GOTHAM CITY RESEARCH LLC

AAC Technologies LTD (Ticker = 2018):

Why are AAC's reported profit margins higher AND smoother than Apple's? Part I

GOTHAM CITY RESEARCH'S OPINIONS

- AAC has used 20+ undisclosed related parties & dubious accounting to overstate & smoothen profits since 2014. In this regard, AAC reminds us of Longtop Financial Technologies.
- AAC has used these hidden entities to evade Apple's labor standards specified in the Apple Supplier Code of Conduct.

Example #2: ZhongBeiTong Magnetic Materials 沈阳中北通磁科技股份有限公司

Gotham City Research has reason to believe that ZhongBeiTong Magnetic Materials is a significant undisclosed related party:

- The company estimated it would enter into RMB 150 million transactions with AAC in 2016.
- ZhongBeiTong Magnetic Materials declared itself (in its filings) as a related party supplier to AAC because Ingrid Wu, one of the unit's main shareholders and board members, shares the same name as the woman who is the wife of AAC CEO Mr. Pan and an AAC board member.
- In contrast, AAC has never disclosed ZhongBeiTong Magnetic Materials in its annual report.

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关联人	关联交易类型	交易内容	交易金额（元）
爱发科中北真空（沈阳）有限公司	提供劳务	加工费	100,000.00
GENERAL MAGNETIC MATERIAL INTERNATIONAL CORP.（台湾八锋企业股份有限公司）	销售商品	货物	5,000,000.00
瑞声科技控股有限公司及其下属公司(瑞声声学科技(苏州)有限公司、瑞声科技（沭阳）有限公司、瑞声光电科技（常州）有限公司、AAC Technologies VIET NAM CO.LTD.等)	销售商品	货物	150,000,000.00

Related Party

AAC Technologies Group & Subsidiarieis

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Table of Contents

I. **Disclaimer**
II. **Summary**
III. **Introduction**
IV. **Does AAC Use Undisclosed Related Parties to Inflate Profits?**
V. **Are undisclosed associated parties used to offload costs? I of II**
VI. **Are undisclosed associated parties used to offload costs? II of II**
VII. **Additional inconsistencies we see with AAC's explanations**
VIII. **Valuation**
IX. **Appendix**
X. **End Notes**

GOTHAM CITY RESEARCH HAS REASON TO BELIEVE THAT:

- AAC has used 20+ undisclosed related parties & dubious accounting to overstate & smoothen profits since 2014.
- At least 20 undisclosed related party suppliers are owned or managed by AAC CEO's family members or employees.
- These undisclosed related party suppliers are not listed in Apple's supplier list, despite some claiming otherwise.
- Some of the undisclosed related entities supply the same products as AAC does, are based in the same locations as AAC is, & hire employees under AAC's name.
- AAC has used these hidden entities to evade Apple's labor standards specified in the Apple Supplier Code of Conduct.
- Apple (and other parties) will conduct independent investigations, & validate our findings. As a result, AAC's profit margins will decline, converging to its peers' levels.
- AAC is in violation of Hong Kong listing rules, Apple's supplier code of conduct, and its own representations.

OBSERVATIONS

- AAC's operating profit margins have been unusually high & smooth relative to its peers & Apple, since 2014.
- AAC's costs per employee is less than half its peers'.
- AAC has no listed CFO since 2010, per its annual reports.
- Chunyuan Wu, the wife of AAC's CEO, is a member of AAC's audit & risk committee.
- AAC had 3 COOs within 1 year (2013-2014), around the same time AAC's margins became unusually smooth.
- AAC's auditor, Deloitte, is considered *the Audit Firm That Has Had the Most Trouble in China*.
- AAC's relationship with respect to its undisclosed related parties reminds us of Longtop Financial Technologies' relationship with its undisclosed related parties.
- AAC's 2016 audit fee as a % of revenue is only 0.02%, lower than Let's Gowex's (a Spanish fraud, where 90% of the revenues were fake).

Company: AAC Technologies LTD

Ticker: 2018

Exchange: Hong Kong (SEHK)

CEO: Zhengmin Pan

CFO: None disclosed

Share price performance 2017 YTD: +58%

Share price (May 10th, 2016): 111 HKD per share

Initial price target: 44 HKD per share

Market cap: 136.3B HKD

52-week high: 116.50 HKD

52-week low: 55.70 HKD

Shares outstanding: 1,228M

Foreign ownership (as % of float): 66%

2014-2016 gross margins: 41.4%, 41.5%, & 41.5%

2016 Audit fee as % of revenue: 0.02%

Auditor: Deloitte Touche Tohmatsu

INTRODUCTION

GOTHAM CITY RESEARCH first heard about AAC Technologies LTD in 2015, an Apple supplier, when Apple was said to have found a defect in components produced by AAC for the Apple Watch.[1] With AAC's stock up nearly 3x since then, we decided to re-visit AAC recently. Upon a cursory review, AAC appears to be an exceptionally good company with notably higher and smoother margins relative to its peers[2]:

Net Profit Margins - AAC versus Peers			
	2014	**2015**	**2016**
Goertek	13.0%	9.2%	8.6%
ALPS Electric	3.0%	5.8%	6.0%
Knowles Corp	13.1%	1.9%	2.2%
Merry Electronics	10.1%	5.2%	11.9%
Jinlong Machinery	9.5%	10.8%	4.0%
AAC Tech	**26.0%**	**26.5%**	**26.0%**

AAC margins are so good, it has reported higher & smoother margins than Apple, Google, & Microsoft[3]:

Net Profit Margins - AAC versus the Best			
	2014	**2015**	**2016**
Google	21.9%	21.8%	21.6%
Microsoft	25.4%	13.0%	19.7%
Apple	21.6%	22.9%	21.2%
AAC Tech	**26.0%**	**26.5%**	**26.0%**

What is AAC Technologies' "secret sauce"? How does AAC, an Apple supplier, achieve higher and smoother profit margins than Apple, Google, & Microsoft? Some have attributed AAC's superior & smooth margins to a myriad of factors, such as workforce automation.[4] While some of these explanations may sound plausible, we see it differently.

