



Equity Research · Company

A champion in the making

We are optimistic about Tony Electronic's outlook in that:

Firstly, the company has developed a vast footprint across sectors such as 3C, photovoltaics, Li-ion batteries, automobile, industry and health care through its continued success of new product launches, while maintaining low levels of selling expense rates thanks mainly to superior materials R&D capabilities, production lines automation and high-end positioning.

Secondly, a domestic diamond wires capacity of over 50mn kms by year-end 2018 still undershoots demand of 50mn-60mn kms. Hence, the current high profit margins would likely last for a quarter or two as a result of a healthy appetite for quality ultra-fine diamond wires from downstream silicon wafer manufacturers. Tony Electronic, with proprietary wire drawing techniques, automated production lines powered by foreign technologies, improved productivity and strong cost control, is well-positioned to benefit from the favorable supply-demand dynamics.

Thirdly, Tony Electronic stands the chance of expanding its conductors and laminating wires market shares on the back of Apple's growing adoption of wireless charging and USB-C and the latest Apple Watch model's new function to connect directly to cellular networks.

Fourthly, Tony Electronic has started batch deliveries of power battery tabs and high-pressure wire harnesses for EVs – with high barriers to market entry – bracing itself for an estimated market size of RMB2bn for battery tabs by 2020 and RMB5bn for EV wire harnesses by 2018. On top of that, it also sells medical and industrial wire harnesses to the likes of Mindray, TE Connectivity, Siemens and ABB.

Valuation and target price. We predict Tony Electronic to generate net profit of RMB460mn/630mn/720mn for 2018-2020, corresponding to EPS of RMB4.53/6.19/7.08 and 22x/16x/14x PER. Our target price of RMB135 is based on 30x PER for 2018. Initiate coverage with Buy.

Tony Electronic (603595:CH)

Rating

Buy

Issuing analyst:

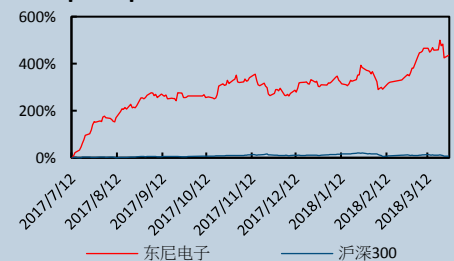
Steven Liu, CFA, PhD (CE No.: AMO971)

Stevenliu@csci.hk

+852 3465 5652

Date: 9 April 2018

Share price performance



Contents

Investment case	1
Positive outlook	1
Valuation and target price	1
Risk factors.....	1
Business at a glance	2
Main products.....	2
2017 results	3
Major customers.....	4
Unit price/gross margin by product.....	4
Cash flow	5
Core competencies	6
Technological breakthroughs.....	6
Wireless charging coil upgrade	7
Tailored R&D and automation	7
Diamond wire demand boosted by silicon wafer capacity expansion.....	7
A stampede to expand monocrystalline silicon wafer capacity.....	7
Strong diamond wire demand amid looming silicon wafer price war	9
Tony Electronic able to stay cost competitive.....	10
New-line business growth prospect	12
Wireless charging coils.....	12
Power battery tabs.....	15
Conductors and laminating wires	18
High pressure wire harnesses for EVs.....	19
Earnings forecast	21
Financial indexes.....	22
Financial forecast.....	23

Investment case

Positive outlook

- (1) Zhejiang Tony Electronic Co., Ltd. (“Tony Electronic”) has developed a vast footprint across sectors such as 3C, photovoltaics, Li-ion batteries, automobile, industry and health care through its continued success of new product launches. The company has been maintaining low levels of selling expense rates, thanks mainly to superior materials R&D capabilities, production line automation and high-end positioning.
- (2) While the market widely anticipates an diamond wires overcapacity in 2018 and hence a price war compounded by lower silicon wafer prices which would in turn cause a squeeze on diamond wire producers’ bottom line, our statistics suggest that an estimated domestic capacity of over 50mn kms by year-end 2018 still undershoots demand of 50mn-60mn kms. Hence, the current high profit margins would likely last for a quarter or two on the back of a fierce appetite for quality ultra-fine diamond wires from downstream silicon wafer manufacturers. Tony Electronic, with proprietary wire drawing techniques, automated production lines powered by foreign technologies, improved productivity and strong cost control, would fare well in the favorable supply-demand dynamics, in our view.
- (3) While many believe that Tony Electronic will encounter flagging growth after a surge in diamond wires sales, we reckon that the company will instead stand the chance of expanding its conductors and laminating wires market shares on account of Apple’s growing adoption of wireless charging and USB-C and the latest Apple Watch model’s new function to connect directly to cellular networks. Meanwhile, the company will further improve its product structure by trimming low-margin products.
- (4) Many are not quite sure about the prospect for Tony Electronic’s new offerings – power battery tabs and high-pressure wire harnesses for EVs, while in fact, the company has started batch deliveries of the former and made some significant breakthroughs in the latter, well placed to benefit from an estimated market size of RMB2bn for battery tabs by 2020 and RMB5bn for EV wire harnesses by 2018. On top of that, it also sells medical and industrial wire harnesses to the likes of Mindray, TE Connectivity, Siemens and ABB.

Valuation and target price

We predict Tony Electronic to realize net profit of RMB460mn/630mn/720mn for 2018-2020, corresponding to EPS of RMB4.53/6.19/7.08 and 22x/16x/14x PER. Our target price of RMB135 is based on 30x PER for 2018. Initiate coverage with Buy.

Risk factors

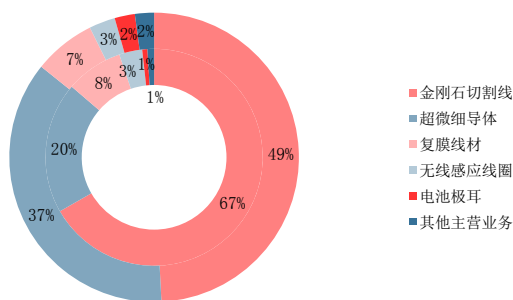
Silicon wafer manufacturers fail to ramp up production as expected; there is uncertainty surrounding Tony Electronic’s supply to Apple; and battery tabs sales scale-up doesn’t go smoothly in 2018.

Business at a glance

Main products

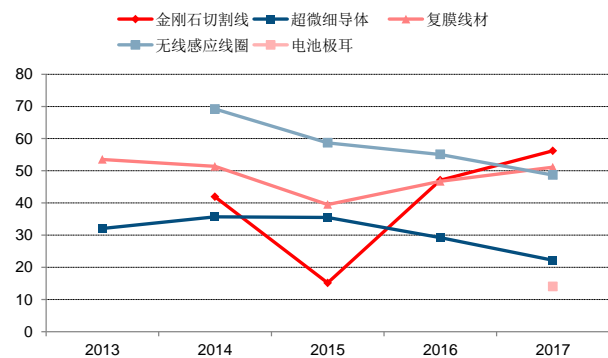
Tony Electronic mainly produces conductors, laminating wires and wireless charging coils used in Apple products such as the iPhone and Apple Watch, diamond wires used to slice hard and brittle materials for industries like photovoltaics, power battery tabs, and high-pressure wire harnesses for EVs.

Figure 1: Revenue (outer ring)/gross margin (inner ring) contribution percentage by product 2017



Source: company announcements, Research Dept, CSCJ

Figure 2: Gross margin by product 2013-2017



Source: company announcements, Research Dept, CSCJ

Table 1: Core products and key accounts

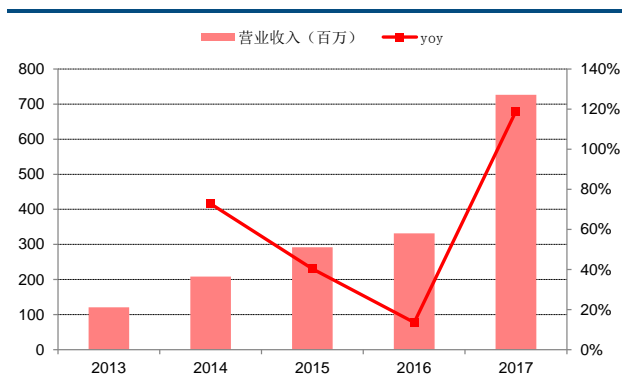
新开发产品	产品性能特点	主要应用领域	直接客户	最终应用客户
2008-2009 年 超微细复膜线	线径可以细至 0.016mm；传统绝缘层外包裹自融层，遇热可以自己粘结，为下游产业简化工艺	消费类电子产品中的 扬声器、震动马达等	歌尔股份、瑞声科技、楼氏集团等	苹果、三星、诺基亚、华为等
2010-2013 年 超微细导体	线径可以细至 0.016mm；材质丰富，基于各种不同配比的合金材质导体，可以满足不同领域对于产品的特性需求	消费类电子、新能源汽车、医疗器械、智能机器人领域中的数据线和传输线	百通乐庭、日本住友、日立、富士康、正崧集团、立讯精密等	苹果、微软、华为等
2014-2015 年 无线感应线圈	由公司所产复膜线绕制而成，高 Q 值，电能损耗小，效率高	Apple Watch 无线充电线圈	立讯精密	苹果
2014-2015 年 金刚线	线径细，强度高，延伸率好，断线率低	光伏领域中的硅片切割、蓝宝石领域	伯恩光学、蓝思科技、晶龙集团、隆基股份等	
2017 年 动力电池极耳	产线自动化程度高、产品精度高、满足超冲要求、耐腐蚀	用于纯电动、混合动力汽车的软包锂电池	微宏动力、捷威动力、(计划) 万向 A123、孚能科技、多氟多等	
2018 年 汽车高压线束	耐高压、绝缘保护和电磁兼容	电动汽车的高压线束	(计划) 力帆、天能、微宏电池等	

Source: company announcements, Research Dept, CSCJ

2017 results

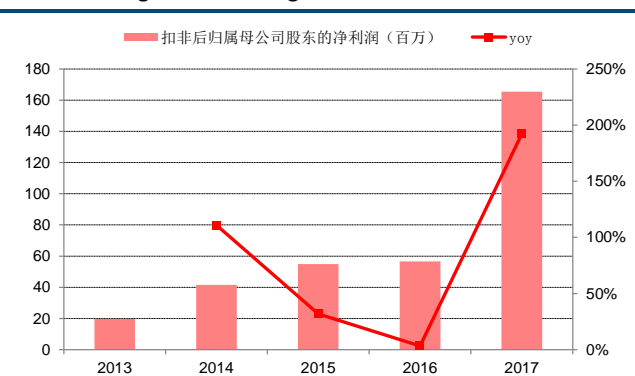
In 2017, Tony Electronic posted net profit attributable to the parent company of RMB173mn (+173%) on revenue of RMB726mn (+119%), thanks mainly to capacity release at its diamond wire business and improved gross margin. 2017 net profit attributable to the parent excluding non-recurring items and including a government subsidy of about RMB11.45mn stood at RMB165mn (+192%).

