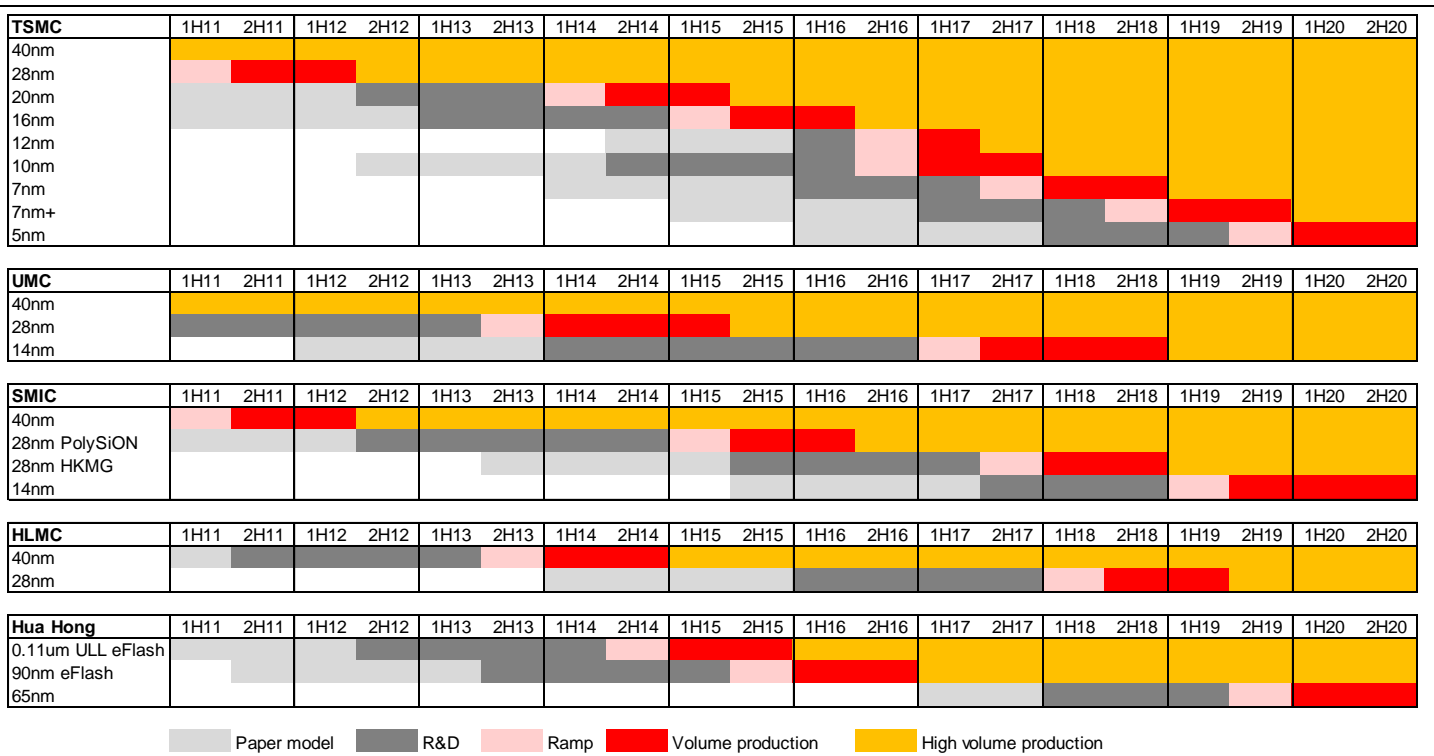
Source: Company data, Macquarie Research, June 2018

Fig 14 SMIC key financial ratios

US\$ m	2014	2015	2016	2017	2018E	2019E	2020E
Revenue	1,970	2,236	2,914	3,101	3,450	3,931	4,552
Gross profit	483	683	850	741	701	822	985
EBIT	130	222	339	125	89	232	333
EBITDA	680	746	1,069	1,088	1,196	1,600	1,954
Pretax profit	138	231	310	128	112	248	344
Net profit	153	253	377	180	131	243	337
<b>YoY (%)</b>							
Revenue	-5%	14%	30%	6%	11%	14%	16%
Gross profit	10%	41%	24%	-13%	-5%	17%	20%
Net profit	-12%	66%	49%	-52%	-27%	86%	38%
<b>Per share data (US\$)</b>							
Sales per share	0.58	0.58	0.69	0.66	0.70	0.80	0.92
EPS	0.05	0.07	0.09	0.04	0.03	0.05	0.07
BVPS	0.82	0.89	0.98	1.05	1.08	1.13	1.20
DPS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FCF PS	0.00	-0.07	-0.35	-0.42	-0.23	-0.03	-0.02
Net cash PS	-0.13	-0.03	-0.08	-0.20	-0.45	-0.55	-0.67
<b>Margin (%)</b>							
Gross margin	24.5%	30.5%	29.2%	23.9%	20.3%	20.9%	21.6%
EBIT margin	6.6%	9.9%	11.6%	4.0%	2.6%	5.9%	7.3%
EBITDA margin	34.5%	33.3%	36.7%	35.1%	34.7%	40.7%	42.9%
Pretax margin	7.0%	10.3%	10.6%	4.1%	3.2%	6.3%	7.5%
Net margin	7.8%	11.3%	12.9%	5.8%	3.8%	6.2%	7.4%
<b>Valuation multiples (x)</b>							
P/E	30.5	21.0	15.5	35.9	52.0	27.9	20.2
P/B	1.7	1.6	1.4	1.3	1.3	1.2	1.1
FCF yield	-0.3%	-5.0%	-25.6%	-30.2%	-16.6%	-2.2%	-1.7%
ROE (%)	5.6%	7.6%	9.6%	3.9%	2.5%	4.5%	5.9%
Dividend yield	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Payout ratio	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Net debt/Equity	13.5%	2.6%	6.4%	13.9%	31.9%	38.3%	44.3%