In our opinion, the evidence supports a more nefarious explanation: AAC uses undisclosed related party suppliers to inflate and smoothen its margins. Such an explanation may seem far-fetched, except that there are a number of case studies of companies that relied on nearly identical schemes to overstate profits (and whose share prices subsequently declined). Take for example, Longtop Financial Technologies Ltd ("LFT"), a formerly US-listed Chinese company that used undisclosed related parties to overstate its profits.[5] In this regard, AAC reminds us of LFT (coincidentally, AAC uses the same auditor as LFT did).

Unlike certain schemes that can last indefinitely, Gotham City Research believes that AAC's apparent schemes will come to an end shortly. We believe Apple (and other parties) will conduct their own investigations, and independently come to similar conclusions as we have.

We believe shares will initially decline to 40 HKD - 50 HKD per share, as the undisclosed related party supplier revelations are digested. We see far greater downside potential if the company were to concurrently experience the same problems that other Apple suppliers have in the past, e.g. increased competition, pricing pressure from its customers, wage inflation, etc. **In this and coming report(s), we will explain our case for these opinions.**

Does AAC Use Undisclosed Related Parties to Inflate Profits?

AAC Gross Margins are Exceptionally High and Smooth – Are Margins Too Good to Be True?

> *"When I see a bird that walks like a duck, swims like a duck, and quacks like a duck, I call that bird a duck"* – James Whitcomb Riley

AAC Technologies Ltd is an Apple supplier based primarily in China. AAC has managed to report exceptionally high and smooth profit margins since 2014, especially when compared against its direct competitors (which sport lower and volatile margins – typical of other Apple suppliers)[1]:

Gross Profit Margins - AAC versus Peers			
	2014	**2015**	**2016**
Goertek	27.4%	24.9%	22.4%
ALPS Electric	18.5%	20.7%	19.7%
Knowles Corp	38.9%	36.8%	38.2%
Merry Electronics	24.1%	19.6%	19.9%
Jinlong Machinery	28.9%	24.6%	11.5%
AAC Tech	**41.4%**	**41.5%**	**41.5%**

Operating Profit Margins - AAC versus Peers			
	2014	**2015**	**2016**
Goertek	15.2%	10.6%	9.5%
ALPS Electric	4.2%	7.2%	6.8%
Knowles Corp	14.7%	4.2%	5.5%
Merry Electronics	11.7%	6.9%	9.7%
Jinlong Machinery	8.6%	11.8%	3.0%
AAC Tech	**29.2%**	**29.5%**	**30.3%**

Net Profit Margins - AAC versus Peers			
	2014	**2015**	**2016**
Goertek	13.0%	9.2%	8.6%
ALPS Electric	3.0%	5.8%	6.0%
Knowles Corp	13.1%	1.9%	2.2%
Merry Electronics	10.1%	5.2%	11.9%
Jinlong Machinery	9.5%	10.8%	4.0%
AAC Tech	**26.0%**	**26.5%**	**26.0%**

AAC profit margins were not always this smooth. The company's margins were less smooth prior to 2014:

Gross Profit Margins - AAC										
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Gross profit margin	47.3%	41.7%	44.9%	45.1%	44.0%	44.2%	42.7%	41.4%	41.5%	41.5%
YoY change, bps		-562	321	20	-114	20	-143	-130	8	4

Extraordinary claims merit extraordinary explanations

What is AAC's secret sauce? Why have AAC's margins been particularly smooth since 2014? In our experience, companies that make extraordinary claims – for example, report exceptionally high and smooth profit margins – are extreme outliers[2]:

Net Profit Margins - AAC versus Peers	
	2014-2016 average
Google	21.8%
Microsoft	19.4%
Apple	21.9%
Longtop*	26.8%
Quindell**	26.9%
AAC Tech	26.2%

* - 2008-2010
** - 2010-2013

is AAC more like a Google, Microsoft, or Apple – exceptionally good companies:

Or is AAC more like Longtop Financial Technologies or Quindell – fraudulent companies:

The company's explanation regarding its "good" margins seems insufficient

In the case of Google, Microsoft, and Apple, their extraordinary feats are apparent. All three companies have changed the world, pushing the human race forward. It is difficult to imagine a world where one of those companies were to suddenly disappear. Can we say the same about AAC Technologies? Is there extraordinary evidence that explains the exceptionally high and smooth profit margins? The company claims that its gross margins can be explained by the following[3]:

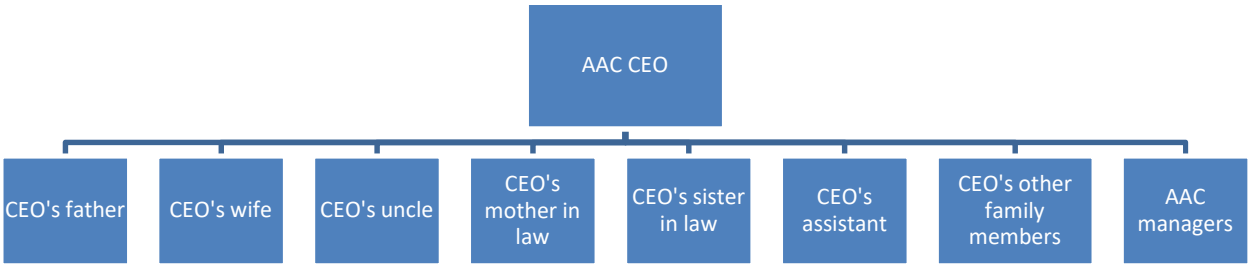
> *The Company is a world-class Total Technology Solution Provider. The Company delivers customer focused solutions across many technology segments. Not only has the Company invested in advanced materials research, product designs and building up intellectual property portfolio, the Company has also invested heavily in manufacturing automation to achieve operational excellence in manufacturing efficiency.* ***The above form the bases of the Company's good gross margins achieved.***

Gotham City Research believes that the company's explanations do not sufficiently explain its anomalously high and smooth profit margins since 2014 for the following reasons:

- Evidence of significant undisclosed related party companies. Undisclosed related parties were present in both the Quindell & Longtop Group frauds.
- Additional observations that cast doubt on the company's explanations regarding its profit margins, as we detail later in this report.