Figure 3: Revenue and its growth rate 2013-2017



Source: Wind, Research Dept, CSCI

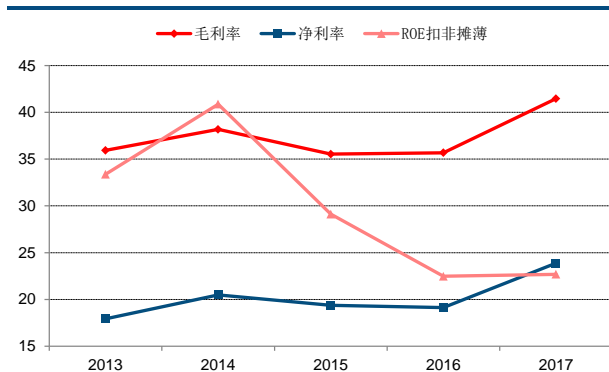
Figure 4: Net profit attributable to the parent after deducting non-recurring items and its growth rate 2013-2017



Source: Wind, Research Dept, CSCI

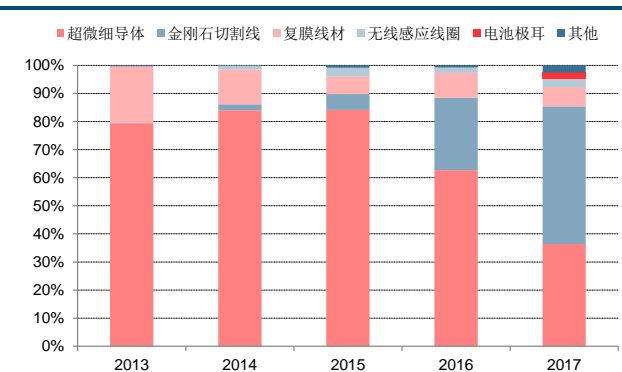
Before 2016, Tony Electronic mainly supplied Apple with conductors and wireless charging coils (for Apple Watch). In 2016, as silicon wafer makers thronged to replace the traditional mortar cutting method with diamond wire cutting, the company unlocked its diamond wire production capacity just in the nick of time, notching up a revenue of RMB355mn which surpassed RMB265mn for conductors to become the best money spinner.

Figure 5: Gross/net profit margin 2013-2017



Source: Wind, Research Dept, CSCI

Figure 6: Revenue composition 2013-2017



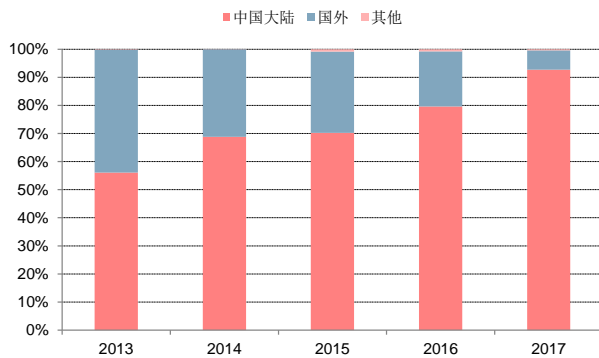
Source: Wind, Research Dept, CSCI

Specifically, conductors had a 30% increase in revenue yet a 4% drop in gross margin due to price reduction; laminating wires enjoyed a 69%/84% rise in revenue/gross margin helped by increased sales to Apple; battery tabs and other products (including high-pressure wire harnesses) respectively made RMB16.37mn and RMB15.39mn in revenue.

Major customers

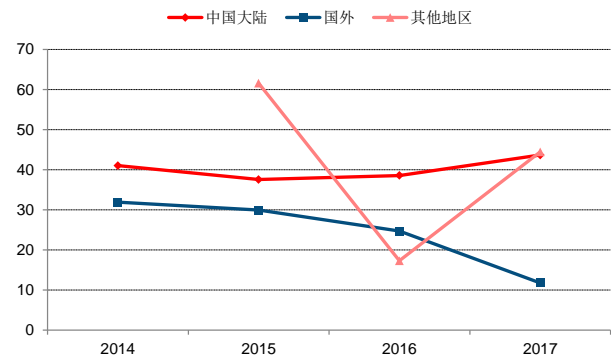
Tony Electronic derived 93% of its ultra-fine electronic wires sales revenue in 2017 from domestic trading, counting the China subsidiaries of Foxconn, Foxlink and Hitachi Cable as well as Luxshare Precision (002475:CH) and GoerTek (002241:CH) as its key accounts. Its only export customer is Goertek Vina, the Vietnam branch of GoerTek.

Figure 7: Domestic/export sales as a percentage of total revenue 2013-2017



Source: Research Dept, CSCI

Figure 8: Gross margin for domestic/export sales 2014-2017



Source: Research Dept, CSCI

2017 saw a sharp decline in the share of sales revenues from its five largest customers due to a rise in sales to polycrystalline silicon customers.

Table 2: Top five customers and their sales contributions, 0,000 yuan

2014 年			2015 年		2016 年		2017 年	
序号	客户	收入 (万元)	客户	收入 (万元)	客户	收入 (万元)	客户	收入 (万元)
1	立讯精密	10372	立讯精密	16802	立讯精密	14187	第一大	14331
2	富士康	4772	富士康	5178	富士康	3967	第二大	6372
3	歌尔股份	1559	富强大电子	2458	晶龙集团	3540	第三大	3947
4	百通赫思曼	854	歌尔股份	1041	歌尔股份	1749	第四大	3790
5	富强大电子	680	日立电线	654	富强大电子	1535	第五大	3053
		占销售总额比例	75.28%	89.47%	87.60%	43.35%		

Source: company announcements, Research Dept, CSCI

Unit price/gross margin by product

The laminating wire has experienced a drop in unit price but a rise in gross margin owing to cost reduction outstripping price cut. New Apple Watch function to enable cellular network connection has incurred a unit price increase for wireless charging coils which however saw lower gross margin due to R&D input. The diamond wire has seen its unit price climb to around RMB200 per km from about RMB160 in 2017 thanks to a diameter reduction to 65 um from 70 um, with gross margin expected to improve after machine upgrade. The unit price of battery tabs currently stands at RMB2.3 translating to a low gross margin of 14% due to insufficient capacity utilization, which is expected to pick up going forward.

Table 3: Unit price/sales volume/gross margin by product 2014-2017

		2014	2015	2016	2017
超细微导体	单价 (元/kg)	96.07	106.99	99.52	97.17
	销量 (万 kg)	182.12	229.8	208.99	272.42
	毛利率 (%)	35.67	35.47	29.26	22.18
复膜线材	单价 (元/kg)	646.88	538.39	494.84	462.34
	销量 (万 kg)	3.99	3.4	5.99	10.82
	毛利率 (%)	51.36	39.50	46.72	51.11
金刚石切割线	单价 (元/km)	509.12	310.86	217.97	162.19
	销量 (万 km)	0.86	5.25	39.12	219.45
	毛利率 (%)	41.92	15.14	47.08	56.21
无线线圈	单价 (元/个)	4.9	1.33	1.33	1.54
	销量 (万个)	60.25	697.88	468.18	1373.91
	毛利率 (%)	69.17	58.68	55.09	48.69
电池极耳 (片)	单价 (元/片)	---	---	---	2.30
	销量 (万片)	---	---	---	711.34
	毛利率 (%)	---	---	---	14.04
其他	单价 (元/PCS)	---	---	---	1.13
	销量 (万 PCS)	---	---	---	1364.31
	毛利率 (%)	---	---	---	19.26

Source: company announcements, Research Dept, CSCI

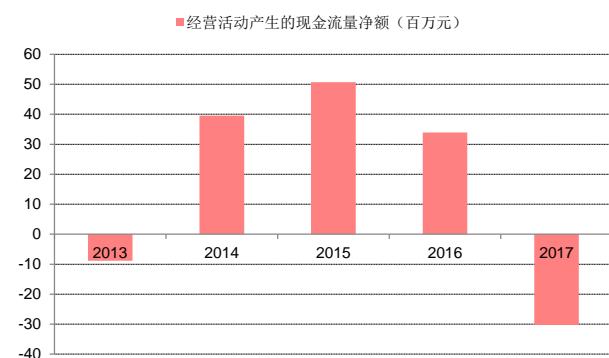
Cash flow

Tony Electronic's 2017 net operating cash flow was negative due to an increase in both notes receivable and advance payments for its diamond wire business coupled with RMB370mn of cash outflow arising from fundraising activities. Looking ahead, as capacity release gradually builds up, the company may turn a positive cash flow soon.

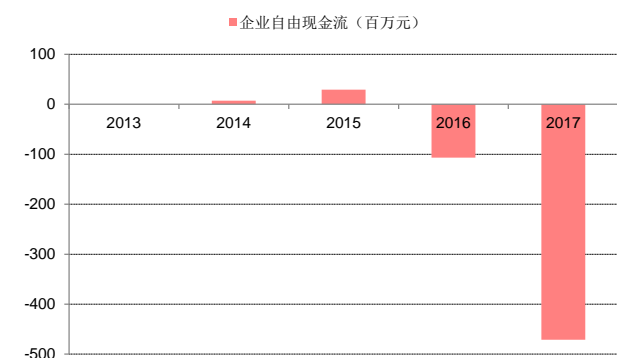
Table 4: Current assets 2013-2017, million yuan

	2013	2014	2015	2016	2017	同比
应收账款	62.17	85.17	111.41	155.01	353.46	128%
应收票据	0.00	0.00	0.00	5.68	30.36	435%
预付账款	2.16	4.69	1.39	2.19	78.87	3505%

Source: company announcements, Research Dept, CSCI

Figure 9: Net operating cash flow 2013-2017, million yuan


Source: Wind, Research Dept, CSCI

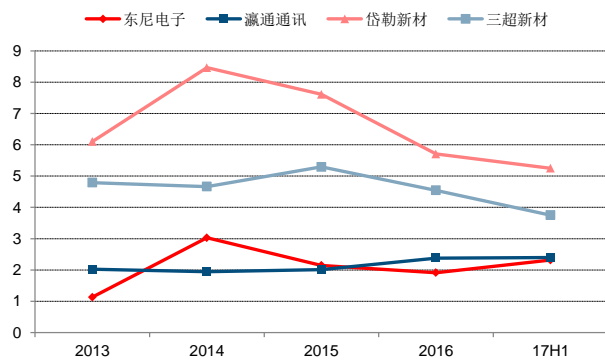
Figure 10: Free cash flow 2013-2017, million yuan


Source: Wind, Research Dept, CSCI

Core competencies

Tony Electronic boasts a line-up of well-famed customers yet with selling expense rates much lower than peers'.

