Elite Material Co., Ltd.

Global leading provider of eco-friendly laminates

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Market position of the company

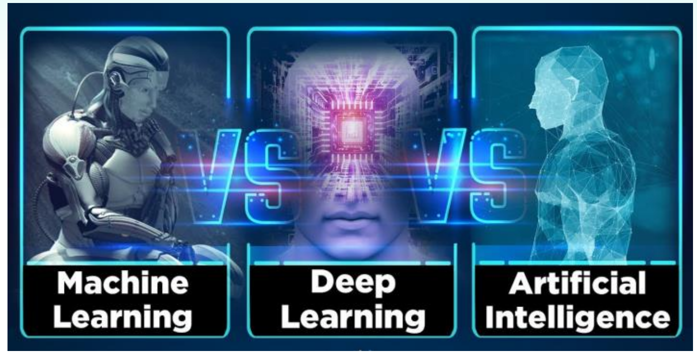
Global No. 1 provider of:

- Halogen-free laminates
- Laminates for HDI (high-density interconnect) PCB
- Laminates for smartphones

HDI growth remains on the upward trend

- **Proliferation of HDI PCB applications**
- **Material upgrade raises the laminate dollar content per square inch**

Proliferation of HDI PCB applications - Devices



Smartphones

SSD & Memory modules

Ultra thin Laptops & tablets

Gaming

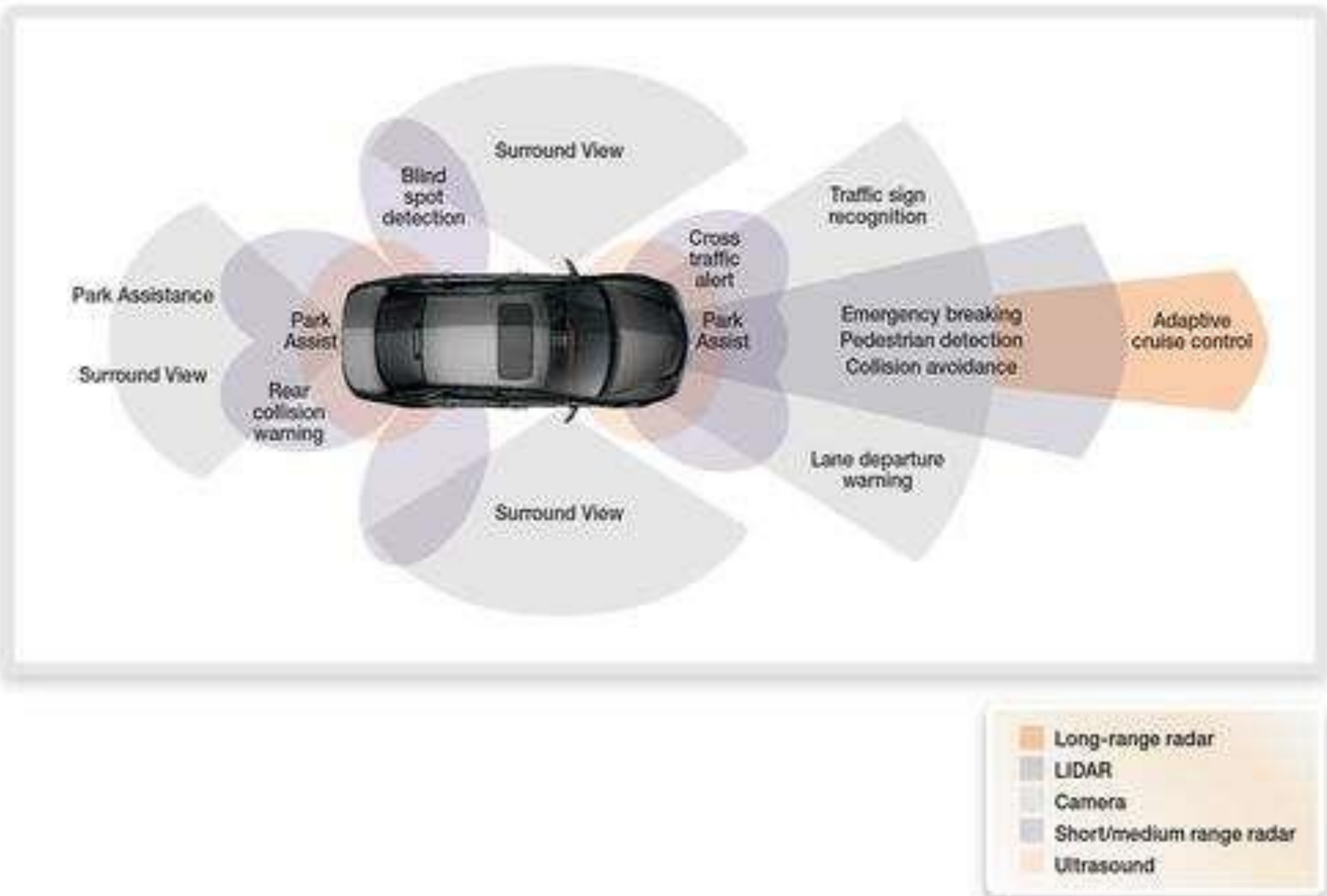
AR/VR

Smart Speakers

Drones

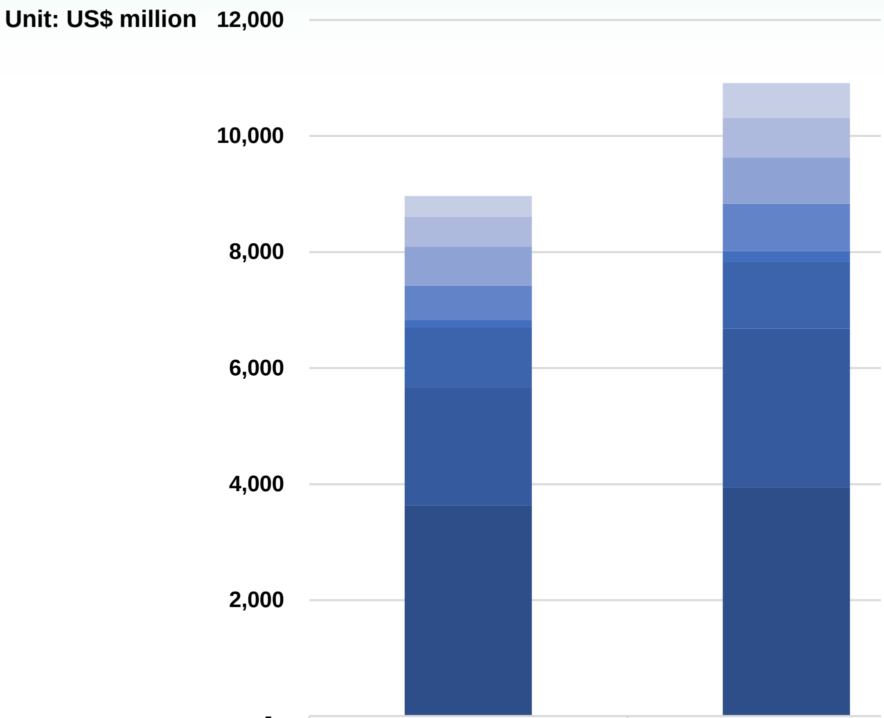
Wearables

Proliferation of HDI PCB applications - Automotive



- **ADAS**
  - Camera system
  - Vision
  - Radar
  - Position sensing
  - Safety and chassis
- **Telematics**
  - Navigation system
  - GPS
  - Driver recorder
  - Connectivity – USB, HDMI
- **Infotainment**
  - Movie/Game systems
  - On-line music / video
  - WiFi / Bluetooth
  - Communication

Multiple factors drive the growth of HDI



	2017	2022F
Others (Module, SiP, Wearables, etc.)	357	603
Automotive	515	683
Datacom and Telecom Infrastructure	678	794