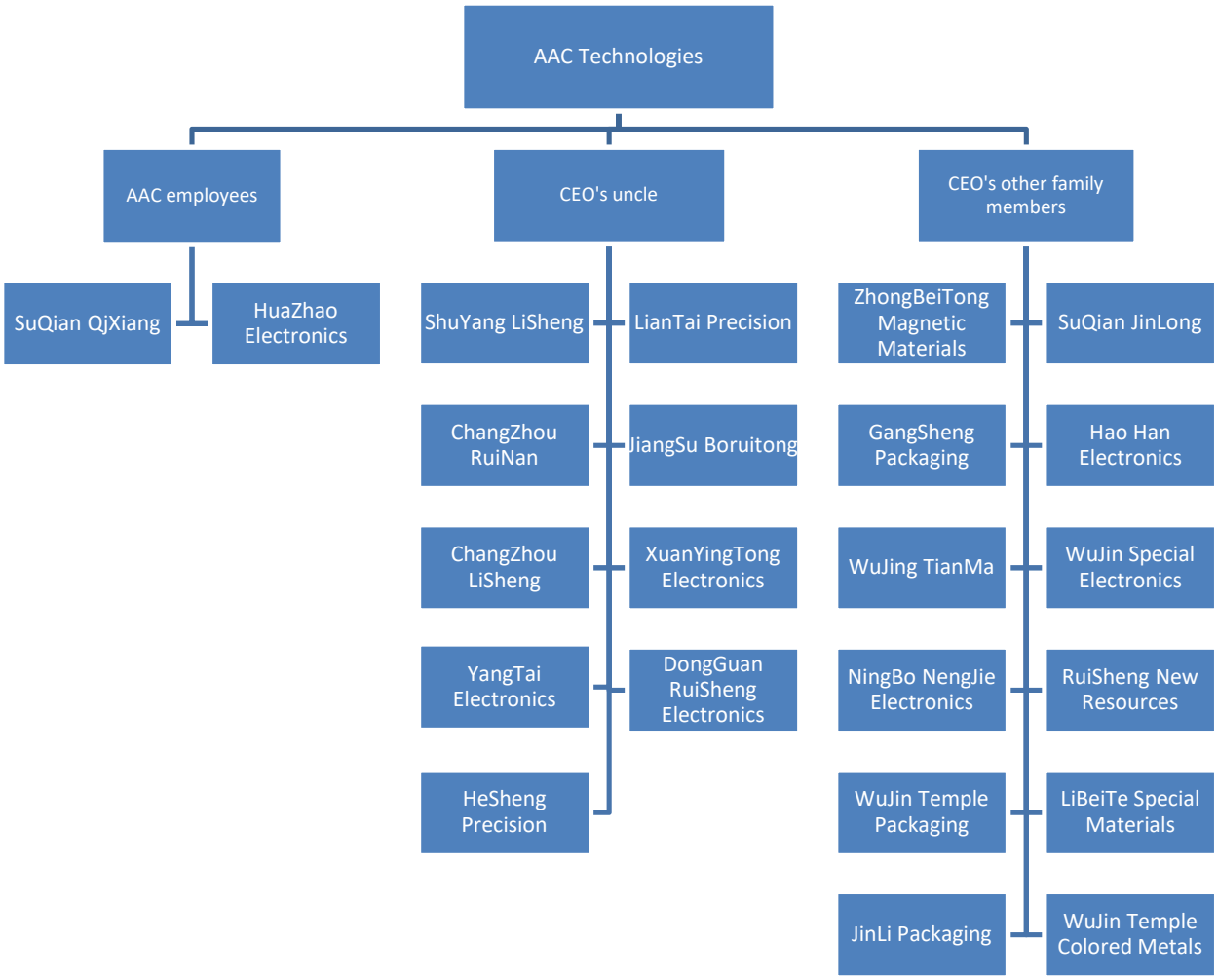
A better explanation: undisclosed related parties & dubious accounting to overstate earnings?

We did, in fact, find extraordinary evidence, but of a different variety. This evidence – which include local filings & field research – suggests that there are at least 20 undisclosed entities are managed and/or owned by associates of AAC's CEO. We summarize below the relationships which the evidence suggests are involved[4]:



The issue with our findings is that the presence of substantial undisclosed related party transactions tends to be symptomatic of companies like Quindell and Longtop Financial Technologies, not good companies such as Google, Microsoft, and Apple.

Local SAIC filings & field research suggest that at least 20 undisclosed entities managed and/or owned by those with direct ties to AAC's CEO (see the next page for a tabular version of the below diagram)[5]:



Company Name (in English)	Company Name (in Chinese)	Product (SAIC Registration Disclosure)	Possible Relationship to AAC
SuQian QjXiang	宿迁启祥电子科技有限公司	Cell phone components	Manager is assistant to AAC CEO + Colocated with AAC
ShuYang LiSheng	沭阳丽声电子有限公司	Cell phone components	Shareholders are AAC executive and uncle of AAC CEO
XuanYingTong Electronics	深圳市轩盈通电子有限公司	Distribution of cell phone components	Manager is uncle of AAC CEO
ZhongBeiTong Magnetic Materials	沈阳中北通磁科技股份有限公司	Magnetic material (for use in electronic components)	Wife of AAC CEO is shareholder and boardmember
LianTai Precision	连泰精密科技江苏有限公司	Cell phone casing	Subsidiary of ShuYang LiSheng
ChangZhou LiSheng	常州丽声科技有限公司	Cell phone components	Subsidiary of ShuYang LiSheng
JiangSu Boruitong	江苏博瑞通磁业有限公司	Magnetic material (for use in electronic components)	Subsidiary of ShuYang LiSheng
WuJing TianMa	常州市武进天马微电机有限公司	Micro motors, electronic components	CEO family member is shareholder
YangTai Electronics	常州市祥泰电子有限公司	Electronics components	Uncle of AAC CEO is shareholder
ChangZhou RuiNan	常州瑞南电子有限公司	Electronic components	Subsidiary of ShuYang LiSheng
GangSheng Packaging	常州市港盛包装材料有限公司	Electronic components and packaging materials	Mother in law of AAC CEO is shareholder
Hao Han Electronics	常州市皓涵电子有限公司	Packaging and machine parts	Sister in law of AAC CEO is former shareholder
DongGuan RuiSheng Electronics	东莞市瑞昇电子有限公司	Electronics components	Shareholders are AAC executive and uncle of AAC CEO
HeSheng Precision	江苏和声精密科技有限公司	Machine parts	Uncle of AAC CEO is shareholder
WuJin Special Electronics	常州市武进特种电子器材有限公司	Electronic machinery and equipment	Father of CEO is shareholder
NingBo NengJie Electronics	宁波市能捷电子有限公司	Electronic components	Sister of CEO is shareholder
RuiSheng New Resources	瑞声新能源发展（常州）有限公司	Lithium ion battery research and development	JV between AAC and CEO's father's companies
WuJin Temple Packaging	常州市武进庙桥万佳包装有限公司	Packaging materials	CEO family member is shareholder
LiBeiTe Special Materials	江苏力倍特种材料有限公司	Electronics materials	CEO family member is shareholder
JinLi Packaging	常州市进力特吸塑包装有限公司	Packaging materials	CEO family member is shareholder
WuJin Temple Colored Metals	常州市武进庙桥有色金属铸件有限公司	Metal parts	CEO family member is shareholder
SuQian JinLong	宿迁京龙电子科技有限公司	Cell phone components including casing	Colocated with AAC and claims to be subsidiary
HuaZhao Electronics	常州市华兆电子有限公司	Electronic components and earphones	Manager of AAC subs is shareholder

Are undisclosed associated parties used to offload costs? I of II

AAC may be using undisclosed entities to offload around 1.5 billion RMB in costs

In this and the next sections, we take a closer look at the evidence that certain parties are related to AAC. We focus on the largest we could identify, per local filings, some of which we list below[1]:

English Company Name	Chinese name	Product (SAIC Registration Disclosure)	Possible Relationship to AAC	Revenue	Gross profit	Gross Margin
SuQian QjXiang	宿迁启祥电子科技有限公司	Cell phone components	Manager is assistant to AAC CEO + Colocated with AAC	553.6	83.1	15.0%
ShuYang LiSheng	沭阳丽声电子有限公司	Cell phone components	Shareholders are AAC executive and uncle of AAC CEO	479.8	10.9	2.3%
XuanYingTong Electronics	深圳市轩盈通电子有限公司	Distribution of cell phone components	Manager is uncle of AAC CEO	348.5	31.8	9.1%
LianTai Precision	连泰精密科技江苏有限公司	Cell phone casing	Subsidiary of ShuYang LiSheng	104.0	n.m	n.m.
ChangZhou LiSheng	常州丽声科技有限公司	Cell phone components	Subsidiary of ShuYang LiSheng	23.8	3.6	15.2%
JiangSu Boruitong	江苏博瑞通磁业有限公司	Magnetic material (for use in electronic components)	Subsidiary of ShuYang LiSheng	13.1	3.3	25.1%

English Company Name	Employee count
SuQian QiXiang	1,000
ShuYang LiSheng	3,000
Xuan YíngTong Electronics	60
ZhongBeiTong Magnetic Materials	N.A.
LianTai Precision	1,800
ChangZhou LiSheng	100
JiangSu Boruitong	40
Total	**6,000**

Gotham City Research estimates:

- total exposure to these entities to be at least 1.5 billion RMB.
- Total employee count of these entities to be at least 6,000 employees.
- These entities seem to be owned, managed, and/or controlled by associates of AAC's CEO.
- None of these entities are mentioned in AAC's financial reports.

In this section we will take a closer look at:

- SuQian QiXiang 宿迁启祥电子科技有限公司
- ShuYang LiSheng 沭阳丽声电子有限公司

SuQian QiXiang 宿迁启祥电子科技有限公司

The evidence suggests that AAC formed SuQian QiXiang at the same time that AAC entered the haptic engine market. AAC may have created this entity to offload the huge development costs that are often associated with a new smartphone launch.

Reasons we believe SuQian QiXiang might be a significant related party/supplier[2]:

- SuQian QiXiang generated RMB 554 million of revenue in 2015, making it one of AAC's largest component suppliers, per our estimates.
- Is estimated to employee ~1000 people.
- The unit specializes in the production of haptic motors & other mobile phone components.
- **The company was established in 2015,** the same year that AAC began selling haptic motors with anomalously high profit margins relative to its peers.
- SuQian QiXiang describes itself as a division of AAC, yet AAC has never disclosed SuQian QiXiang in AAC's annual reports.
- SuQian QiXiang is owned by 黄勇东/Huang Yong Dong, per local filings. A man by the same name is described as AAC Chairman's assistant.
- AAC hasn't disclosed that the unit seems to be owned by the assistant to AAC's chairman,
- SuQian QiXiang appears to operate within AAC's manufacturing complex.
- SuQian QiXiang reported property, plant, & equipment of RMB 52 million at the end of 2015.
- Its PP&E as % of Revenue is only 10% which is quite low when compared against 85% for AAC and 60% for Goertek. This may imply that AAC books SuQian QiXiang at the parent company level rather than at the SuQian QiXiang level. We believe that AAC's most recent earnings call validates our opinion.
- AAC posted a 50% gross profit margin on haptic motors in 2015 while SuQian QiXiang only earned a 15% gross profit margin on RMB 554 million worth of haptic motor sales to AAC in the same year.