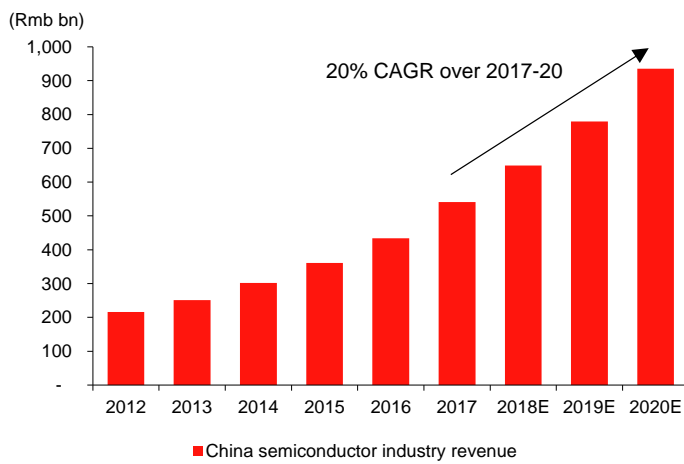
Source: Company data, Macquarie Research, June 2018

Fig 15 Foundries advanced technology development schedule



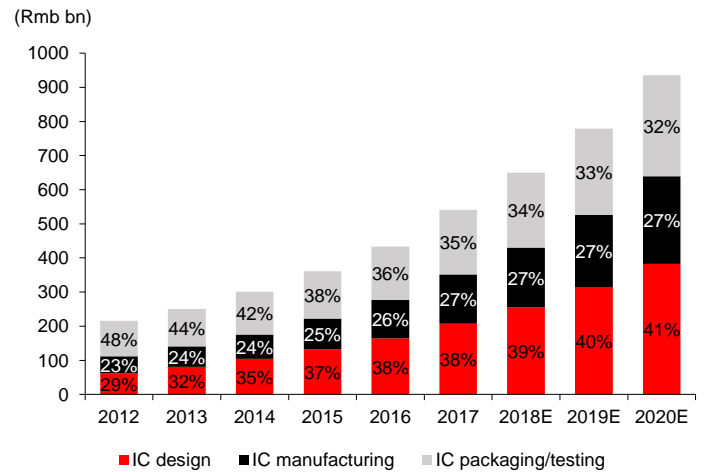
Source: Company data, Macquarie Research, June 2018

Fig 16 China semiconductor industry revenue



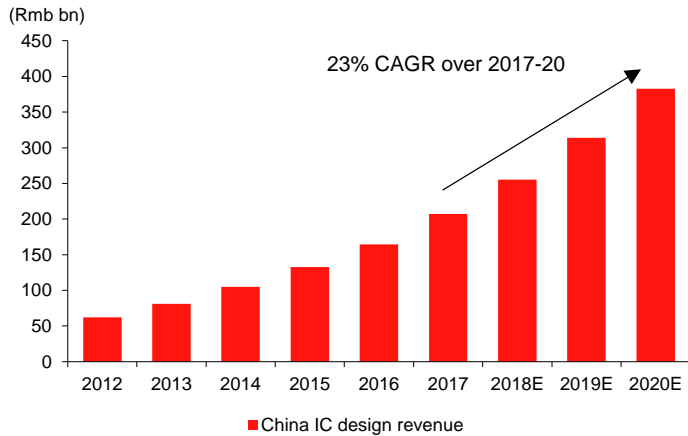
Source: CSIA, Macquarie Research, June 2018

Fig 17 China semi industry revenue by sub-segment



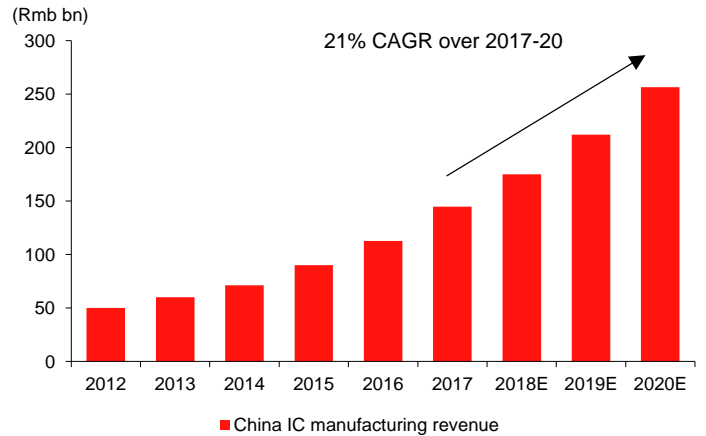
Source: CSIA, Macquarie Research, June 2018