Portable Consumer	587	816
DRAM & SSD	126	183
Tablet, NB and PC	1,034	1,154
Mobile Phones - Anylayer	2,042	2,739
Mobile Phones - HDI regular	3,629	3,942

Source: Prismark

- **CAGR of overall HDI growth is forecast to be 4.0% from 2017 to 2022.**
- **Any-layer HDI consumed by mobile phones is predicted to have a CAGR of 6.05% during the forecast period.**
  - Implication: Laminate $ content rises, though the total number of smartphone units is considered to be stagnant.
- **SSD & DRAM would have the highest CAGR of 7.75%.**
  - Implication 1: the decline in NAND Flash price, and in turn lowering the SSD price, accelerates the adoption rate of SSD.
  - Implication 2: Heterogeneous integration of semiconductor, such as SSD +MLC/TLC, requires finer pinch; therefore, HDI design is preferred.
- **Increasing electronic content of automotive vehicles, e.g. ADAS, telematics, and infotainment systems, leads to HDI growth, projected to have a CAGR of 5.81%.**
- **PCBs in datacom & telecom infrastructure, and portable consumers, e.g. AR/VR, also begin to adopt HDI design.**

Near-term controversial opinions

<u>About High Speed laminates:</u>

- **Growth of capex of cloud service provider is decelerating.**
- **The finalization of global 5G standard is postponed.**