The profit margin discrepancy is particularly surprising given that SuQian QiXiang appears to operate in the same complex as AAC's primary production site in SuYang and produces broadly the same products as AAC.

The below picture shows AAC's production complex[3]:

The below picture shows SuQian QiXiang's lobby inside AAC's production complex:

In online job postings SuQian QiXiang describes itself as an AAC division

Further questions of a subsidiary-like relationship surfaced on a Jiangsu province job board posting where SuQian QiXiang was listed as a division of AAC[4]:

首 页 | 找职位 | 找人才 | 招聘会 | 工具箱 | 人事代理 | 劳务派遣 | 会员中心 | 人事考试

当前位置：首页>招聘信息>职位详情

操作工 全职

申请职位 收藏

宿迁京龙电子科技有限公司

更新时间：2015-10-17 16:10 浏览：43次 0人投递简历

职位信息

工资待遇：3000~5000元/月

招聘人数：150人 职位类别：其他类别职位 性别要求：男

年龄要求：岁 学历要求：大专 工作经验：无经验

工作地址：沭阳县南开发区长兴路8号（宿迁市 - 沭阳区） [查看地图]

职位描述

报名须知：（1）报名方式：编写短信“姓名、性别、年龄、籍贯”发送至手机：15850975115 郑经理即可免费报名也可加企业qq：1009223329咨询（2）咨询热线：15850975115郑经理 18083757789 刘经理（3）面试要求：身份证及复印件正反面4张，一寸照片4张一、公司简介瑞声集团于2006年投资16亿元人民币，在沭阳开发区设立了集团第二大生产基地，目前沭阳基地共有员工13000人，厂区配套齐全、环境优雅、中央空调工作车间、配置有最先进的生产流水线设备；

宿舍环境优美，配有空调，免费供应热水，并配有电影室，广场舞等娱乐设施。

公司主要生产手机微型喇叭、受话器、扬声器、耳机芯等电声产品，并拥有自己的模具加工中心、研发中心及注塑车间。

目前已成为苹果、三星、OPPO、SONY、华为、天宇等大型知名跨国上市公司的合作伙伴。

因公司规模扩大及业务发展需要，诚招广大优秀人员加盟。

瑞声集团沭阳厂区部门分布：宿迁京龙电子科技有限公司瑞声科技（沭阳）有限公司瑞声精密（沭阳）有限公司宿迁启祥电子有限公司丽声电子（沭阳）有限公司二、招聘岗位流水线操作工（电加工、焊锡、组装、质检、打码、注塑模具、冲压模具、注塑工艺等上百个细分岗位）三、应聘条件1.年龄：16周岁以上（以二代身份证原件为准）2.学历：初中及以上学历3.视力：矫正视力1.0以上4.健康：体检合格，要求至少在县级以上公立医院体

宿迁京龙电子科技有限公司

公司性质：其它

所属行业：互联网/电子商务

公司规模：100-499人

相关职位

网络销售
初中 | 无经验 | 3000~5000元/月
银龙饲料徐州有限公司

农业技术员
本科 | 无经验 | 面议
酒泉有种网网络技术有限公司

农机专业技术人员
本科 | 3-5年 | 面议
江苏省农垦农业机械安全监理所

销售代表
高中 | 无经验 | 3000~5000元/月
扬州颐年健康咨询有限公司

公司直招普工操作...
初中 | 1年以下 | 3000~5000元/月
南通大地电气股份公司

Another source shows a similar self-description[5]:

SuQian QiXiang owners include 黄勇东/Huang Yong Dong, per local filings. A man by the same name is pictured below at an AAC event. He is described as the Chairman's Assistant[6]:

Evidence that 黄勇东/Huang Yong Dong's ties run deeper than SuQian QiXiang

CLSA accused Gotham City Research of making "groundless accusations", a few days ago in a research note titled "No alternative facts". One of CLSA's key claims[7]:

> *In AAC's donation signing ceremony for Peking University, the University website misreported Huang Yong Dong as the assistant to the CEO. Huang was never an employee of AAC.*

It is not clear to us what evidence – if any – exists to support CLSA's above assertion. To the contrary, we find the following evidence that shows Huang Yong Dong is in fact tied to AAC[8]:

- 黄勇东/Huang Yong Dong's connection to SuQian QiXiang (as explained in this section).
- 黄勇东/Huang Yong Dong's connection to 连泰精密科技江苏有限公司/Lian Tai Precision, as discussed later in this report.
- **黄勇东/Huang Yong Dong is listed as the legal representative/supervisor of 瑞迅供应链管理（常州）有限公司 a subsidiary of AAC until recently, per local filings.**

If Huang Yong Dong was/is not an employee of AAC, why is it that he is listed as the legal representative/supervisor of 瑞迅供应链管理（常州）有限公司, described as a subsidiary of AAC[9]:

股东信息 1

境内中国公民	姜淑英 (/search/姜淑英.html) 对外投资及任职 (http://app.qixin.com/oper/20161022/index.html)

主要成员 2

执行董事兼总经理	姜淑英 (/search/姜淑英.html) 对外投资及任职 (http://app.qixin.com/oper/20161022/index.html)
监事	黄勇东 (/search/黄勇东.html) 对外投资及任职 (http://app.qixin.com/oper/20161022/index.html)

瑞迅供应链管理（常州）有限公司 described as a subsidiary of AAC until October 2016

This entity – which was never disclosed by AAC in its annual reports – was described as a subsidiary of AAC until recently[10]:

5/16/2017 瑞迅供应链管理（常州）有限公司电话/地址/法人股东信息－启信宝

变更前	变更后
有限责任公司(台港澳法人独资)	有限责任公司(自然人独资)

2016-10-28
经营范围变更

变更前	变更后
货运代办、货物仓储服务、货物搬运装卸；新型电子元器件及其配件的国内采购、批发、佣金代理（拍卖除外）和进出口业务、转口贸易及其他相关配套业务、电子元器件简单加工。（不涉及国营贸易管理商品，涉及配额、许可证管理商品的，按国家有关规定办理申请）。（依法须经批准的项目，经相关部门批准后方可开展经营活动）。	货运代办、货物仓储服务、货物搬运装卸；自营和代理各类商品及技术的进出口业务，但国家限定公司经营或禁止进出口的商品及技术除外。（依法须经批准的项目，经相关部门批准后方可开展经营活动）。

2016-10-28
股东变更变更

变更前	变更后
瑞声声学科技有限公司	姜淑英

Despite the apparent changes since October 2016, does AAC still exert control and/or influence? We ask this question because the contact email address for this entity is still listed as AAC151@AACTECHNOLOGIES.COM, which is the web domain of AAC[11]:

武进区阳湖西路66号

AAC151@AACTECHNOLOGIES.COM (mailto:AAC151@AACTECHNOLOGIES.COM)

ShuYang LiSheng 沭阳丽声电子有限公司

The evidence suggests that ShuYang LiSheng, may be a significant undisclosed AAC associate[12]:

- ShuYang LiSheng reported ~RMB480 million of revenue, making it one of AAC's largest suppliers.
- Its operating margin of 2.4% is a tiny fraction compared to AAC's operating margin.
- With only RMB15.6 million of PPE in 2015, its PP&E as a % of revenue is only 3% versus AAC's 85%. Like in the case of SuQian QiXiang, this may imply that AAC books Shuyang Lisheng's PP&E at the parent company level rather than at the SuQian QiXiang level. We believe that AAC's most recent earnings call validates our opinion.
- This separate entity employs about 2,000-3000 people.
- Shuyang Li Sheng is owned by two shareholders. Mr. Li 李翔, a name shared by an AAC executive, and Pan Shi Nan 潘世南, a name shared by the uncle to AAC's CEO.
- AAC has never disclosed the unit as a related party.
- The unit produces the same products from the same location as AAC and seems to recruit new employees under AAC's banner.
- ShuYang LiSheng has 4 unconsolidated subsidiaries two of which may have links to AAC. One subsidiary, **连泰精密科技江苏有限公司/Lian Tai Precision**, will be discussed in detail later.

A Mr. Li listed as an AAC high level executive in an AAC presentation[13]

ShuYang LiSheng, like SuQian QiXian, appears to be operating within AAC's Shuyang Economic Development Zone, as satellite images show:

LiSheng operates inside of AAC's manufacturing complex

Shuyang LiSheng recruits employees under the AAC banner and descriptions on the web state that ShuYang LiSheng is a subsidiary/division of AAC Tech:[14]

ShuYang LiSheng's second unconsolidated subsidiary ChangZhou LiSheng may also have links to AAC. A recent job listing describes ChangZhou LiSheng as part of the AAC Group. ChangZhou LiSheng recruits employees under the AAC corporate name[15]:

Under Job Description: AAC Technology

Under Company Introduction: ChangZhou LiSheng Technology was registered on September 15, 2014…the operational manager is Pan Shi Nan

A local credit report provides further evidence that LiSheng is related to AAC[16]:

Translation:

- "[LiSheng] is mainly engaged in the manufacture and sale of electronic devices business, its products include micro-speakers, receiver, headphones, vibration motors.
- The target company is an affiliated enterprise of AAC Technology (Suzhou) Co., Ltd. and has passed ISO09001, ISO14001 certification system. Its products are mainly used in mobile phones, computer manufacturing and other industries.
- Target company sells domestically, AAC Technology (Shuyang) Co., Ltd. is responsible for the company's sales activities. Final customers include Samsung, Apple and other brand enterprises.
- Target company procures raw materials domestically, generally in East China."

Are undisclosed associated parties used to offload costs? II of II

AAC may be using undisclosed entities to offload at least 1.5 billion RMB in costs

In this section, we continue our examination by looking at other undisclosed related parties. We focus on:

- Xuan Ying Tong 深圳市轩盈通电子有限公司
- ZhongBeiTong Magnetic Materials 沈阳中北通磁科技股份有限公司
- Lian Tai Precision 连泰精密科技江苏有限公司

Xuan Ying Tong 深圳市轩盈通电子有限公司

We believe Xuan Ying Tong may be a significant undisclosed related party for the following reasons[1]:

- Xuan Ying Tong seems like an AAC distributor of cell phone speakers, receivers, microphones.
- Produces the same products as AAC and even describes itself as part of AAC in public records.
- In 2015, Xuan Ying Tong generated revenues of RMB349 million.
- The entity generated an operating loss, even while AAC generated a best-of-class 27.4% operating margin in the same year.
- Xuan Ying Tong has de minimis property plant and equipment (less than RMB 1 million).
- Pan Shi Nan, (a name coincidentally shared by the uncle to AAC's CEO and is coincidentally tied to several entities mentioned in this report) is described as the unit's general manager.
- For some reason, Xuan Ying Tong generated a loss in 2015 even though AAC simultaneously reported industry leading profit margins.

潘世南 Pan Shi Nan: AAC CEO's uncle or just a coincidence?