**Fig 18 China IC design industry revenue**



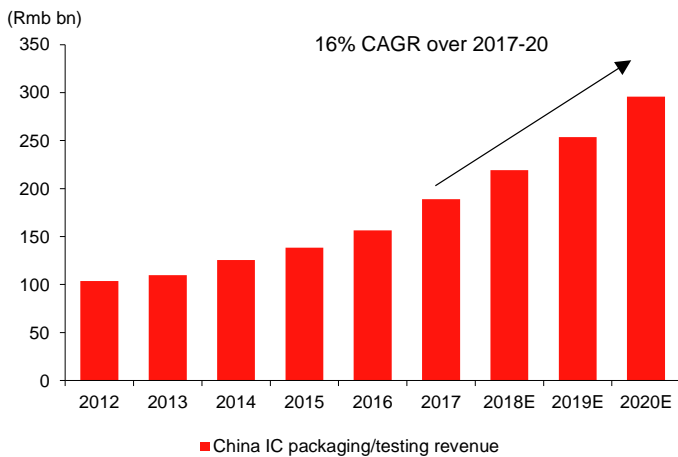
Source: CSIA, Macquarie Research, June 2018

**Fig 19 China IC manufacturing industry revenue**



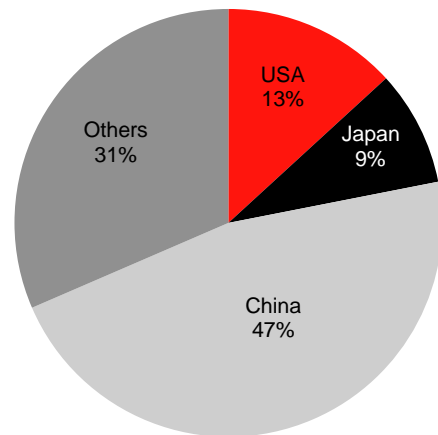
Source: CSIA, Macquarie Research, June 2018

**Fig 20 China IC packaging/testing revenue**



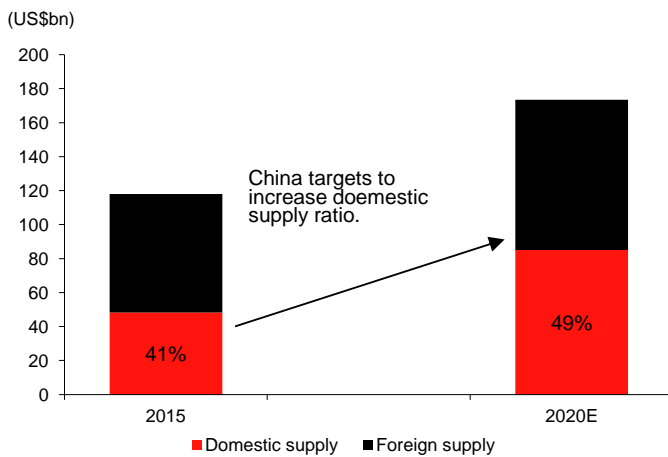
Source: CSIA, Macquarie Research, June 2018

**Fig 21 China demand at 47% in 2020E global semi market**



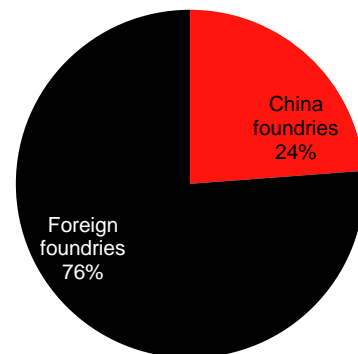
Source: SMIC, Macquarie Research, June 2018

**Fig 22 China Semiconductor market supply**



Source: State Council of PRC, Macquarie Research, June 2018

**Fig 23 China IC design foundry source in 2017**



Source: SMIC, Macquarie Research, June 2018

## Macquarie Quant View

The quant model currently holds a strong negative view on SMIC. The strongest style exposure is Quality, indicating this stock is likely to have a superior and more stable underlying earnings stream. The weakest style exposure is Valuations, indicating this stock is over-priced in the market relative to its peers.

**339/385**

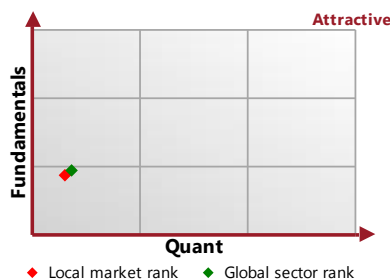
Global rank in

Semiconductors & Semiconductor Equip.

% of BUY recommendations 19% (5/26)

Number of Price Target downgrades 0

Number of Price Target upgrades 11

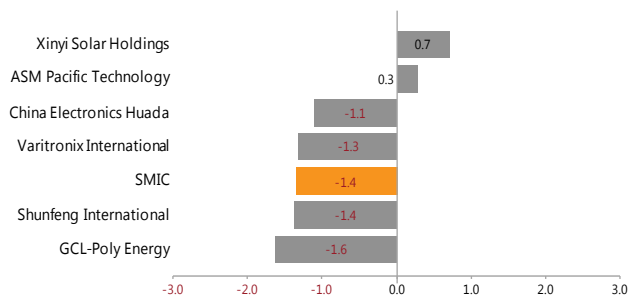


Displays where the company's ranked based on the fundamental consensus Price Target and Macquarie's Quantitative Alpha model.