Capex of cloud service provider is decelerating

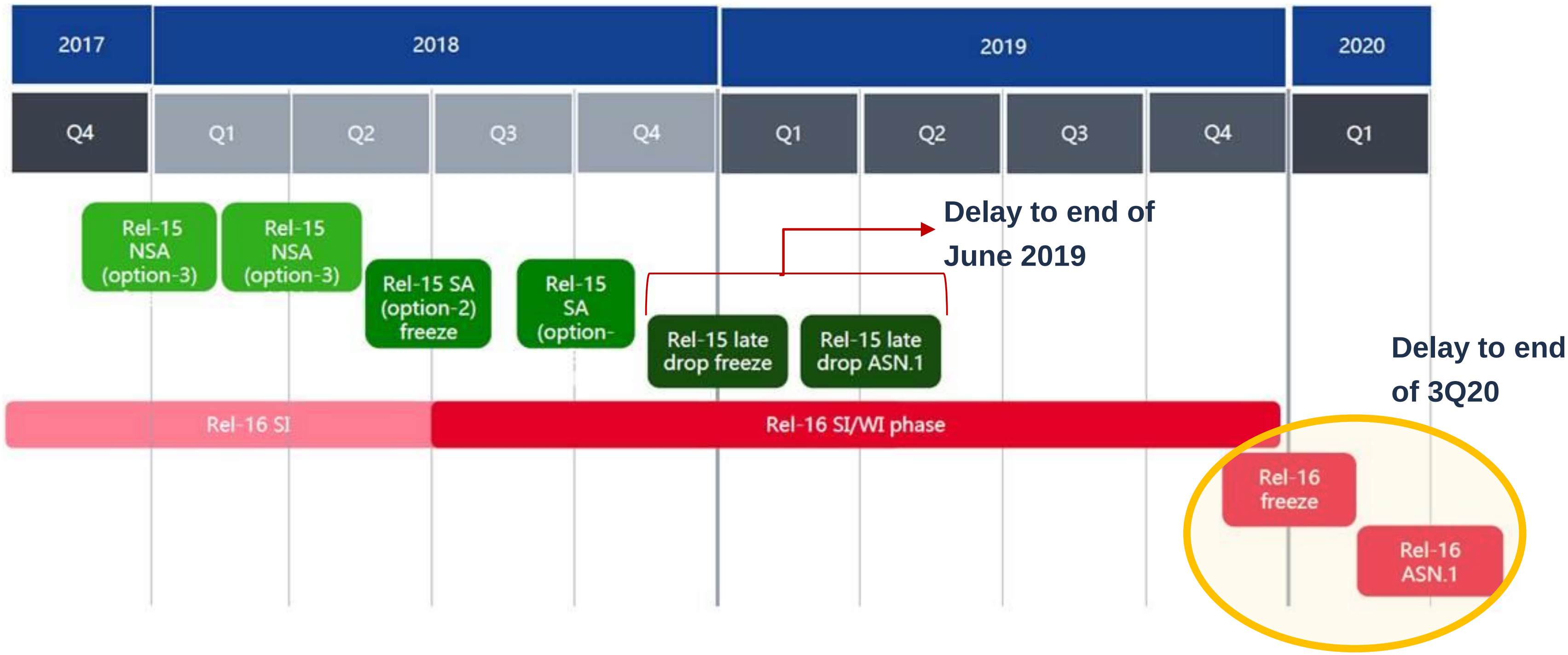
Company	Capex (million US Dollars)						YoY Growth rate (%)				
	2015	2016	2017	2018F	2019F	2020F	2016	2017	2018F	2019F	2020F
Google	9,950	10,212	13,184	22,571	22,489	24,922	2.6	29.1	71.2	(0.4)	10.8
Apple	11,670	12,665	12,527	13,767	14,890	15,099	8.5	(1.1)	9.9	8.2	1.4
Facebook	2,523	4,491	6,733	14,420	18,195	20,082	78.0	49.9	114.2	26.2	10.4
Amazon	5,387	7,804	11,955	13,104	15,679	18,179	44.9	53.2	9.6	19.6	15.9
Microsoft	7,142	8,247	9,895	12,961	15,002	16,984	15.5	20.0	31.0	15.7	13.2
IBM	3,579	3,567	3,229	3,729	3,520	3,579	(0.3)	(9.5)	15.5	(5.6)	1.7
Oracle	1,271	1,679	1,854	1,740	1,778	1,869	32.1	10.4	(6.1)	2.2	5.1
Paypal	722	669	667	791	890	1,026	(7.3)	(0.3)	18.6	12.5	15.3
eBay	668	626	666	730	775	828	(6.4)	6.5	9.6	6.2	6.8
Salesforce	674	485	528	614	729	848	(28.2)	9.0	16.3	18.7	16.3
Twitter	347	219	161	489	422	449	(37.0)	(26.3)	203.7	(13.7)	6.4
Alibaba	1,588	2,390	4,041	5,814	7,795	9,647	50.5	69.1	43.9	34.1	23.8
Tencent	1,350	1,492	1,801	3,591	4,914	5,916	10.5	20.7	99.4	36.8	20.4
Baidu	832	631	708	919	1,007	1,061	(24.2)	12.1	29.9	9.6	5.4
Total	**47,705**	**55,174**	**67,948**	**95,241**	**108,084**	**120,489**	**15.7**	**23.2**	**40.2**	**13.5**	**11.5**
Top-5 US	36,672	43,418	54,294	76,824	86,254	95,266	18.4	25.0	41.5	12.3	10.4
BAT	3,771	4,513	6,549	10,324	13,716	16,624	19.7	45.1	57.7	32.9	21.2

Source: Bloomberg

The finalization of global 5G standard is postponed

- On 16th December 2018, Balazs Berftenyi, Chairman of 3GPP announced that the finalization of Release-15 late drop will be postponed for three months.