Figure 11: Selling expense/operating revenue comparison with peers 2013-1H17



Source: Wind, Research Dept, CSCI

Figure 12: Top-notch customers

3C线材和线圈	苹果、华为、微软、联想
金刚线	协鑫、晶龙、隆基
极耳	微宏动力、捷威动力
汽车线束	泰科、北汽、上汽、吉利
医疗线束	迈瑞医疗、西门子
机器人线束	泰科、ABB

Source: Research Dept, CSCI

Technological breakthroughs

With years of expertise in ultra-fine alloy wires, Tony Electronic has developed an innovative array of electronic wire products accommodating to different requirements from various sectors, which are well received by the market, helping it maintain high gross margins.

Table 5: Major technological progress and application

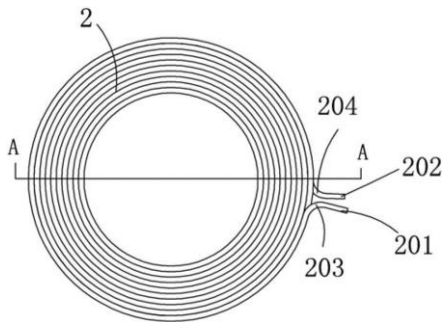
产品名称	应用领域（客户）	公司重要研发成果	终端提升效果
极细同轴线	笔记本、平板电脑内部的极细同轴线（苹果、联想、戴尔等） 手机、笔记本、平板电脑的 USB 数据线； 智能手表充电连接	1、在传统纯铜材料的基础上首次引入锡铜合金作为主材，并解决了合金的配比问题； 2、实现了超细线径的应用（低至 0.016mm）	1、增加笔记本屏幕翻折次数 2、高清设备在相同抗干扰能力下更薄便于携带使用
3C 产品外部连接线用导体	智能手表充电连接 线；笔记本电脑电源线（苹果、华为、微软等）	1、在传统纯铜材料的基础上首次引入银铜合金作为主材，并解决了合金的配比问题； 2、实现了在多跟绞合线内部填充防弹丝技术，并实现应用； 3、将传统产品“单根线、线径较粗”优化为“多根绞线，超细线径”	1、增加导电率，提升充电效率 2、大幅增强抗拉伸性，增加产品使用寿命 3、相同截面情况下，使得线材柔软度增加
无线感应线圈	智能手表中的无线充电线圈（苹果）	1、以公司自产的复膜线材为主材； 2、解决表面涂覆镍铁合金的配比问题； 3、解决了通过涂覆聚四氟乙烯优化外部绝缘层时的配比问题	大幅提升系统充电效率 增强系统抗外界干扰性，提升充电稳定性

Source: Research Dept, CSCI

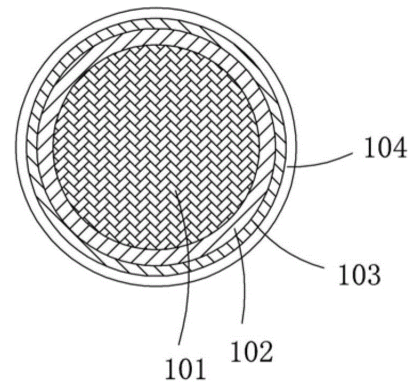
Wireless charging coil upgrade

As wireless charging gets faster, a shift from FPCs to wireless charging coils that enhance electromagnetic conversion to improve charging efficiency has become inevitable. To this end, Tony Electronic has launched new-type wireless charging coils made of magnetized stranded wires to cater for upgraded needs from Apple and other customers.

Figure 13: Patented wireless charging coils made of magnetized stranded wires **Figure 14: A patented magnetic material**



Source: Patent Office, Research Dept, CSCI



Source: Patent Office, Research Dept, CSCI

Tailored R&D and automation

Tony Electronic is at the cutting edge of wire drawing, a key technology for producing ultra-fine wires, able to turn copper and alloy materials into wires with a diameter which is a fifth that of human hair – only a very few domestic players can do that. This has been achieved through long-term R&D cooperation with downstream partners. Meanwhile, the company is taking automation to the next level by superseding all manual testing with system testing.

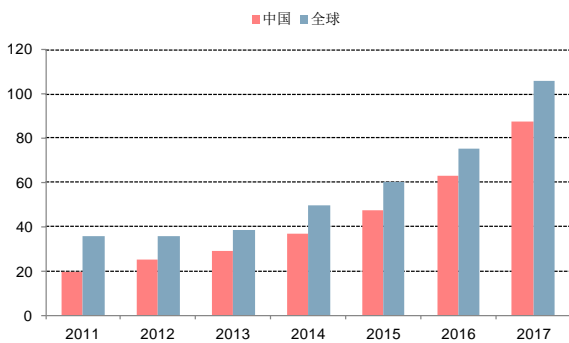
Diamond wire demand boosted by silicon wafer capacity expansion

A stampede to expand monocrystalline silicon wafer capacity

In 2017, newly installed photovoltaic capacity worldwide reached 102 GW, up 37% YoY, with 53 GW coming from China, up 53.6% YoY and accounting for 52% of global total; domestic silicon wafer output came to roughly 18.8bn pieces (6bn of them monocrystalline silicon wafers), equivalent to 87.6 GW, up 39% YoY and accounting for 83% of global total.

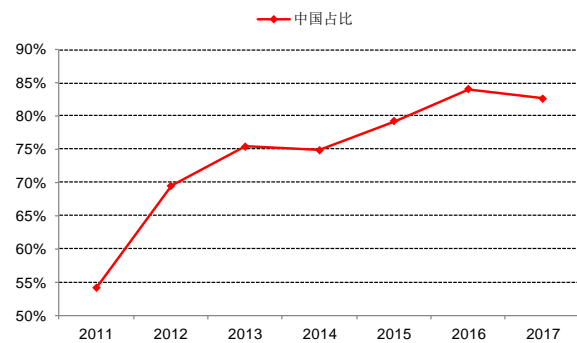
Based on the assumption that cutting each watt of photovoltaic silicon wafers will consume 0.5-0.6 meter of diamond wires, consumption in 2017 fell within the range of 43.8-52.6mn kms with monthly demand standing at 3.65-4.38mn kms, whereas the four largest suppliers Yangling Metron, Tony Electronic, DIALINE New Material (300700:CH) and Nakamura offered a combined monthly capacity of less than 3mn kms. This speaks to the fact that there was an undersupply of diamond wires throughout 2017.

Figure 15: Global photovoltaic silicon wafer capacity, GW



Source: Wind, Research Dept, CSCI

Figure 16: China's share of global silicon wafer output



Source: Wind, Research Dept, CSCI

Monocrystalline silicon wafer players rushed to expand capacity in 2017, driven by high market prices and improved efficiency thanks to the adoption of diamond wires and ERC, with LONGi Green Energy Technology (601012:CH) and Zhonghuan Semiconductor (002129:CH) having a combined monocrystalline silicon wafer capacity of up to 27 GW, exceeding GCL-Poly Energy's polycrystalline silicon wafer capacity. On Jan. 19, 2018, LONGi announced a plan to scale up its monocrystalline silicon wafer capacity to 28/36/45 GW by year-end 2018/2019/2020, up from 15 GW in 2017. Zhonghuan also plans to beef up its monocrystalline silicon wafer capacity from the current 12 GW to 23 GW by the end of 2018, following an addition of 5.8 GW in September last year.

Some outsiders also want a piece of the action, as witnessed by GCL-Poly's 1 GW of monocrystalline silicon wafers already coming on stream, and major battery component makers such as Trina Solar, Canadian Solar, Jinko Solar and JA Solar converting their polycrystalline battery lines into monocrystalline ones. Domestic monocrystalline capacity reached 43 GW as of 2017, and is projected to hit around 70 GW by 2018.

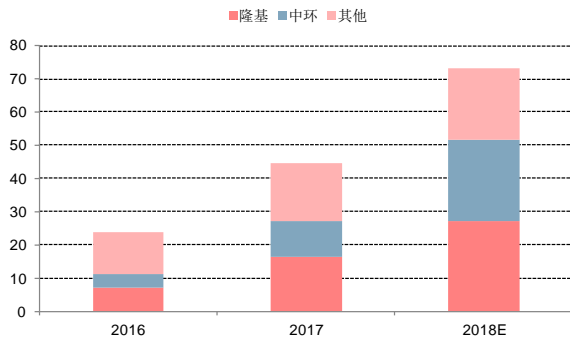
Table 6: Major domestic monocrystalline silicon wafer manufacturers' planned capacity by 2018

公司	产能 (GW)
隆基股份	28
中环股份	23
晶科能源	6
晶澳太阳能	5
京运通	3
阿斯特	1
韩华太阳能	1.5
保利协鑫	1
阳光能源	0.5
合计	69

Source: gelonghui.com, Research Dept, CSCI

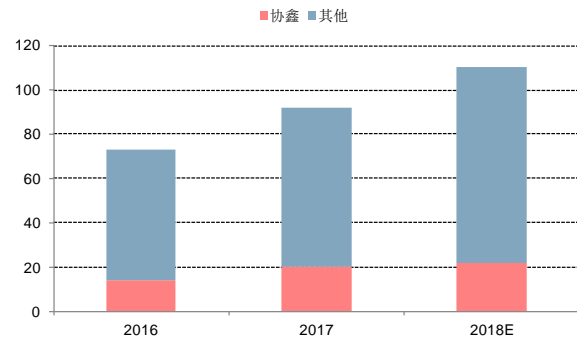
Domestic polycrystalline silicon wafer capacity is expected to reach 110 GW in 2018, up from 92 GW in 2017. Most of the capacity additions come from an upgrade to diamond wire cutting.