潘世南 (Pan Shi Nan) is the general manager of Xuan Ying Tong[2], and as previously mentioned in this report, shares the same name as the uncle to AAC's CEO. Pan Shi Nan seems a very important figure, as evidenced by his extensive involvement in many entities with possible ties to AAC, as shown below[3]:

Company Name (in English)	Company Name (in Chinese)	Product (SAIC Registration Disclosure)	Possible Relationship to AAC
ShuYang LiSheng	沭阳丽声电子有限公司	Cell phone components	Shareholders are AAC executive and uncle of AAC CEO
LianTai Precision	连泰精密科技江苏有限公司	Cell phone casing	Subsidiary of ShuYang LiSheng
ChangZhou LiSheng	常州丽声科技有限公司	Cell phone components	Subsidiary of ShuYang LiSheng
JiangSu Boruitong	江苏博瑞通磁业有限公司	Magnetic material (for use in electronic components)	Subsidiary of ShuYang LiSheng
ChangZhou RuiNan	常州瑞南电子有限公司	Electronic components	Subsidiary of ShuYang LiSheng
XuanYingTong Electronics	深圳市轩盈通电子有限公司	Distribution of cell phone components	Manager is uncle of AAC CEO
YangTai Electronics	常州市祥泰电子有限公司	Electronics components	Uncle of AAC CEO is shareholder
DongGuan RuiSheng Electronics	东莞市瑞昇电子有限公司	Electronics components	Shareholders are AAC executive and uncle of AAC CEO
HeSheng Precision	江苏和声精密科技有限公司	Machine parts	Uncle of AAC CEO is shareholder

AAC's disclosed related party transactions between the company and family members of the CEO and his wife, as shown in its annual reports, would indicate that if Pan Shi Nan were AAC CEO's uncle, it would expand on a well-established pattern of behavior.

Public sources show that 深圳市轩盈通电子有限公司/Xuan Ying Tong describes itself as part of AAC, despite not being listed on AAC's official subsidiary list[4]:

ZhongBeiTong Magnetic Materials 沈阳中北通磁科技股份有限公司

Gotham City Research has reason to believe that ZhongBeiTong Magnetic Materials is a significant undisclosed related party for the following reasons[5]:

- ZhongBeiTong Magnetic Materials makes magnetic components for electrical devices that are sold to AAC.
- ZhongBeiTong Magnetic Materials declared itself a related party supplier to AAC.
- Ingrid Wu, one of the unit's main shareholders and board members, shares the same name as the woman who is the wife of AAC CEO Mr. Pan and an AAC board member.
- In contrast, AAC hasn't made the same disclosure in its annual reports.
- The company estimated that it would enter into RMB 150 million worth of transactions with AAC in 2016.
- The unit, is also known as 沈阳中北通磁/Su Yang Zhong Bei.

ZhongBeiTong Magnetic Materials appears to be partly owned by Ingrid Wu, who shares the same name as the woman who is the wife of AAC's CEO and an AAC director. A woman by the name Ms. Wu is also a board member of Su Yang Zhong Bei. The unit has already declared that it's a related party to AAC, according to a local Chinese filing but AAC hasn't made a similar disclosure:

2、销售商品/提供劳务关联交易预计

关联人	关联交易类型	交易内容	交易金额（元）
爱发科中北真空（沈阳）有限公司	提供劳务	加工费	100,000.00
GENERAL MAGNETIC MATERIAL INTERNATIONAL CORP.（台湾八锋企业股份有限公司）	销售商品	货物	5,000,000.00
瑞声科技控股有限公司及其下属公司(瑞声声学科技(苏州)有限公司、瑞声科技（沭阳）有限公司、瑞声光电科技（常州）有限公司、AAC Technologies VIET NAM CO.LTD.等)	销售商品	货物	150,000,000.00

Related Party

AAC Technologies Group and subsidiaries

Coincidentally, the CEO's wife's family members are listed as connected persons in AAC's most recent annual report[6]:

The Connected Relationship

The relevant parties to the above continuing connected transaction with the Group and a description of their connected relationship with the Group are as follows:

The connected person	The connected relationship
Jiangsu Yuanyu	A company indirectly owned by Mr. Pan Zhonglai, father of Mr. Pan ("Mr. Pan's Father") and Ms. Xie Yufang, mother of Mr. Pan ("Mr. Pan's Mother") as to 51.72% and Mr. Pan's Father as to 48.28%
Shenzhen Yuanyu	A company wholly-owned by Ms. Ye Huamei, mother of Ms. Wu ("Ms. Wu's Mother")
Ms. Ye Huamei	Ms. Wu's Mother
Changzhou LFY	A company owned by Mr. Pan's Father and Mr. Pan's Mother each as to 50%
Changzhou ZKLF	A wholly-owned subsidiary of Jiangsu Yuanyu
Chengdu Yindile	An indirect subsidiary of Jiangsu Yuanyu
HGCJ	A company wholly-owned by Ms. Wu's Mother
Changzhou Yousheng	A company owned by Mr. Pan's Mother as to 30% and Ms. Pan Lijun, sister of Mr. Pan as to 70%
Changzhou Model	A company wholly-owned by Mr. Pan's Father
HVPC	A subsidiary of HGCJ
Chengdu ZKLP	A subsidiary of Jiangsu Yuanyu

Lian Tai Precision 连泰精密科技江苏有限公司

Gotham City Research has reason to believe that Lian Tai Precision is an undisclosed related party for the following reasons[7]:

- In 2016, Lian Tai generated revenue of RMB104 million and CNY-33.7 million of operating losses.
- Lian Tai is described as employing between 1,800-4,000 people.
- Is supposedly an independent AAC supplier-- AAC has never disclosed the unit as a related party.
- Lian Tai cites Apple as a customer.
- Lian Tai may be owned by the uncle of AAC's CEO.
- Lian Tai could be a prime example of AAC's apparent modus operandi whereby AAC may be using a parallel off balance sheet entities to produce identical products during the ramp stage of production.
- In addition to 黄勇东 Huang Yong Dong and 潘世南 Pan Shi Nan – who may have ties to AAC and some of the entities mentioned earlier in this report **– there is a man by the name of Sun Wenjing (孙文静) who may be connected to AAC as well.**

Remember 黄勇东 Huang Yong Dong and 潘世南 Pan Shi Nan? Coincidences?