3GPP standardization timeline

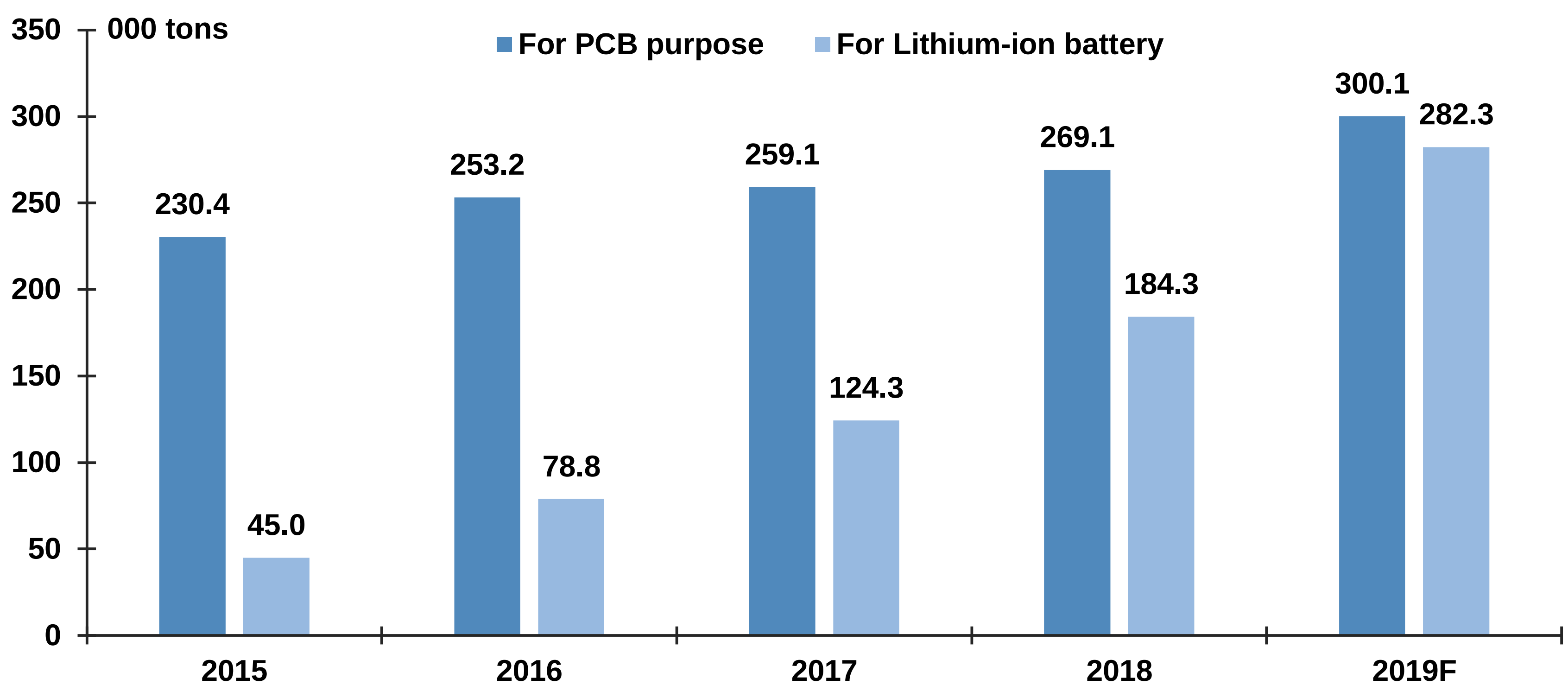


Source: 3GPP website; www.3GPP.org

Cost pressure is expected to be relieved

- Capacity of copper foils consumed by PCBs is forecast to increase by 11.5% YoY, from 269,100 tons in 2018 to 300,100 tons in 2019.
- Processing fee of copper foil manufacturers is expected to remain flat or even trend down.