Figure 17: Domestic monocrystalline silicon wafer capacity (GW), past and forecast



Source: OFweek, Research Dept, CSCI

Figure 18: Domestic polycrystalline silicon wafer capacity (GW), past and forecast



Source: OFweek, Research Dept, CSCI

Strong diamond wire demand amid looming silicon wafer price war

Compared to the conventional mortar cutting method, diamond wire cutting can significantly bring down costs. Take GCL-Poly: the unit cost of polycrystalline silicon wafers was down by more than 0.5 yuan as above 80% of such products were cut by diamond wires at the end of 2017.

Table7: Cost comparison between mortar and diamond wire cutting

项目	砂浆切割多晶	金刚线切割多晶
钢线线径 (μm)	110	70
磨料损耗 (μm)	60	20
刀缝损失 (μm)	170	90
硅片厚度 (μm)	180	180
导轮槽距 (μm)	350	270
1KG 硅锭理论出片数量	48	62
装载量 (mm)	650	650
单次理论合格出片数	1767	2287
每天可切刀数	2.5	8
单台切片机月产能 (片)	132,525	548,880
单台切片机年产能 (片)	1,590,300	6,586,560
单台切片机年产能 (MW)	7	29
每片耗硅 (g, 含刀缝损失)	21.9	17
多晶硅价格 (元/kg, 不含税)		118
硅片成本减少 (元/片)		0.58

Source: SF Diamond's announcement, Research Dept, CSCI (2017's beginning prices)

Based on an estimated silicon wafer capacity utilization rate of 75%, 2018 output would be around 120 GW as against a capacity of roughly 160 GW, leading to 60mn kms of diamond wire demand.

Table 8: Domestic silicon wafer capacity estimation, GW

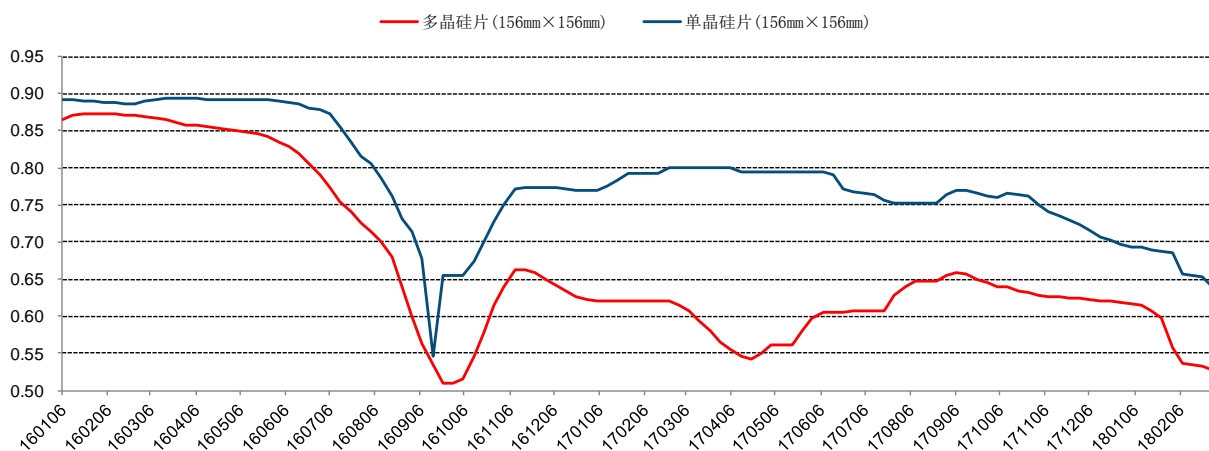
	2016 年底	2017 年底	2018 年底 E	2017 年平均	2018 年平均 E
单晶硅片产能 (GW)	24	45	73	34	59
多晶硅片产能 (GW)	73	92	110	82	101
合计	97	136	183	116	160
对应金刚线需求 (万公里, 产量/产能比例为 75%)	3619	5118	6871	4369	5995

Source: Research Dept, CSCI

2018 will see another wave of monocrystalline capacity release. With an estimated 50 GW expected from LONGi and Zhonghuan, a price war is in the offing: on Feb. 23, LONGi lowered its domestic 156.75mm × 156.75mm monocrystalline silicon wafer price from RMB4.8 per piece to RMB4.55, its third price cut since Jan. 1, while the product had already saw a RMB1.05 or 18.8% price reduction to RMB5.6 before Jan. 1. Leading polycrystalline silicon wafer manufacturers soon followed suit, revising down their quotations to RMB3.8 so as to keep a price difference of USD0.08-0.1 with monocrystalline silicon wafers.

While this would inevitably eliminate some minnows down the line, market leaders could still bank on 28-inch product lines to maintain high gross margins.

Figure 19: Photovoltaic silicon wafer price changes, dollar per piece



Source: Wind, Research Dept, CSCI

Table 9: Domestic diamond wire capacity estimation by company, 0,000 kms

序号	企业名称	16 年产能	产能利用率情况	预计 17 年底产能	预计 18 年底产能
1	杨凌美畅	216	——	1400	2400
2	东尼电子	60	75.55%	360	800
3	岱勒新材	78.04	102.33%	400	600
4	三超新材	45.82	112.12%	180	360
	合计	399.86	——	2340	4160

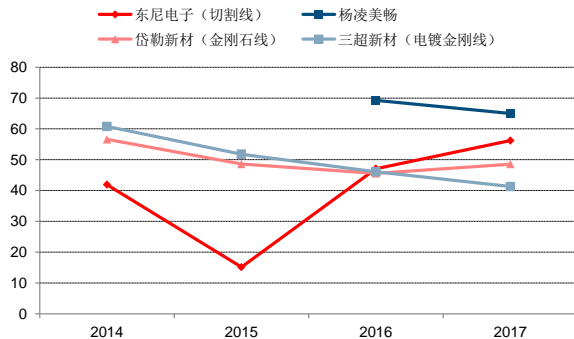
Source: Research Dept, CSCI

Tony Electronic able to stay cost competitive

According to Tony Electronic's prospectus published last year, if the company invests RMB249mn in a diamond wire project with an annual output of 2mn kms, it will take 5-6 months to recoup equipment costs based on an annual revenue of RMB532mn. The current payback period has been shortened to 2-3 months for industry leaders thanks to technological advancements.

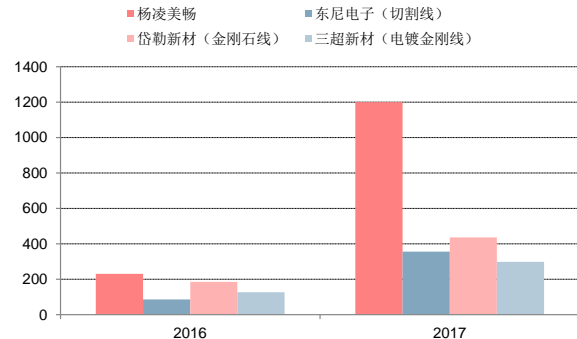
Tony Electronic is expected to enhance its gross margin for diamond wires to around 60% in 2018 through machine upgrade and increased labor efficiency, up from 56% in 2017, compared to 45.8% for DIALINE. Prices currently stand at around RMB250/220/200/190 per km for Nakamura/Yangling Metron/Tony Electronic/DIALINE.

Figure 20: Gross margin comparison: Tony Electronic/DIALINE/Yangling Metron/Sanchao Advanced Materials



Source: company announcements, Research Dept, CSCI
Note: 2017 data – Tony Electronic/DIALINE (annual reports); Yangling Metron (estimation); Sanchao Advanced Materials (1H17)

Figure 21: Revenue comparison: Nakamura/Yangling Metron/Tony Electronic/DIALINE



Source: company announcements, Research Dept, CSCI
Note: 2017 data – Tony Electronic/DIALINE (annual reports); Yangling Metron/Sanchao Advanced Materials (estimations)

Yangling Metron was LONGi’s major supplier in 2016, with sales amounting to RMB95.9mn in the first three quarters of 2016. GCL-Poly was the biggest diamond wire consumer in 2017, followed by LONGi, Zhonghuan, Jinko Solar, Canadian Solar, Konca Solar and Rietech Solar.

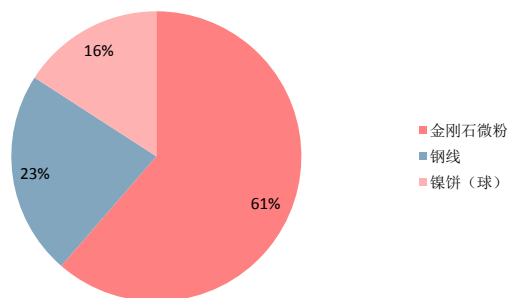
Table 10: Top five diamond wire customers of Tony Electronic/DIALINE/Sanchao

东尼电子		岱勒新材		2017年		三超新材	
2016年	金额 (万元)	2016年	金额 (万元)	2017年	金额 (万元)	2016年	金额 (万元)
第一大	14331	隆基	4,528.40	苏州协鑫	7,440.67	中环	2,596.53
第二大	6372	晶龙	1,624.44	蓝晶	2,696.27	亿晶光电	1,364.10
第三大	3947	蓝晶	1,509.45	高佳太阳能	2,050.19	伯恩	1,243.24
第四大	3790	伯恩	1,267.21	四川永祥	1,951.51	晶龙	1,199.66
第五大	3053	申和	1,201.26	比亚迪	1,819.36	江苏协鑫	1,018.44

Source: company announcements, Research Dept, CSCI

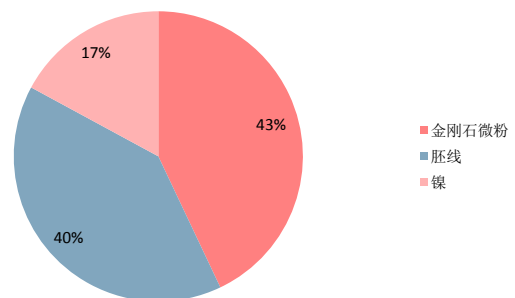
Tony Electronic is good at producing ultra-fine wires with excellent stability, a pivotal advantage for the company to stay cost competitive.