Two rankings: Local market (Hong Kong) and Global sector (Semiconductors & Semiconductor Equip.)

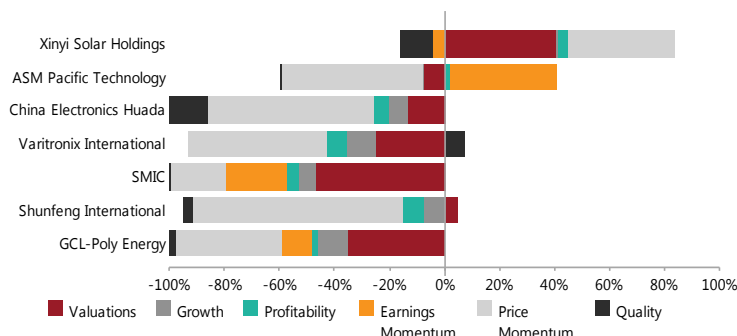
## Macquarie Alpha Model ranking

A list of comparable companies and their Macquarie Alpha model score (higher is better).



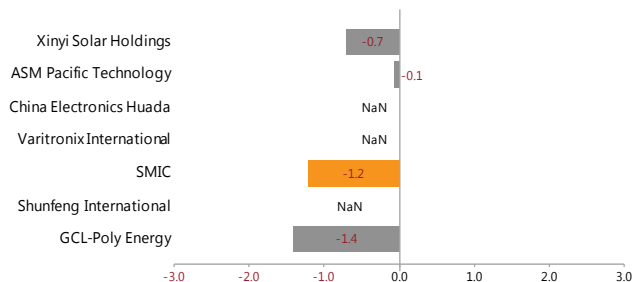
## Factors driving the Alpha Model

For the comparable firms this chart shows the key underlying styles and their contribution to the current overall Alpha score.



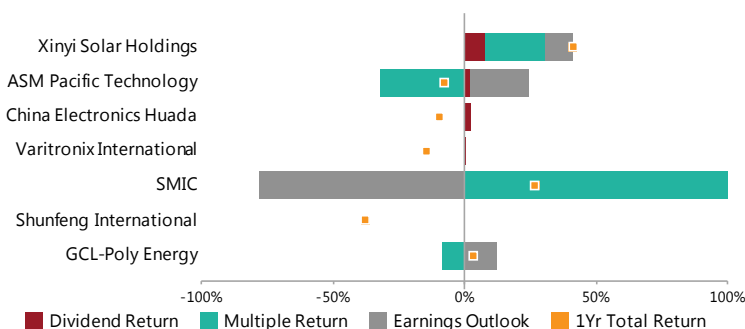
## Macquarie Earnings Sentiment Indicator

The Macquarie Sentiment Indicator is an enhanced earnings revisions signal that favours analysts who have more timely and higher conviction revisions. Current score shown below.



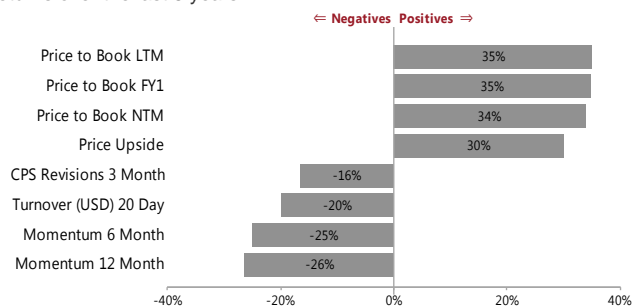
## Drivers of Stock Return

Breakdown of 1 year total return (local currency) into returns from dividends, changes in forward earnings estimates and the resulting change in earnings multiple.



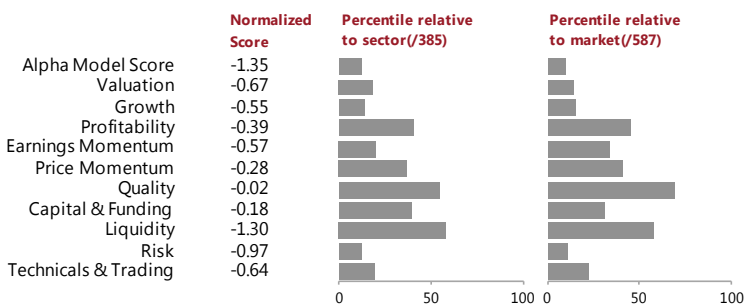
## What drove this Company in the last 5 years

Which factor score has had the greatest correlation with the company's returns over the last 5 years.



## How it looks on the Alpha model

A more granular view of the underlying style scores that drive the alpha (higher is better) and the percentile rank relative to the sector and market.