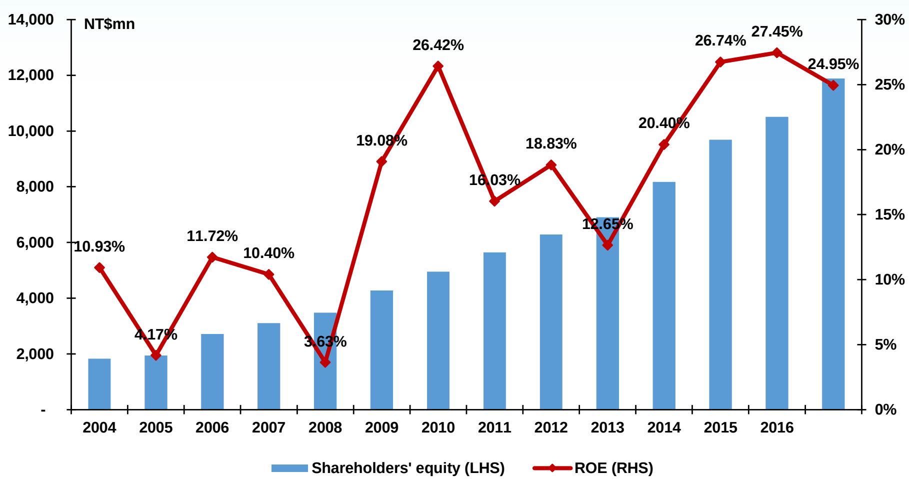
Capacity of copper foils



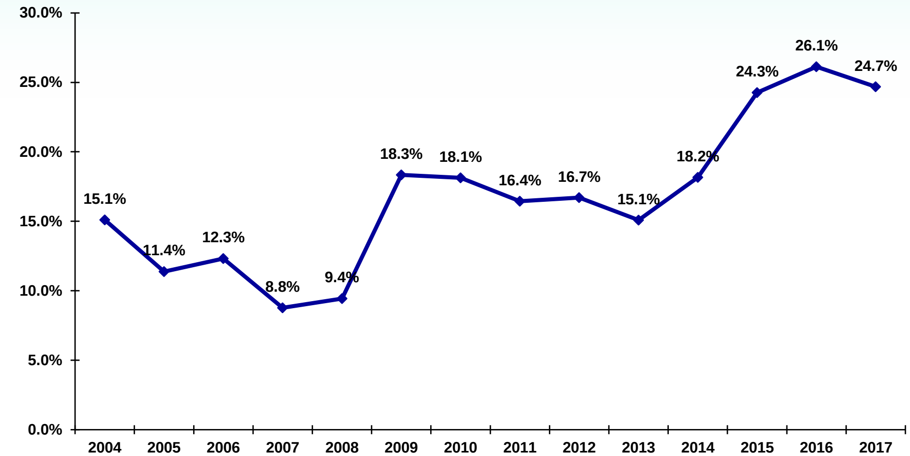
Source: TPCA (Taiwan Printed Circuit Association)