Figure 22: Tony Electronic’s diamond wire cost composition 2016



Source: company announcements, Research Dept, CSCI

Figure 23: DIALINE’s diamond wire cost composition 2016



Source: company announcements, Research Dept, CSCI

Table 11: Diamond wire business performance forecast

	2016	2017	2018E	2019E	2020E
年底产能（万公里）	60	360	800	800	960
销量（万公里）	39	219	600	800	880
单价（元/公里）	218	162	180	160	150
收入（百万元）	85.27	356	1080	1280	1320
成本（元/公里）	115	71	71	71	71
毛利率	47.08%	56%	60%	55%	52%

Source: Research Dept, CSCI

New-line business growth prospect

In 2016, Tony Electronic invested RMB3.68mn in new products development, with RMB2.53mn slated for battery tabs.

Table 12: R&D spend by product, 0,000 yuan

	2016	2015	基本情况
超声波医疗线	8.27	—	围绕应用于超声波医疗设备探头和设备本体的连接线缆开发
新能源汽车线	35.6	68.54	用于汽车的高压线束和一种高压线束的固定装置
新能源汽车动力电池用极耳	252.5	—	用于单体电池上的极耳产品
氟橡胶电动汽车用高压电线	71.28	—	用氟橡胶替代传统材料作为高压电线的绝缘、护套材料
新产品研发合计	367.65	68.54	—

Source: Research Dept, CSCI

Wireless charging coils

Tony Electronic is Apple's major supplier of wireless charging coils used in Apple Watch, which sold 13.74mn in 2017, bringing in a revenue of RMB21.15mn.

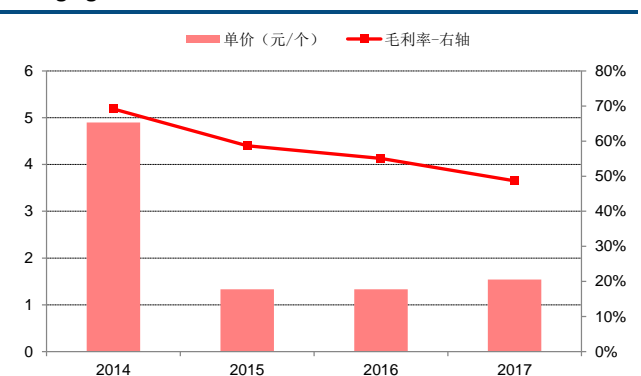
The unit price of such products has risen to RMB1.54 from RMB1.33 thanks to the release of the third-gen cellular-capable Apple Watch in 2017, while gross margin was down affected by capacity utilization rate and R&D input. 2018 will likely see improvements in both unit price and gross margin as Apple Watch adds call feature.

Figure 24: Tony Electronic is Apple's major supplier of wireless charging coils for Apple Watch



Source: company announcements, Research Dept, CSCI

Figure 25: Unit price/gross margin of Tony Electronic's wireless charging coils 2014-2017



Source: company announcements, Research Dept, CSCI

Table 13: Unit price/sales volume/revenue/gross margin of Tony Electronic's wireless charging coils

	2014	2015	2016	2017
单价 (元/个)	4.9	1.33	1.33	1.54
销量 (万个)	60.25	697.88	468.18	1373.91
收入 (百万元)	2.95	9.27	6.24	21.15
毛利率	69%	59%	55%	49%

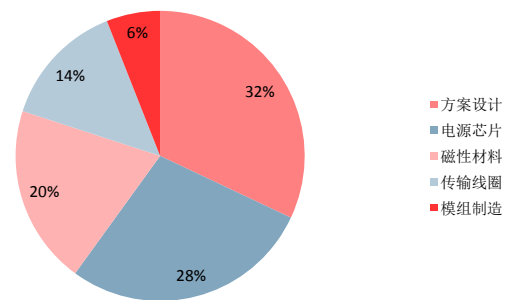
Source: company announcements, Research Dept, CSCJ

The supply chain of wireless charging for mobile phones can be divided into solutions, chips, magnetic materials, coils and modules, with coils making up roughly 14% of the total profit.

Figure 26: The supply chain of wireless charging for mobile phones



Figure 27: Profit breakdown for the supply chain of wireless charging for mobile phones



Source: E-Charging Inc, Research Dept, CSCJ

Source: E-Charging Inc, Research Dept, CSCJ


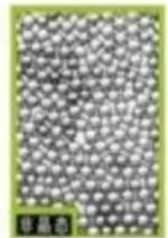

Table 14: A comparison of different wireless charging coils

	WPC 密绕线圈	FPC 线圈	MQPRF 扁平线圈
示意图			
制作工艺	铜股线密集绕线	铜箔刻蚀	偏平线间距绕线
厚度	较厚	厚度可变范围小, 较薄	厚度可变范围大, 超薄
效率	较低	适中	集肤效应最低, 效率较高
成本	适中	较高	较低

Source: E-Charging Inc, Research Dept, CSCJ

Tony Electronic is now actively working with Apple on providing wireless charging solutions for the next-gen iPhone.

Table 15: A comparison of different magnetic materials for wireless charging

	铁氧体	非晶	纳米晶
			
成分	镍锌	锰锌	铁基非晶
应用	接收端	接收端和发射端	接收端和发射端
磁导率	130-200H/m	130-250H/m	200-800H/m
效率	60-65%	66-70%	70-73%
优势	高阻、频带宽、适应水平高	技术成熟、受市场欢迎	柔软超薄、高饱和磁感应强度
不足	易脆较厚、难制造	易脆较厚、难制造	柔软超薄、高导磁率款频率宽度难穿孔

Source: E-Charging Inc, Research Dept, CSCI

Coming on the heels of Apple and Samsung, domestic handset heavyweights such as Xiaomi, Oppo, Vivo and Huawei are also expected to equip their 2018 releases with wireless charging. According to NXP, more than 1bn electronic devices capable of wireless charging will be shipped by 2020. The global wireless charging market is estimated to grow at a CAGR of 27% to USD15bn in 2024 from USD1.7bn in 2015, according to IHS.

We've made a sales forecast for Tony Electronic's wireless charging coil business based on the following assumptions:

- 1) Tony Electronic will supply 50% of the wireless charging coils to go with 20mn/200mn of new iPhone model shipments in 2018/2019 at a unit price of RMB4;
- 2) The unit price of wireless charging coils for Apple Watch will be raised to RMB2 from RMB1.33; and
- 3) We are not sure whether Tony Electronic will supply Apple with coils to go with its wireless power transmitting device AirPower expected to hit the market this year, which is said to adopt around 20 wireless charging coils each.

Table 16: Wireless charging coils sales forecast

		2017	2018E	2019E	2020E
手表	出货量 (万台)	1770	1800	1900	2090
	供货比例	78%	80%	80%	80%
	线圈单价 (元/个)	1.54	1.8	1.7	1.6
	收入 (万元)	2115	2592	2584	2675.2
手机	出货量 (万台)		2000	20000	20000
	供货比例		50%	50%	50%
	线圈单价 (元/个)		4	3	3
	收入 (万元)		4000	30000	30000
线圈收入合计 (万元)		2115	6592	32584	32675.2
发射端	出货量 (万台)		500	6000	8000
	配套比例		25%	30%	40%
	每个发射端线圈数		20	20	20
	线圈单价 (元/个)		1	0.95	0.9
	供货比例		30%	30%	30%
	收入 (万元)		3000	34200	43200
加发射端收入合计 (万元)		2115	9592	66784	75875.2

Source: Research Dept, CSCI

Power battery tabs

Tony Electronic sold 7.11mn battery tabs in 2017, registering a revenue of RMB16.37mn and a gross margin of 14% on a unit price of RMB2.3. It is worth mentioning that the company only started battery tab R&D in 2016.

Figure 28: Li-ion pouch cell structure

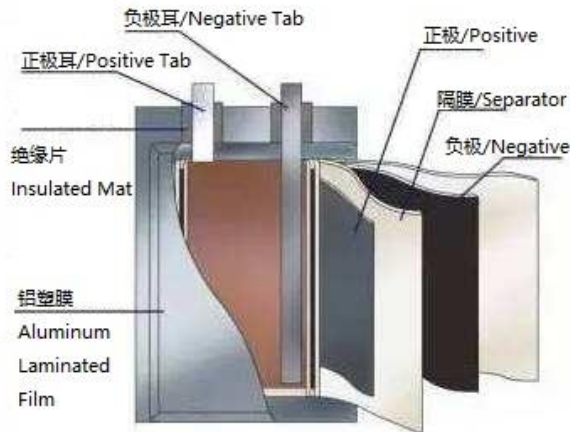
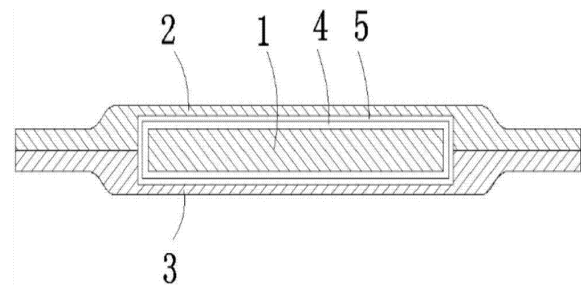


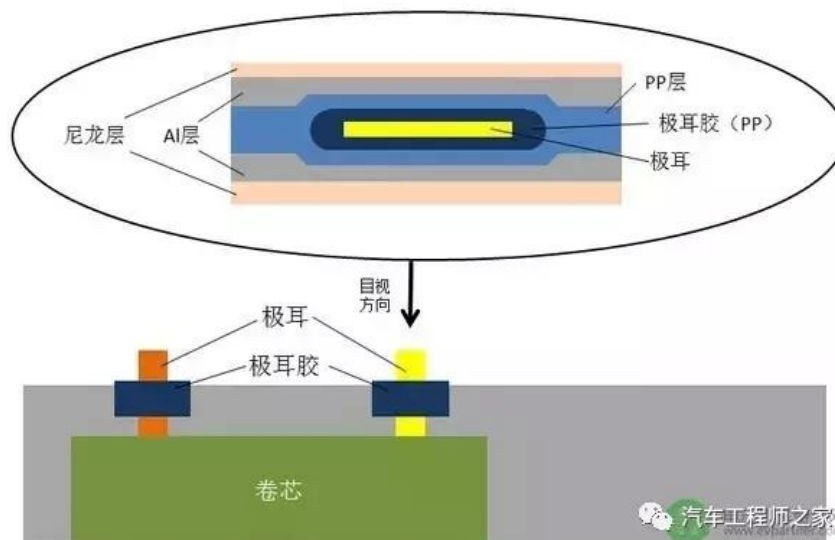
Figure 29: Tony Electronic's patented Li-ion battery tab design



Source: the internet, Research Dept, CSCI

Source: SIPO, Research Dept, CSCI

Figure 30: Li-ion pouch cell sealing technique



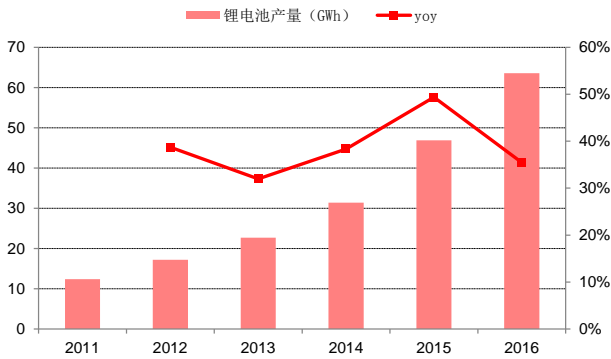
Source: the internet, Research Dept, CSCI

The domestic battery tab market is currently dominated by Japanese and South Korean companies.