Source (all charts): FactSet, Thomson Reuters, and Macquarie Research. For more details on the Macquarie Alpha model or for more customised analysis and screens, please contact the Macquarie Global Quantitative/Custom Products Group ([cpq@macquarie.com](mailto:cpq@macquarie.com))



**SMIC (981 HK, Outperform, Target Price: HK\$20.00)**

Quarterly Results					Profit & Loss						
		1Q/18A	2Q/18E	3Q/18E	4Q/18E		2017A	2018E	2019E	2020E	
Revenue	m	831	872	865	883	Revenue	m	3,101	3,450	3,931	4,552
Gross Profit	m	220	178	149	154	Gross Profit	m	741	701	822	985
Cost of Goods Sold	m	611	693	715	729	Cost of Goods Sold	m	2,360	2,749	3,109	3,567
EBITDA	m	311	289	289	307	EBITDA	m	1,088	1,196	1,600	1,954
Depreciation	m	269	262	280	296	Depreciation	m	963	1,107	1,369	1,621
Amortisation of Goodwill	m	0	0	0	0	Amortisation of Goodwill	m	0	0	0	0
Other Amortisation	m	0	0	0	0	Other Amortisation	m	0	0	0	0
EBIT	m	42	27	10	10	EBIT	m	125	89	232	333
Net Interest Income	m	-1	-4	-5	-5	Net Interest Income	m	-14	-15	-29	-40
Associates	m	3	3	3	3	Associates	m	-4	13	14	16
Exceptionals	m	0	0	0	0	Exceptionals	m	0	0	0	0
Forex Gains / Losses	m	0	0	0	0	Forex Gains / Losses	m	0	0	0	0
Other Pre-Tax Income	m	-2	3	20	3	Other Pre-Tax Income	m	21	24	32	35
Pre-Tax Profit	m	43	29	28	12	Pre-Tax Profit	m	128	112	248	344
Tax Expense	m	-16	-7	-1	-0	Tax Expense	m	-2	-23	-5	-7
Net Profit	m	27	22	28	12	Net Profit	m	126	89	243	337
Minority Interests	m	2	15	5	20	Minority Interests	m	53	42	0	0
Reported Earnings	m	29	37	33	32	Reported Earnings	m	180	131	243	337
Adjusted Earnings	m	29	37	33	32	Adjusted Earnings	m	180	131	243	337
EPS (rep)		0.01	0.01	0.01	0.01	EPS (rep)		0.04	0.03	0.05	0.07
EPS (adj)		0.01	0.01	0.01	0.01	EPS (adj)		0.04	0.03	0.05	0.07
EPS Growth yoy (adj)	%	-60.3	-3.2	18.9	-36.4	EPS Growth (adj)	%	-56.8	-31.0	86.0	38.4
						PE (rep)	x	38.0	55.1	29.6	21.4
						PE (adj)	x	38.0	55.1	29.6	21.4
EBITDA Margin	%	37.4	33.2	33.5	34.8	Total DPS		0.00	0.00	0.00	0.00
EBIT Margin	%	5.1	3.1	1.1	1.2	Total Div Yield	%	0.0	0.0	0.0	0.0
Earnings Split	%	22.4	28.4	24.9	24.2	Basic Shares Outstanding	m	4,916	4,929	4,929	4,929
Revenue Growth	%	4.8	16.0	12.3	12.1	Diluted Shares Outstanding	m	4,668	4,929	4,929	4,929
EBIT Growth	%	-45.4	24.7	-57.8	228.2						
Profit and Loss Ratios					Cashflow Analysis						
		2017A	2018E	2019E	2020E		2017A	2018E	2019E	2020E	
Revenue Growth	%	6.4	11.2	13.9	15.8	EBITDA	m	1,088	1,196	1,600	1,954
EBITDA Growth	%	1.7	10.0	33.8	22.1	Tax Paid	m	-2	-23	-5	-7
EBIT Growth	%	-63.2	-28.6	159.6	43.7	Chgs in Working Cap	m	-642	558	247	359
Gross Profit Margin	%	23.9	20.3	20.9	21.6	Net Interest Paid	m	-14	-15	-29	-40
EBITDA Margin	%	35.1	34.7	40.7	42.9	Other	m	31	-587	438	120
EBIT Margin	%	4.0	2.6	5.9	7.3	Operating Cashflow	m	461	1,129	2,251	2,387
Net Profit Margin	%	5.8	3.8	6.2	7.4	Acquisitions	m	0	0	0	0
Payout Ratio	%	0.0	0.0	0.0	0.0	Capex	m	-2,459	-2,300	-2,400	-2,500
EV/EBITDA	x	8.3	7.5	5.6	4.6	Asset Sales	m	0	0	0	0
EV/EBIT	x	74.8	88.3	36.9	26.0	Other	m	178	-202	-388	-458
Balance Sheet Ratios						Investing Cashflow	m	-2,281	-2,502	-2,788	-2,958
ROE	%	3.9	2.5	4.5	5.9	Dividend (Ordinary)	m	0	0	0	0
ROA	%	1.1	0.7	1.8	2.4	Equity Raised	m	53	0	0	0
ROIC	%	2.1	0.9	2.5	3.3	Debt Movements	m	300	81	173	744
Net Debt/Equity	%	13.9	31.9	38.3	44.3	Other	m	1,178	110	0	0
Interest Cover	x	9.0	6.1	7.9	8.4	Financing Cashflow	m	1,530	191	173	744
Price/Book	x	1.4	1.4	1.3	1.2	Net Chg in Cash/Debt	m	-289	-1,182	-364	172
Book Value per Share		1.1	1.1	1.1	1.2	Free Cashflow	m	-1,997	-1,171	-149	-113
						Balance Sheet		2017A	2018E	2019E	2020E
						Cash	m	2,174	993	629	801
						Receivables	m	616	774	811	827
						Inventories	m	623	787	800	846
						Investments	m	37	672	294	240
						Fixed Assets	m	6,523	7,953	9,358	10,680
						Intangibles	m	0	0	0	0
						Other Assets	m	1,944	1,242	1,251	1,262
						Total Assets	m	11,918	12,421	13,143	14,655
						Payables	m	1,050	1,245	1,482	1,842
						Short Term Debt	m	467	546	719	1,463
						Long Term Debt	m	2,644	2,645	2,645	2,645
						Provisions	m	0	0	0	0
						Other Liabilities	m	1,036	1,094	1,163	1,234
						Total Liabilities	m	5,197	5,530	6,009	7,184
						Shareholders' Funds	m	341	498	742	1,078
						Minority Interests	m	1,552	1,551	1,551	1,551
						Other	m	4,828	4,841	4,841	4,841
						Total S/H Equity	m	6,721	6,891	7,134	7,471
						Total Liab & S/H Funds	m	11,918	12,421	13,143	14,655