Operating and financial results

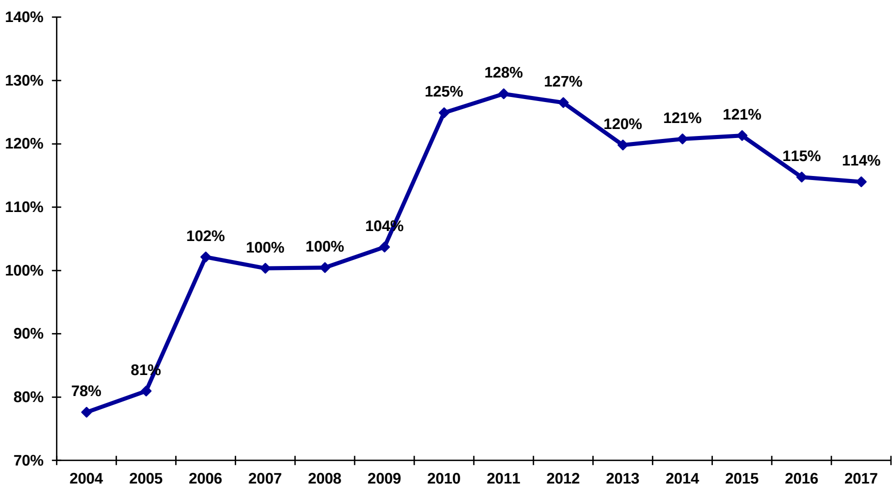
ROE trend



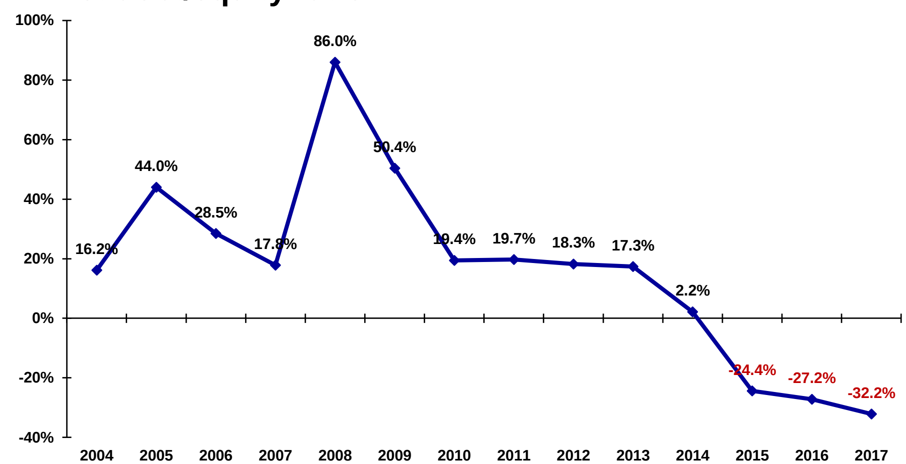
LT gross margin trend



Asset turnover ratio