A typical large format Li-ion cell uses copper foil as the anode current collector and aluminum as the cathode current collector. The foil to tab weld is needed to gather all the current collector plates (foils) inside the cell and join them to a tab which exits the cell casing and allows the cell's energy to be transferred to an external source. There are two foil to tab welds in each cell, and hundreds of cells in a typical Li-ion battery pack.

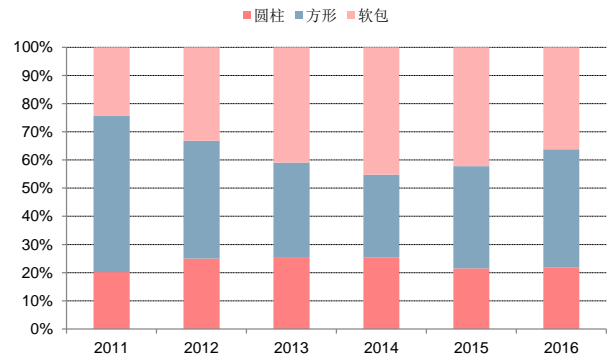
China produced 63.55 GWh of Li-ion batteries in 2016, 36% of which were pouch (soft pack) cells – 43% used as power batteries and 20GWh used in 3C products.

Figure 31: China Li-ion battery output 2011-2016



Source: OFweek, Research Dept, CSCI

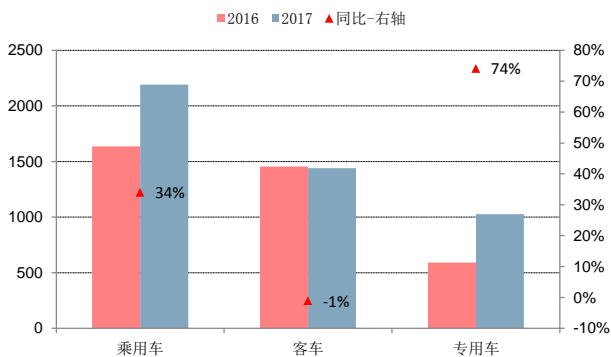
Figure 32: China Li-ion battery output by category 2011-2016



Source: OFweek, Research Dept, CSCI

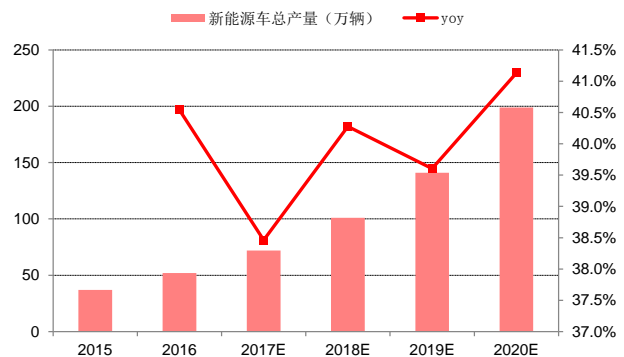
Pouch cells constituted 3.6 GWh or 12% of power battery output in 2016, which totaled about 30 GWh. 4,657 MWh of pouch cells were installed with EVs in 2017, up 30% YoY.

Figure 33: Installed capacity of pouch cells used in EVs (MWh) and its growth rate



Source: the internet, Research Dept, CSCI

Figure 34: China EV output, past and forecast



Source: the internet, Research Dept, CSCI

In terms of soft-pack Li-ion power battery technologies, Japanese and South Korean players are, again, top-quartile players. In the domestic market, Beijing National Battery, Funeng Technology, Guangdong Tianjin, Microvast Power Systems and Tianjin EV Energies had a combined installed capacity of 2,622 MWh in 2017, representing 56% of total soft-pack power battery installations.

Table 17: Top ten Chinese manufacturers of pouch cells for pure EVs by installed capacity 2017

排名	电池企业	2017 年装机量 (MWh)	占比
1	北京国能电池科技有限公司	809.81	17.39%
2	孚能科技(赣州)有限公司	669.98	14.39%
3	广东天劲新能源科技股份有限公司	480.21	10.31%
4	微宏动力系统(湖州)有限公司	342.15	7.35%
5	天津市捷威动力工业有限公司	319.86	6.87%
6	多氟多(焦作)新能源科技有限公司	257.18	5.52%
7	上海卡耐新能源有限公司	245.34	5.27%
8	万向 A 一二三系统有限公司	189.78	4.07%
9	湖州天丰电源有限公司	138.36	2.97%
10	骆驼集团新能源电池有限公司	101.62	2.18%
	合计	3554.29	76.32%

Source: the internet, Research Dept, CSCI

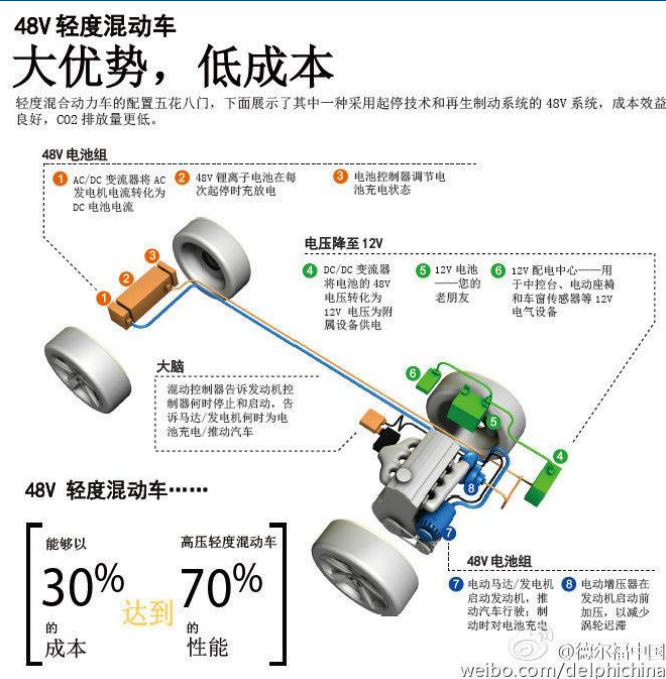
Table 18: Pure EV manufacturers adopting Microvast Power Systems's products

车厂	续航里程	总电量 (KWh)	能量密度 (Wh/kg)	重量 (kg)
北京北方华德	227.1	138.2	115.9	1192
苏州金龙	212	138.2	115.9	1192
苏州金龙	233	93.31	116.5	801
五洲龙	210	93.31	116.5	801
南京公交	250	116.5	116.5	1000
浙江南车电车	209	93.31	116.5	801
扬子江汽车	205	120.96	116.06	1042
佛山飞驰	262	139.97	116.1	1206
佛山飞驰	212	93.31	116.51	801

Source: MIIT, Research Dept, CSCI

The 48-volt, mild hybrid is another area witnessing increasing take-up of soft-pack power batteries.

Figure 35: Delphi's new 48-volt, mild hybrid system



Source: Delphi China, Research Dept, CSCI

Tony Electronic's battery tab products mainly target the power battery market. Supposing a pair of battery tabs sells RMB5, we estimate the domestic power battery tab market will reach RMB2bn by 2020.

Table 19: Soft-pack power battery demand and battery tab market size estimation

	2016	2017E	2018E	2019E	2020E
新能源车总产量 (万辆)	52	72	101	141	198
yoy	41%	38%	40%	40%	40%
单车电池需求 (KWh/辆)	58	51	50	50	50
电池需求量 (GWh)	30	37	50	71	99
软包电池渗透率	12%	13%	20%	30%	40%
软包电池需求量 (GWh)	3.6	4.7	10	21	40
单体电芯容量 (Wh)	160	170	180	190	200
极耳需求量 (亿对)	0.2	0.3	0.6	1.1	2.0
48V 混动装车量 (万辆)		400	600	700	800
yoy			50%	17%	14%
单车动力电池需求量 (KWh)		5	5	5	5
电池需求量 (GWh)		22	32	38	43
软包电池渗透率		90%	90%	90%	90%
软包电池需求量 (GWh)		19	29	34	39
单体电芯容量 (Wh)		170	180	190	200
极耳需求量 (亿对)		1.1	1.6	1.8	1.9
极耳市场容量 (亿元)	1	7	11	14	20

Source: Research Dept, CSCI

Tony Electronic, already a major battery tab supplier of Microvast Power Systems, has entered into a supply contract with Tianjin EV Energies and is in talks with Funeng Technology and Do-Fluoride Chemicals for new business opportunities. Meanwhile, a certification process is underway with A123 Systems, a wholly owned subsidiary of Wanxiang Group, eyeing A123 Systems's over USD1bn worth of order win to supply 2.6mn 48v lithium iron phosphate batteries to SAIC-GM.

Tony Electronic plans to invest RMB36.8mn in 60mn of battery tab production capacity, targeting an annual sales revenue of RMB120mn, profit of RMB49.2mn and gross margin of around 40% – a step change from the current 14%.