All figures in USD unless noted.

Source: Company data, Macquarie Research, June 2018

## Important disclosures:

## Recommendation definitions

**Macquarie - Australia/New Zealand**

Outperform – return >3% in excess of benchmark return  
 Neutral – return within 3% of benchmark return  
 Underperform – return >3% below benchmark return

Benchmark return is determined by long term nominal GDP growth plus 12 month forward market dividend yield

**Macquarie – Asia/Europe**

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

**Macquarie – South Africa**

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

**Macquarie - Canada**

Outperform – return >5% in excess of benchmark return  
 Neutral – return within 5% of benchmark return  
 Underperform – return >5% below benchmark return

**Macquarie - USA**

Outperform (Buy) – return >5% in excess of Russell 3000 index return  
 Neutral (Hold) – return within 5% of Russell 3000 index return  
 Underperform (Sell) – return >5% below Russell 3000 index return

## 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 Asia/Australian/NZ/Canada stocks only

**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 / epowa\*

**ROA** = adjusted ebit / average total assets

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

**ROE** = adjusted net profit / average shareholders funds

**Gross cashflow** = adjusted net profit + depreciation

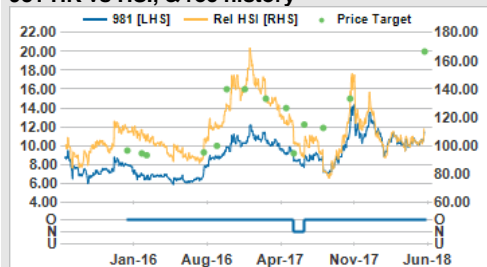
\*equivalent fully paid ordinary weighted average number of shares

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

## Recommendation proportions – For quarter ending 31 March 2018

	AU/NZ	Asia	RSA	USA	CA	EUR	
Outperform	54.38%	58.90%	48.35%	43.91%	69.03%	45.26%	(for global coverage by Macquarie, 3.69% of stocks followed are investment banking clients)
Neutral	32.48%	27.88%	34.07%	48.73%	21.29%	38.95%	(for global coverage by Macquarie, 3.07% of stocks followed are investment banking clients)
Underperform	13.14%	13.21%	17.58%	7.37%	9.68%	15.79%	(for global coverage by Macquarie, 0.39% of stocks followed are investment banking clients)

## 981 HK vs HSI, &amp; rec history



(all figures in HKD 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, June 2018

## 12-month target price methodology

981 HK: HK\$20.00 based on a Price to Book methodology

## Company-specific disclosures:

**981 HK:** Macquarie Capital Limited makes a market in the securities of Semiconductor Manufacturing International Corp.

Important disclosure information regarding the subject companies covered in this report is available at [www.macquarie.com/research/disclosures](http://www.macquarie.com/research/disclosures).

Date	Stock Code (BVG code)	Recommendation	Target Price
31-Oct-2017	981 HK	Outperform	HK\$15.00
10-Aug-2017	981 HK	Outperform	HK\$11.90
13-Jun-2017	981 HK	Outperform	HK\$12.25
12-May-2017	981 HK	Neutral	HK\$9.20
19-Apr-2017	981 HK	Outperform	HK\$14.00
16-Feb-2017	981 HK	Outperform	HK\$15.00
14-Dec-2016	981 HK	Outperform	HK\$16.00
20-Oct-2016	981 HK	Outperform	HK\$16.00
20-Sep-2016	981 HK	Outperform	HK\$10.00
11-Aug-2016	981 HK	Outperform	HK\$9.30
19-Feb-2016	981 HK	Outperform	HK\$9.00
04-Feb-2016	981 HK	Outperform	HK\$9.20
22-Dec-2015	981 HK	Outperform	HK\$9.50