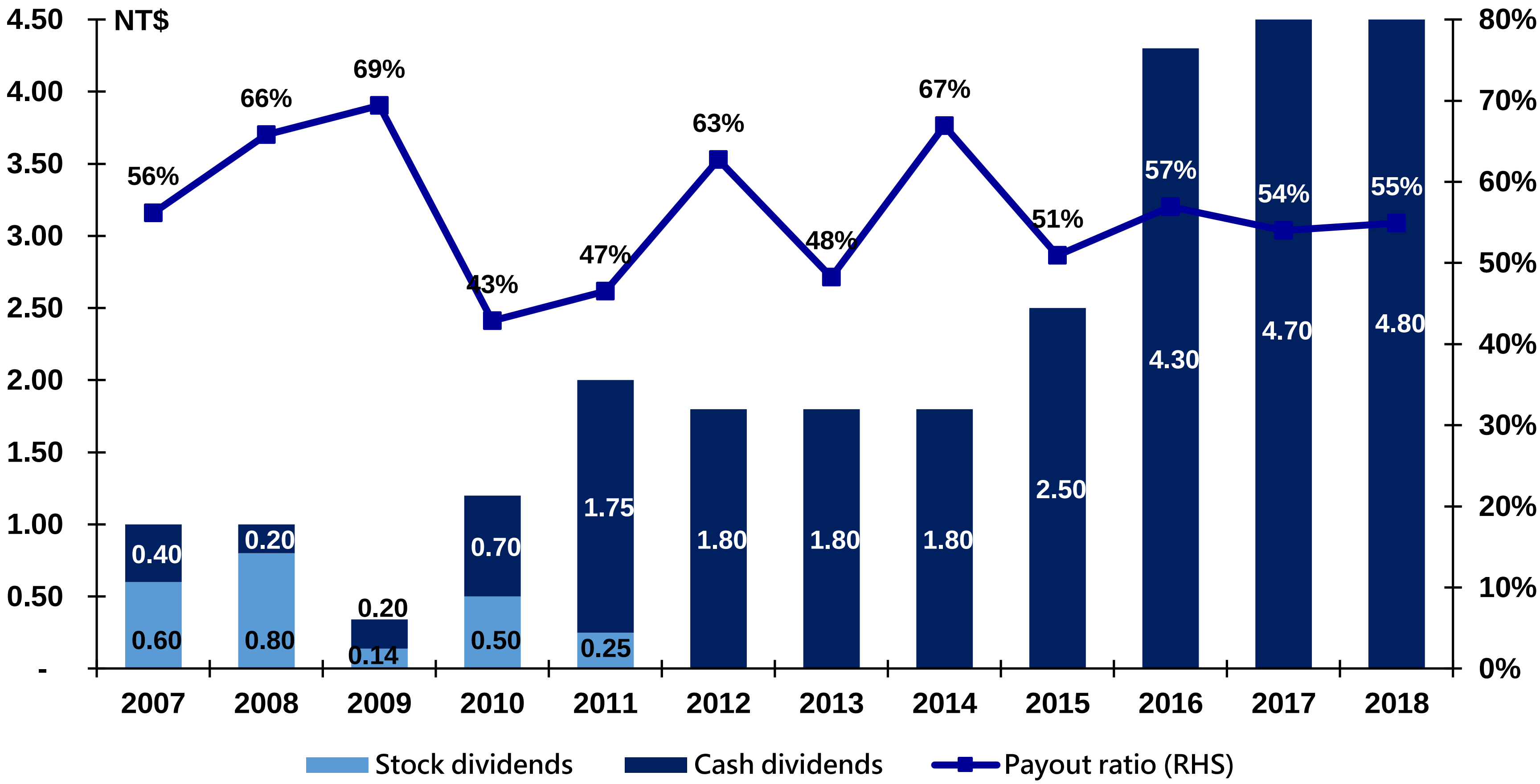


Net debt/equity ratio



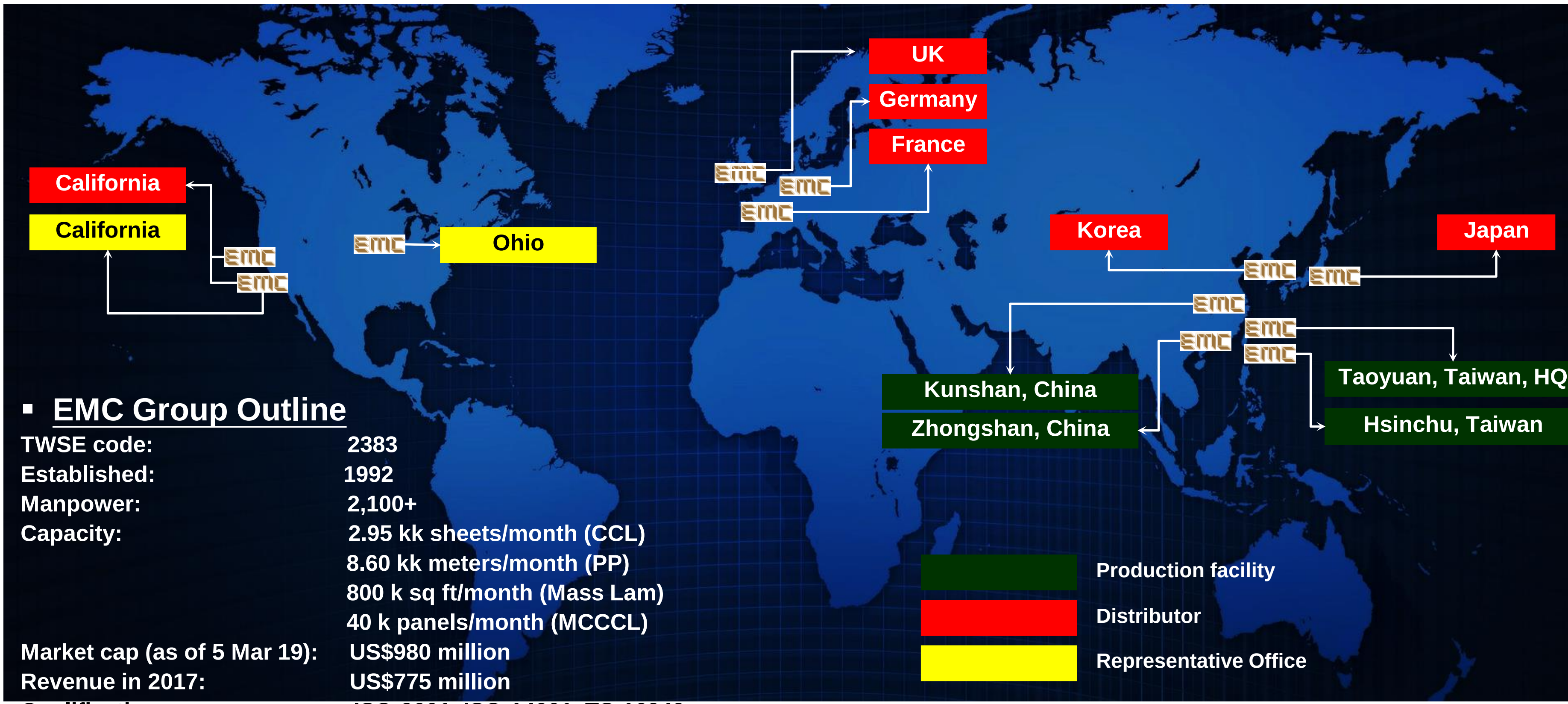
Note: Net debt = Interest-bearing debts – cash amount