Table 20: Power battery tabs sales forecast

	2017	2018E	2019E	2020E
48V 系统装车量 (万辆)	0	50	100	150
纯电动客车装车量 (万辆)	1.4	1.8	2.3	3.0
极耳销量 (万片)	711	3525	6402	9363
极耳单价 (元/对)	2.3	2.3	2.3	2.3
极耳收入 (百万元)	16	81	147	215
毛利率	14%	22%	40%	40%

Source: Research Dept, CSCI

Conductors and laminating wires

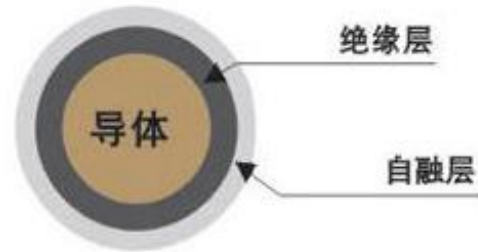
Tony Electronic's conductors are said to be used in 70-80% of iPhone charging/power lines, as well as in iMac and iPad. The company's conductor sales grew 27% in 2017 yet gross margin slipped by 7pc. Looking ahead, gross margin may improve on Apple's growing adoption of wireless charging and USB-C, albeit with limited revenue growth as the company plans to phase out low-margin products.

Figure 36: Tony Electronic's ultra-fine conductors



Source: company announcement, Research Dept, CSCI

Figure 37: Tony Electronic's laminating wires



Source: company announcement, Research Dept, CSCI

Apple also contributes a majority 85-90% of Tony Electronic's laminating wires sales revenue, which jumped by 69% in 2017, with gross margin up 4pc, driven by new iPhone model releases. The revenue growth momentum is expected to carry on in 2018 as the laminating wire is part of the iPhone's innovative module.

Table 21: Conductors and laminating wires sales forecast

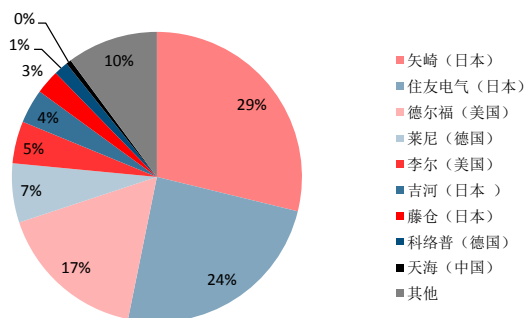
		2016	2017	2018E	2019E	2020E
导体	收入 (百万元)	207.99	264.71	251.47	264.05	290.45
	收入增速		27%	-5%	5%	10%
	毛利 (百万)	60.86	58.71	62.87	66.01	72.61
	毛利率	29%	22%	25%	25%	25%
复膜线材	收入 (百万元)	29.66	50.02	90.04	126.05	163.87
	收入增速		69%	80%	40%	30%
	毛利 (百万)	13.86	25.57	45.02	61.76	78.66
	毛利率	47%	51%	50%	49%	48%

Source: Research Dept, CSCI

High pressure wire harnesses for EVs

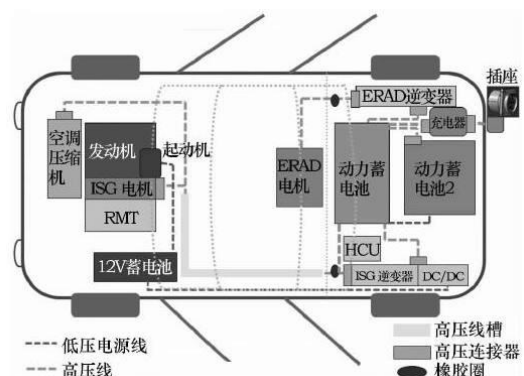
The automotive wire harness is a set of wires, terminals and connectors running throughout an entire vehicle which plays a critical role in a vehicle's overall operation and reliability. The cost of high pressure (300-600v) wire harnesses for EVs is 30%-50% higher than that of fuel vehicle wire harnesses which averages around RMB3,500.

Figure 38: Major global automotive wire harness producers and their market shares



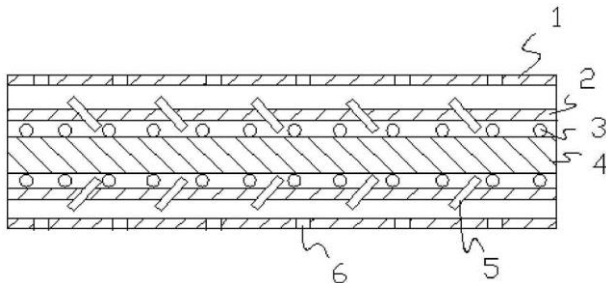
Source: the internet, Research Dept, CSCI

Figure 39: Structure of a hybrid's high pressure component



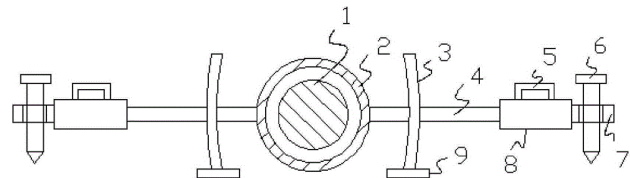
Source: the internet, Research Dept, CSCI

Figure 40: Tony Electronic's patented high pressure wire harness for EVs



Source: Patent Office, Research Dept, CSCI

Figure 41: Tony Electronic's patented high pressure wire harness fixture



Source: Patent Office, Research Dept, CSCI

The global automotive wire harness market is a captive one, with the four largest players taking a combined market share of 75%. Vehicle wire harness suppliers in China are mainly WFOEs or JVs. The high pressure wire harness for EVs is a burgeoning segment worth around RMB3.6bn in 2017, and is expected to swell to RMB5bn by 2018. Tony Electronic as an expert in this field is currently in the small batch production stage, supplying customers such as Microvast and Tianneng Group.

Tony Electronic has also begun to supply small volumes of medical ultrasonic wire harnesses to customers like Mindray, Siemens and Philips. And in the robotics field, Tony Electronic has become an official supplier of TE Connectivity and is also "ABB's only private sector wire harness development and manufacturing partner in China".

Table 22: High pressure wire harness sales forecast

	2015	2016	2017	2018E	2019E	2020E
新能源车总产量（万辆）	37	52	72	101	141	198
单车高压线束价值（元）			5000	5000	5000	5000
市场份额				1%	2%	5%
收入（百万）				25.2	141.12	493.92

Source: Research Dept, CSCI

Earnings forecast

We predict Tony Electronic to have net profit of RMB460mn/630mn/720mn for 2018-2020, corresponding to EPS of RMB4.53/6.19/7.08 and 22x/16x/14x PER. Our target price of RMB135 is based on 30x PER for 2018. Initiate coverage with Buy.

Table 23: Revenue/gross margin forecast by division

		2016	2017	2018E	2019E	2020E
导体	收入 (百万元)	207.99	264.71	251.47	264.05	290.45
	收入增速		27%	-5%	5%	10%
	毛利 (百万)	60.86	58.71	62.87	66.01	72.61
	毛利率	29%	22%	25%	25%	25%
复膜线材	收入 (百万元)	29.66	50.02	90.04	126.05	163.87
	收入增速		69%	80%	40%	30%
	毛利 (百万)	13.86	25.57	45.02	61.76	78.66
	毛利率	47%	51%	50%	49%	48%
金刚石切割线	收入 (百万元)	85.27	355.93	1080	1280	1320
	收入增速		317%	203%	19%	3%
	毛利 (百万)	40.14	200.07	652.32	709.76	692.74
	毛利率	47%	56%	60%	55%	52.48%
线圈	收入 (百万元)	6.24	21.15	65.92	325.84	326.75
	收入增速		239%	212%	394%	0%
	毛利 (百万)	3.44	11.63	37.57	182.47	182.98
	毛利率	55%	55%	57%	56%	56%
极耳	收入 (百万元)		16.36	81.07	147.25	215.34
	收入增速			396%	82%	46%
	毛利 (百万)		2.30	17.85	58.90	86.14
	毛利率		14%	22%	40%	40%
汽车/医疗/工业线	收入 (百万元)		18.22	25.2	141.1	493.9
	收入增速			38%	460%	250%
	毛利 (百万)		3.64	7.56	42.34	148.18
	毛利率		20%	30%	30%	30%
收入合计 (百万)		331.7	726.39	1,593.70	2,284.31	2,810.34
yoy			119%	119%	43%	23%
毛利润 (百万)		118.30	301.92	823.19	1,121.24	1,261.30
yoy			155%	173%	36%	12%
毛利率		36%	42%	52%	49%	45%

Source: Research Dept, CSCI

Financial indexes

	2016	2017	2018E	2019E	2020E
业绩表现					
收入增长率	13.6%	119.0%	119.4%	43.3%	23.0%
净利增长率	12.1%	173.3%	166.5%	36.8%	14.3%
EBITDA 增长率	6.1%	175.7%	151.4%	34.9%	13.0%
EBIT 增长率	2.1%	193.1%	168.7%	34.8%	12.9%
营业利润率	3.2%	206.7%	166.9%	36.8%	14.3%
EBITDA Margin (%)	24.9%	31.4%	36.0%	33.9%	31.1%
ROE	25.2%	23.8%	37.7%	35.2%	29.6%
ROIC	32.6%	52.3%	57.3%	46.1%	48.7%
ROIC - WACC	3.2	5.1	5.6	4.5	4.7
价值评估					
P / E	161.1	59.0	22.1	16.2	14.2
EV / 收入	23.0	14.2	6.5	4.3	3.4
EV / EBITDA	92.0	45.2	18.1	12.8	11.0
EV / EBIT	107.8	49.8	18.7	13.2	11.4
EV / NOPLAT	126.5	56.1	22.0	15.5	13.4
EV / IC	21.7	12.5	7.5	6.7	5.2
P / B	40.6	14.0	8.3	5.7	4.2
Dividend Yield (%)	0.0%	0.2%	0.5%	0.6%	0.7%
每股指标					
报表 EPS	0.62	1.70	4.53	6.19	7.08
经常性 EPS	2.47	7.15	12.00	17.58	23.95
每股红利	161.1	59.0	22.1	16.2	14.2
每股经营现金流	40.6	14.0	8.3	5.7	4.2
每股净资产	30.8	14.1	6.4	4.5	3.6
流动性					
净负债 / 权益	87.5%	69.7%	49.7%	27.6%	20.2%
总负债 / 总资产	46.7%	41.1%	33.2%	21.6%	16.8%
流动比率	1.44	1.67	2.58	3.42	4.73
速动比率	1.24	1.44	2.26	2.95	4.14