## Target price risk disclosures:

**981 HK:** 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 Markets Canada Ltd; 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; Macquarie Equities South Africa (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 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 organisation of the Australian Securities Exchange. **New Zealand:** In New Zealand, research is issued and distributed by Macquarie Securities (NZ) Ltd, a NZX Firm. **Canada:** In Canada, research is prepared, approved and distributed by Macquarie Capital Markets Canada Ltd., a (i) member of the Investment Industry Regulatory Organization of Canada and the Canadian Investor Protection Fund, and (ii) participating organisation of the Toronto Stock Exchange, TSX Venture Exchange & Montréal Exchange. This research is distributed in the United States, as third party research by Macquarie Capital Markets North America Ltd., which is a registered broker-dealer and member of Financial Industry Regulatory Authority and the Securities Investor Protection Corporation. Macquarie Capital Markets North America Ltd. accepts responsibility for the contents of reports issued by Macquarie Capital Markets Canada Ltd. in the United States and sent to US persons. Any US person wishing to effect transactions in the securities described in the reports issued by Macquarie Capital Markets Canada Ltd. should do so with Macquarie Capital Markets North America Ltd. This research is intended for distribution in the United States only to major Institutional Investors (as such term is defined in SEC 15a-6 and Section 15 of the Securities Exchange Act of 1934, as amended) and is not intended for the use of any person or entity that is not a major institutional investor. Research analysts of Macquarie Capital Markets Canada Ltd. are not registered/qualified as research analysts with FINRA. The Research Distribution Policy of Macquarie Capital Markets Canada Ltd. is to allow all clients that are entitled to have equal access to our research. **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 (Europe) Limited, Niederlassung Deutschland, which is authorised and regulated by the UK Financial Conduct Authority (No. 193905). and in Germany by BaFin. **France:** In France, research is issued and distributed by Macquarie Capital (Europe) Ltd, which is authorised and regulated in the United Kingdom by the Financial Conduct Authority (No. 193905). **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.thai-iod.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 Macquarie Equities South Africa (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, Macquarie Capital Markets Canada Ltd, Macquarie Equities South Africa (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](http://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

## Equities

## Asia Research

## Head of Equity Research

Jake Lynch (Asia – Head)	(852) 3922 3583
David Gibson (Japan – Head)	(813) 3512 7880
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)	(813) 3512 7476
Amit Mishra (India)	(9122) 6720 4084

## Banks and Financials

Scott Russell (Asia)	(852) 3922 3567
Dexter Hsu (China, Taiwan)	(8862) 2734 7530
Keisuke Moriyama (Japan)	(813) 3512 7476
Chan Hwang (Korea)	(822) 3705 8643
Suresh Ganapathy (India)	(9122) 6720 4078
Jayden Vantarakis (Indonesia)	(6221) 2598 8310
Anand Pathmakanthan (Malaysia)	(603) 2059 8833
Gilbert Lopez (Philippines)	(632) 857 0892
Ken Ang (Singapore)	(65) 6601 0836

## Basic Materials

Polina Diyachkina (Asia, 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
Farrah Aqlima (Malaysia)	(603) 2059 8987

## Conglomerates

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

## Consumer, Gaming

Linda Huang (Asia)	(852) 3922 4068
Zibo Chen (China, Hong Kong)	(852) 3922 1130
Terence Chang (China, Hong Kong)	(852) 3922 3581
Sunny Chow (China, Hong Kong)	(852) 3922 3768
Stella Li (China, Taiwan)	(8862) 2734 7514
Leon Rapp (Japan)	(813) 3512 7879
Kwang Cho (Korea)	(822) 3705 4953
Amit Sinha (India)	(9122) 6720 4085
Karisa Magpayo (Philippines)	(632) 857 0899
Chaline Congmuang (Thailand)	(662) 694 7993
Robert Pranata (Indonesia)	(6221) 2598 8366
Richardo Walujo (Indonesia)	(6221) 2598 8369
Denise Soon (Malaysia)	(603) 2059 8845

## Emerging Leaders

Jake Lynch (Asia)	(852) 3922 3583
Kwang Cho (Korea)	(822) 3705 4953
Corinne Jian (Greater China)	(8862) 2734 7522
Conrad Werner (ASEAN)	(65) 6601 0182
Bo Denworlak (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
Inderjeetsingh Bhatia (India)	(9122) 6720 4087
Azita Nazrene (ASEAN)	(65) 6601 0560

## Internet, Media and Software

Wendy Huang (Asia)	(852) 3922 3378
Marcus Yang (Greater China)	(8862) 2734 7532
David Gibson (Japan)	(813) 3512 7880
Soyun Shin (Korea)	(822) 3705 8659
Alankar Garude (India)	(9122) 6720 4134

## Oil, Gas and Petrochemicals

Aditya Suresh (Asia)	(852) 3922 1265
Anna Park (Asia)	(822) 3705 8669
Polina Diyachkina (Japan)	(813) 3512 7886
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

Corinne Jian (China)	(8862) 2734 7522
Alankar Garude (India)	(9122) 6720 4134
Richardo Walujo (Indonesia)	(6221) 259 88 369