Dividend payout history



APPENDIX

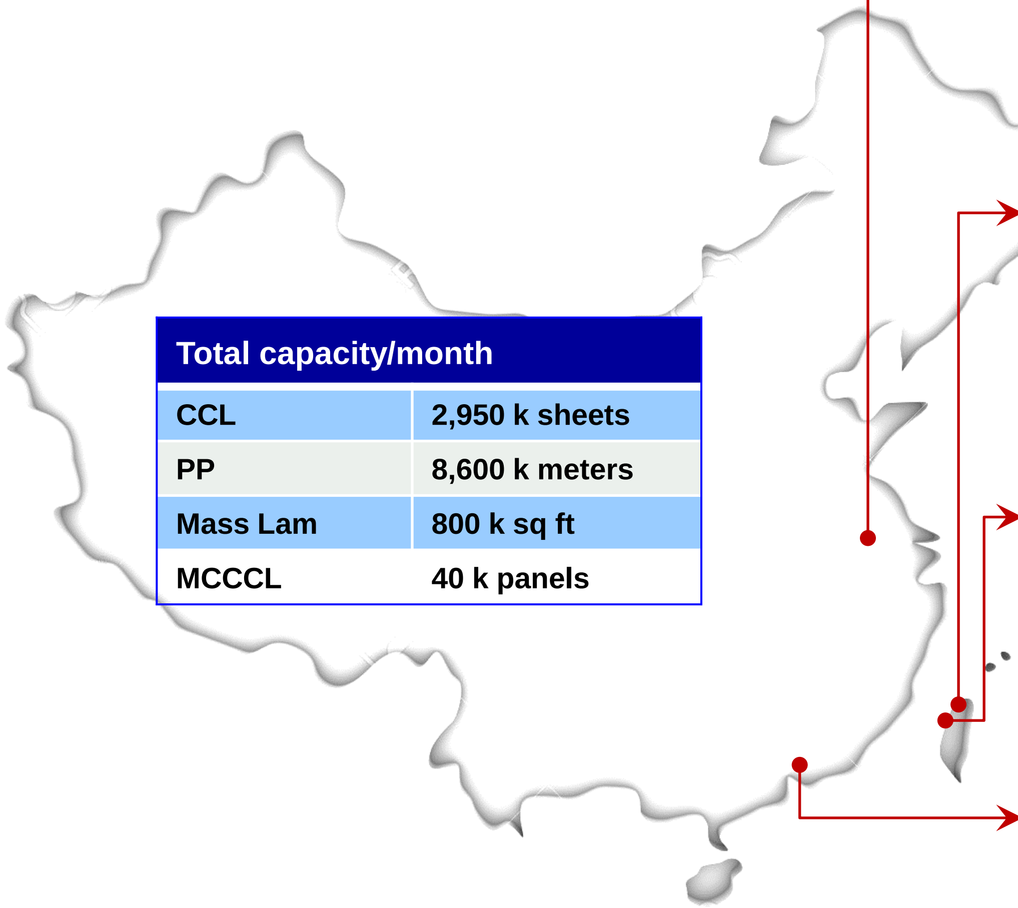
Company profile – global footprint



- <u>EMC Group Outline</u>

TWSE code:	2383
Established:	1992
Manpower:	2,100+
Capacity:	2.95 kk sheets/month (CCL) 8.60 kk meters/month (PP) 800 k sq ft/month (Mass Lam) 40 k panels/month (MCCCL)
Market cap (as of 5 Mar 19):	US$980 million
Revenue in 2017:	US$775 million
Qualifications:	ISO-9001, ISO-14001, TS-16949 QC080000, AS9100C, and Sony Green Partner
UL file number:	E150504

Production site and monthly capacity



Total capacity/month	
CCL	2,950 k sheets
PP	8,600 k meters
Mass Lam	800 k sq ft
MCCCL	40 k panels

EMC (KS) Kunshan	
CCL	1,350 k sheets
PP	3,300 k meters
Manpower	850+

EMC (TW) Taoyuan	
CCL	500 k sheets
PP	1,800 k meters
Manpower	500+

EMC (TW) Hsinchu	
CCL	150 k sheets
PP	1,400 k meters
Mass Lam	800 k sq ft
MCCCL	40 k panels
Manpower	250+

EMC (ZS) Zhongshan	
CCL	950 k sheets
PP	2,100 k meters
Manpower	600+

3Q18 P&L summary

Unit: NT$ million

	3Q18	2Q18	QoQ	3Q17	YoY
Revenue	6,459	5,716	13.0%	6,141	5.2%
Gross profit	1,425	1,169	21.9%	1,584	-10.0%
Operating profit	938	698	34.5%	1,080	-13.1%
Interest income (expenses)	11	10	3.6%	5	98.5%
Other income (expenses)	0	3	-92.9%	4	-95.0%
Income before tax	949	711	33.6%	1,089	-12.9%
Tax expenses	297	311	-4.5%	317	-6.3%
Net income	652	399	63.3%	772	-15.5%
EPS (NT$) - basic	2.04	1.25	63.3%	2.42	-15.5%
Gross margin (%)	22.1%	20.5%		25.8%	
Operating margin (%)	14.5%	12.2%		17.6%	
Net margin (%)	10.1%	7.0%		12.6%	

Five-year consolidated P&L summary

Unit: NT$ million

	2013	2014	2015	2016	2017	1~3Q,17	1~3Q,18	YoY
Revenue	16,873	18,885	20,870	22,070	23,610	17,889	17,487	-2.2%
Gross profit	2,545	3,431	5,064	5,766	5,828	4,567	3,597	-21.2%
Operating profit	1,019	1,598	3,249	3,939	4,007	3,204	2,198	-31.4%
Interest income (expenses)	(50)	(47)	(36)	(27)	16	13	27	107.2%
Other income (expenses)	63	287	117	6	6	6	(5)	-181.0%
Income before tax	1,033	1,838	3,331	3,917	4,028	3,223	2,220	-31.1%
Tax expenses	195	297	938	1,143	1,233	996	893	-10.4%
Net income	838	1,542	2,392	2,774	2,795	2,227	1,327	-40.4%
EPS (NT$) - basic	2.62	4.82	7.48	8.68	8.74	6.97	4.15	-40.4%
Gross margin (%)	15.1%	18.2%	24.3%	26.1%	24.7%	25.5%	20.6%	
Operating margin (%)	6.0%	8.5%	15.6%	17.8%	17.0%	17.9%	12.6%	
Net margin (%)	5.0%	8.2%	11.5%	12.6%	11.8%	12.4%	7.6%	