Financial forecast

	2017	2018E	增长率	2019E	增长率	2020E	增长率
利润表 (百万元)							
营业收入	726.4	1,593.7	119.4%	2,284.3	43.3%	2,810.4	23.0%
营业成本	425.2	770.5	81.2%	1,163.1	50.9%	1,549.1	33.2%
营业税金及附加	3.8	8.3	119.4%	11.9	43.3%	14.6	23.0%
营业费用	20.7	63.7	208.1%	80.0	25.4%	84.3	5.5%
管理费用	61.6	175.3	184.6%	251.3	43.3%	281.0	11.8%
财务费用	12.0	12.8	6.6%	6.5	-49.0%	-3.0	-145.5%
资产减值损失	9.1	19.9	119.4%	28.6	43.3%	35.2	23.0%
公允价值变动收益	-	-	-	-	-	-	-
投资净收益	1.0	0.3	-64.9%	0.4	28.2%	0.6	33.3%
营业利润	203.7	543.5	166.9%	743.5	36.8%	849.7	14.3%
营业外收入	0.8	1.0	20.4%	1.0	0.0%	1.0	0.0%
营业外支出	1.2	1.0	-14.8%	1.1	10.6%	1.1	-1.1%
利润总额	203.3	543.5	167.3%	743.4	36.8%	849.7	14.3%
所得税	30.0	81.5	172.2%	111.5	36.8%	127.4	14.3%
净利润	173.4	462.0	166.5%	631.9	36.8%	722.2	14.3%
少数股东损益	-	-	-	-	-	-	-
归属母公司净利润	173.4	462.0	166.5%	631.9	36.8%	722.2	14.3%
EBITDA	228.1	573.6	151.4%	773.5	34.9%	874.1	13.0%
EPS (摊薄)	1.70	4.53	166.5%	6.19	36.8%	7.08	14.3%
资产负债表 (百万元)							
流动资产	745.0	1,257.9	68.8%	1,656.7	31.7%	2,282.7	37.8%
现金	101.3	127.5	25.8%	277.0	117.3%	546.4	97.2%
应收账款	360.0	786.8	118.5%	857.0	8.9%	1,165.3	36.0%
其它应收款	30.4	48.7	60.4%	64.6	32.7%	74.8	15.8%
预付账款	78.9	68.0	-13.8%	153.7	126.0%	141.6	-7.9%
存货	101.2	153.7	51.8%	231.1	50.4%	281.4	21.8%
其他	73.2	73.2	0.0%	73.2	0.0%	73.2	0.0%
非流动资产	492.3	574.7	16.7%	631.0	9.8%	653.7	3.6%
长期投资	-	-	-	-	-	-	-
固定资产	417.2	500.5	20.0%	557.6	11.4%	580.8	4.2%
无形资产	24.5	24.0	-2.2%	23.4	-2.3%	22.9	-2.4%
其他	50.5	50.3	-0.5%	50.0	-0.5%	50.0	0.0%
资产总计	1,237.3	1,832.7	48.1%	2,287.7	24.8%	2,936.4	28.4%
流动负债	446.7	487.9	9.2%	483.7	-0.9%	482.9	-0.2%
短期借款	178.1	219.2	23.1%	-	-100.0%	-	-
应付账款	91.6	110.4	20.5%	194.5	76.2%	211.6	8.8%
其他	177.0	158.3	-10.6%	289.2	82.7%	271.3	-6.2%
非流动负债	61.3	120.4	96.3%	10.9	-91.0%	10.4	-4.2%
长期借款	53.3	108.0	102.7%	-	-100.0%	-	-
其他	8.0	12.4	53.9%	10.9	-12.0%	10.4	-4.2%
负债合计	508.0	608.3	19.7%	494.6	-18.7%	493.4	-0.3%
少数股东权益	-	-	-	-	-	-	-
归属母公司股东权益	729.3	1,224.4	67.9%	1,793.0	46.4%	2,443.0	36.2%
负债和股东权益	1,237.3	1,832.7	48.1%	2,287.7	24.8%	2,936.4	28.4%
现金流量表 (百万元)							
经营活动现金流	-30.3	16.4	-154.0%	625.0	3718.1%	386.6	-38.1%
净利润	173.4	462.0	166.5%	631.9	36.8%	722.2	14.3%
折旧摊销	21.5	17.3	-19.4%	23.5	35.7%	27.3	16.4%
财务费用	12.2	12.8	4.9%	6.5	-49.0%	-3.0	-145.5%
投资损失	-1.0	-0.3	-64.9%	-0.4	28.2%	-0.6	33.3%
营运资金变动	-316.5	-475.3	50.2%	-36.5	-92.3%	-359.4	884.9%
其它	80.1	-	-100.0%	-	-	-	-
投资活动现金流	-368.5	-99.7	-73.0%	-79.6	-20.2%	-49.4	-37.9%
资本支出	-	-	-	-	-	-	-
长期投资	-	-	-	-	-	-	-
其他	-368.5	-99.7	-73.0%	-79.6	-20.2%	-49.4	-37.9%
筹资活动现金流	425.2	109.5	-74.3%	-395.8	-461.6%	-67.8	-82.9%
短期借款	13.7	41.1	199.9%	-219.2	-633.4%	-	-100.0%
长期借款	38.3	54.7	42.9%	-108.0	-297.4%	-	-100.0%
其他	373.2	13.6	-96.3%	-68.6	-602.9%	-67.8	-1.2%
现金净增加额	26.4	26.2	-0.8%	149.5	471.2%	269.4	80.1%

Source: company announcements, Research Dept, CSCJ

Research

LIU Taisheng, Steven

TMT
(852) 3465 5652
stevenliu@csci.hk

CHAN Ka Yeung, Duncan

Commodity
(852) 3465 5654
duncanchan@csci.hk

TIAN Yang

Automotive
(852) 3465 5775
tianyong@csci.hk

SUN Lingxiao, Roger

Industrials
(852) 3465 5785
rogersun@csci.hk

YAO Xue, Snowy

Power & coal
snowyyao@csci.hk
+852 3465 5675

SHEN Xiangfei, Thomas

(852) 3465 8689
thomasshen@csci.hk

XU Qiwen

(852) 3465 8690
xuqiwen@csci.hk

Institutional Sales & Trading

XIANG Xinrong, Ron

(852) 3465 5633
ronxiang@csci.hk

HO Wen Hao, Jack

(852) 3465 5685
jackho@csci.hk

WANG Zhuo, Gary

(852) 3465 8655
wangzhuo@csci.hk

LEE Ying Ju, Rose

(852) 3465 5707
roselee@csci.hk

LI Jiageng, Mike

(852) 3465 5636
mikeli@csci.hk

XIA Tian

(852) 3465 5670
xiatian@csci.hk

XU Xiaowei, Vincent

(852) 3465 5795
vincentxu@csci.hk

Company Rating Definition

The Benchmark: Hong Kong Hang Seng Index; Time Horizon: 12 months

Buy	12-month absolute total return: $\geq 10\%$
Hold	12-month absolute total return: $> -10\%$ but $< 10\%$
Sell	12-month absolute total return: $\leq -10\%$

Disclosure of Interests

As of the date of this report,

- The research analysts primarily responsible for the preparation of all or part of this report hereby certify that:
 - the views expressed in this research report accurately reflect the personal views of each such analyst about the subject securities and issuers; and
 - no part of the analyst's compensation was, is, or will be directly or indirectly, related to the specific recommendations or views expressed in this research report.
- The research analysts primarily responsible for the preparation of all or part of this report, or his/her associate(s), do not have any interest (including any direct or indirect ownership of securities, arrangement for financial accommodation or serving as an officer) in any company mentioned in this report,
- This report has been produced in its entirety by China Securities (International) Brokerage Company Limited ("China Securities (International)") (CE Number: BAU373, regulated by the Securities and Futures Commission in Hong Kong)
- China Securities (International) and each of its group companies that carry on a business in Hong Kong in investment banking, proprietary trading or agency broking in relation to securities have no financial interest, in aggregate, equal to or more than 1% of the market capitalization in the stocks reviewed in this report.
- China Securities (International) and each of its group companies that carry on a business in Hong Kong in investment banking, proprietary trading or agency broking in relation to securities may receive compensation from or mandates for investment banking services in the past 12 months from listed corporations whose stocks are being reviewed by China Securities (International) in this report.
- China Securities (International) and each of its group companies that carry on a business in Hong Kong in investment banking, proprietary trading or agency broking in relation to securities do not have any individual employed by or associated with them serving as an officer of a listed corporation whose stocks are being reviewed by China Securities (International) in this report.
- China Securities (International) and each of its group companies that carry on a business in Hong Kong in investment banking, proprietary trading or agency broking in relation to securities may act as the market makers in the stocks reviewed by China Securities (International) in this report.

Disclaimer

This report is for information purposes only and should not be construed as an offer to sell or to solicitation of an offer to buy or sell any securities in any jurisdiction. The securities referred to in this research report may not be eligible for sale in some jurisdictions. This information contained in this report has been compiled by China Securities (International) from sources that it believes to be reliable and the opinions, analysis, forecasts, projections and expectations contained in this report are based on such information and are expressions of belief only and no representation, warranty or guarantee is made or given by China Securities (International) or any person for its accuracy or completeness. All opinions and estimates expressed in this report are (unless otherwise indicated) entirely those of China Securities (International) as of the date of this report only and are subject to change without notice. Such opinions and estimates may be different from or contrary to the opinions presented by the other business departments, units or affiliates of China Securities (International), as different assumptions and standards, different views and analytical methods may be adopted in the preparation of such other materials, and China Securities (International) is under no obligation to bring such other materials to the attention of any recipient of this report. Neither China Securities (International) nor its holding companies and affiliates accept any liability whatsoever for any direct or consequential loss arising from any use of material contained in this report or otherwise arising in connection therewith.

Any investment referred to herein may involve significant risk, may be illiquid and may not be suitable for all investors. The value of or income from any investment referred to herein may fluctuate and be affected by changes in exchange rates. Past performance is not indicative of future results. This report does not take into account the investment objectives, financial situation or particular needs of any particular person. Investors are expected to make their own investment decision without relying on this publication. Before entering into any transactions in any securities referred to in this research report investor should consider their own individual investment objectives and financial situation and seek professional financial, tax and legal advice, as necessary.

This report is strictly confidential to the recipient. It is being supplied to you solely for your information and may not be reproduced, redistributed or passed on, directly or indirectly, to any other person or published, in whole or in part, for any purpose. The distribution of this report in other jurisdictions may be restricted by law, and persons into whose possession this report comes should inform themselves about, and observe, any such restrictions. By accepting this report you agree to be bound by the foregoing instructions.

China Securities (International) Research

18/F, Two Exchange Square, Central, Hong Kong

Tel: (852) 34655600 Fax: (852)21809495

Bloomberg: CSCR <Go>