## Property, REIT

Tuck Yin Soong (Asia, Singapore)	(65) 6601 0838
David Ng (China, Hong Kong)	(852) 3922 1291
Kelvin Tam (China)	(852) 3922 1181
Catherine Li (Hong Kong)	(852) 3922 1161
Keisuke Moriyama (Japan)	(813) 3512 7476
Tomoyoshi Omuro (Japan)	(813) 3512 7474
Abhishek Bhandari (India)	(9122) 6720 4088
Aiman Mohamad (Malaysia)	(603) 2059 8986
Kervin Sisayan (Philippines)	(632) 857 0893
Roy Chen (Singapore)	(65) 6601 0760

## Technology

Damian Thong (Asia, Japan)	(813) 3512 7877
Allen Chang (Greater China)	(852) 3922 1136
Jeffrey Ohlweiler (Greater China)	(8862) 2734 7512
Chris Yu (Greater China)	(8621) 2412 9024
Kaylin Tsai (Greater China)	(8862) 2734 7523
Lynn Luo (Greater China)	(8862) 2734 7534
Patrick Liao (Greater China)	(8862) 2734 7515
Verena Sisayan (Greater China)	(852) 3922 3766
Daniel Kim (Korea)	(822) 3705 8641
Abhishek Bhandari (India)	(9122) 6720 4088
Farrah Aqlima (Malaysia)	(603) 2059 8987

## Telecoms

Allen Chang (Greater China)	(852) 3922 1136
Soyun Shin (Korea)	(822) 3705 8659
Prem Jearajasingam (ASEAN)	(603) 2059 8989
Kervin Sisayan (Philippines)	(632) 857 0893
Nathania Nurhalim (Indonesia)	(6221) 2598 8365

## Utilities, Renewables

Hiroyuki Sakaida (Japan)	(813) 3512 6695
Patrick Dai (China)	(8621) 2412 9082
Inderjeetsingh Bhatia (India)	(9122) 6720 4087
Karisa Magpayo (Philippines)	(632) 857 0899

## Quantitative, CPG

Gurvinder Brar (Global)	(44 20) 3037 4036
John Conomos (Asia)	(612) 8232 5157
Alvin Chao (Asia)	(852) 3922 1108
Tracy Chow (Asia)	(852) 3922 4285
YingYing Hou (Asia)	(852) 3922 5422

## Strategy, Country

Viktor Shvets (Asia, Global)	(852) 3922 3883
David Ng (China, Hong Kong)	(852) 3922 1291
David Gibson (Japan)	(813) 3512 7880
Chan Hwang (Korea)	(822) 3705 8643
Jeffrey Ohlweiler (Taiwan)	(8862) 2734 7512
Inderjeetsingh Bhatia (India)	(9122) 6720 4087
Jayden Vantarakis (Indonesia)	(6221) 2598 8310
Anand Pathmakanthan (Malaysia)	(603) 2059 8833
Gilbert Lopez (Philippines)	(632) 857 0892
Conrad Werner (ASEAN, Singapore)	(65) 6601 0182

## Find our research at

Macquarie:	<a href="http://www.macquarieresearch.com">www.macquarieresearch.com</a>
Thomson:	<a href="http://www.thomson.com/financial">www.thomson.com/financial</a>
Reuters:	<a href="http://www.knowledge.reuters.com">www.knowledge.reuters.com</a>
Bloomberg:	MAC GO
Factset:	<a href="http://www.factset.com/home.aspx">http://www.factset.com/home.aspx</a>
CapitalIQ:	<a href="http://www.capitaliq.com">www.capitaliq.com</a>
Email:	<a href="mailto:macresearch@macquarie.com">macresearch@macquarie.com</a> for access

## Asia Sales

## Regional Heads of Sales

Miki Edelman (Global)	(1 212) 231 6121
Amelia Mehta (Asia)	(65) 6601 0211
Jeff Evans (Boston)	(1 617) 598 2508
Jeffrey Shiu (China, Hong Kong)	(852) 3922 2061
Sandeep Bhatia (India)	(9122) 6720 4101
Thomas Renz (Geneva)	(41 22) 818 7712
Tomohiro Takahashi (Japan)	(813) 3512 7823
John Jay Lee (Korea)	(822) 3705 9988
Nik Hadi (Malaysia)	(603) 2059 8888
Gino C Rojas (Philippines)	(632) 857 0861

## Regional Heads of Sales cont'd

Paul Colaco (San Francisco)	(1 415) 762 5003
Angus Kent (Thailand)	(662) 694 7601
Ben Musgrave (UK/Europe)	(44 20) 3037 4882
Christina Lee (UK/Europe)	(44 20) 3037 4873

## Sales Trading

Adam Zaki (Asia)	(852) 3922 2002
Stanley Dunda (Indonesia)	(6221) 515 1555

## Sales Trading cont'd

Suhaida Samsudin (Malaysia)	(603) 2059 8888
Michael Santos (Philippines)	(632) 857 0813
Chris Reale (New York)	(1 212) 231 2555
Marc Rosa (New York)	(1 212) 231 2555
Justin Morrison (Singapore)	(65) 6601 0288
Daniel Clarke (Taiwan)	(8862) 2734 7580
Brendan Rake (Thailand)	(662) 694 7707
Mike Keen (UK/Europe)	(44 20) 3037 4905