Lian Tai is owned by a Hong Kong company called United Land Holdings which is owned by Huang Yong Dong and Pan Shi Nan. As discussed earlier, the former appears to be an employee of AAC and the latter shares the same name as the uncle of the CEO. Both men appear to play critical roles in the entities identified in this report.

Lian Tai was recently transferred by the earlier discussed LiSheng to a Hong Kong entity 裕联集团有限公司/United Land (HK), which is owned by Huang Yong Dong and Pan Shi Nan. (Source: Hong Kong Corporate Filing). United Land ownership file in Hong Kong reveals it is owned again by a person sharing the same as AAC's Assistant to the CEO and the CEO's uncle[8]:

股份類別 Class of Shares	Ordinary
此類別股份的已發行總數 Total Number of Issued Shares in this Class	1,000

姓名／名稱 Name	地址 Address	股份 Shares			備註 Remarks
		現時持有量 Current Holding	轉讓* Transferred *		
			數目 Number	日期 Date	
Huang Yong Dong 黄勇東	Room A, 7/F., Building 10, Bihai Yuntian, Qiaocheng East Road, Futian District, Shenzhen City, Shenzhen, China	300			Address Changed
Zhang Zunhua 張尊華	5H, Phase 2, Tower 11, Caribbean Coast, Tung Chung, Hong Kong.	--	5	29.4.2016	To Huang Yong Dong
Pan Shi Nan 潘世南	No. 30, San Jia Li, Qianjin Cun Wei Qianhuang Zhen, Wujin Qu, Changzhou Si, Jiangsu Province, China.	700			

孙文静 **Sun Wenjing appears connected to AAC and Lian Tai: another coincidence?**

Like 黄勇东 Huang Yong Dong and 潘世南 Pan Shi Nan, Sun Wenjing appears to be an important figure with respect to several possible undisclosed related parties. He is referred to as a representative/key member of Lian Tai per SAIC registration filings[9]:

连泰精密科技江苏有限公司 存续（在营、开业、在册）

Lian Tai Precision Technology Jiangsu Co., Ltd.

统一社会信用代码：91321322MA1MBQ1J15
法定代表人：孙文静
登记机关：沭阳县市场监督管理局
成立日期：2015年11月26日

发送报告
信息分享
信息打印

基础信息 | 行政许可信息 | 行政处罚信息 | 列入经营异常名录信息 | 列入严重违法失信企业名单（黑名单）信息

营业执照信息

- **统一社会信用代码：** 91321322MA1MBQ1J15
- **企业名称：** 连泰精密科技江苏有限公司
- **类型：** 有限责任公司(台港澳法人独资)
- **法定代表人：** 孙文静
- **注册资本：** 5000.000000万美元
- **成立日期：** 2015年11月26日
- **营业期限自：** 2015年11月26日
- **营业期限至：** 2025年11月25日
- **登记机关：** 沭阳县市场监督管理局
- **核准日期：** 2016年08月02日
- **登记状态：** 存续（在营、开业、在册）
- **住所：** 沭阳县经济开发区永嘉路
- **经营范围：** 冲压件、钣金件、注塑件、机加工件研发、制造、销售；模具开发、制造；道路普通货物运输；自营和代理各类商品及技术的进出口的业务（国家限定企业经营或禁止进出口的商品和技术除外）（依法须经批准的项目，经相关部门批准后方可开展经营活动）

股东及出资信息　股东及出资信息截止2014年2月28日。2014年2月28日之后工商只公示股东姓名，其他出资信息由企业自行公示。

序号	股东名称	股东类型	证照/证件类型	证照/证件号码	详情
1	裕联集团有限公司	外国(地区)企业	其他	2143675	

共 查询到 1 条记录 共 1 页　首页 上一页 1 下一页 末页

主要人员信息

Key personnel information

共计 3 条信息

潘世南	黄勇东	孙文静
监事	执行董事	总经理

Sun Wenjing
General manager

分支机构信息

暂无分支机构信息

Sun Wenjing is also, coincidentally, referred to as a representative/key member of ShuYang LiSheng (沭阳丽声电子有限公司), a possible significant undisclosed related party we discussed earlier[10]:

沭阳丽声电子有限公司 存续（在营、开业、在册）

统一社会信用代码： 91321322670118219N
法定代表人： 孙文静
登记机关： 沭阳县市场监督管理局
成立日期： 2007年12月17日

发送报告
信息分享
信息打印

基础信息 | 行政许可信息 | 行政处罚信息 | 列入经营异常名录信息 | 列入严重违法失信企业名单（黑名单）信息

营业执照信息

- **统一社会信用代码：** 91321322670118219N
- **企业名称：** 沭阳丽声电子有限公司
- **类型：** 有限责任公司(自然人投资或控股)
- **法定代表人：** 孙文静
- **注册资本：** 1000.000000万人民币
- **成立日期：** 2007年12月17日
- **营业期限自：** 2007年12月17日
- **营业期限至：** 2017年12月16日
- **登记机关：** 沭阳县市场监督管理局
- **核准日期：** 2016年04月20日
- **登记状态：** 存续（在营、开业、在册）
- **住所：** 沭阳县经济开发区南区长兴路
- **经营范围：** 电声器件研发、加工、销售；自营和代理各类商品及技术的进出口业务（国家限制企业经营或禁止进出口的商品和技术除外）。（依法须经批准的项目，经相关部门批准后方可开展经营活动）

主要人员信息

李翔 监事	潘世南 执行董事	孙文静 总经理

Sun Wenjing is described as representing 'AAC Group' in articles that describe an award ceremony involving a vocational school and AAC Technologies[11]:

商洛职业技术学院院长程诗有（右）向孙文静授牌

How is Lian Tai not a related party, given 孙文静 Sun Wenjing, 黄勇东 Huang Yong Dong & 潘世南 Pan Shi Nan?

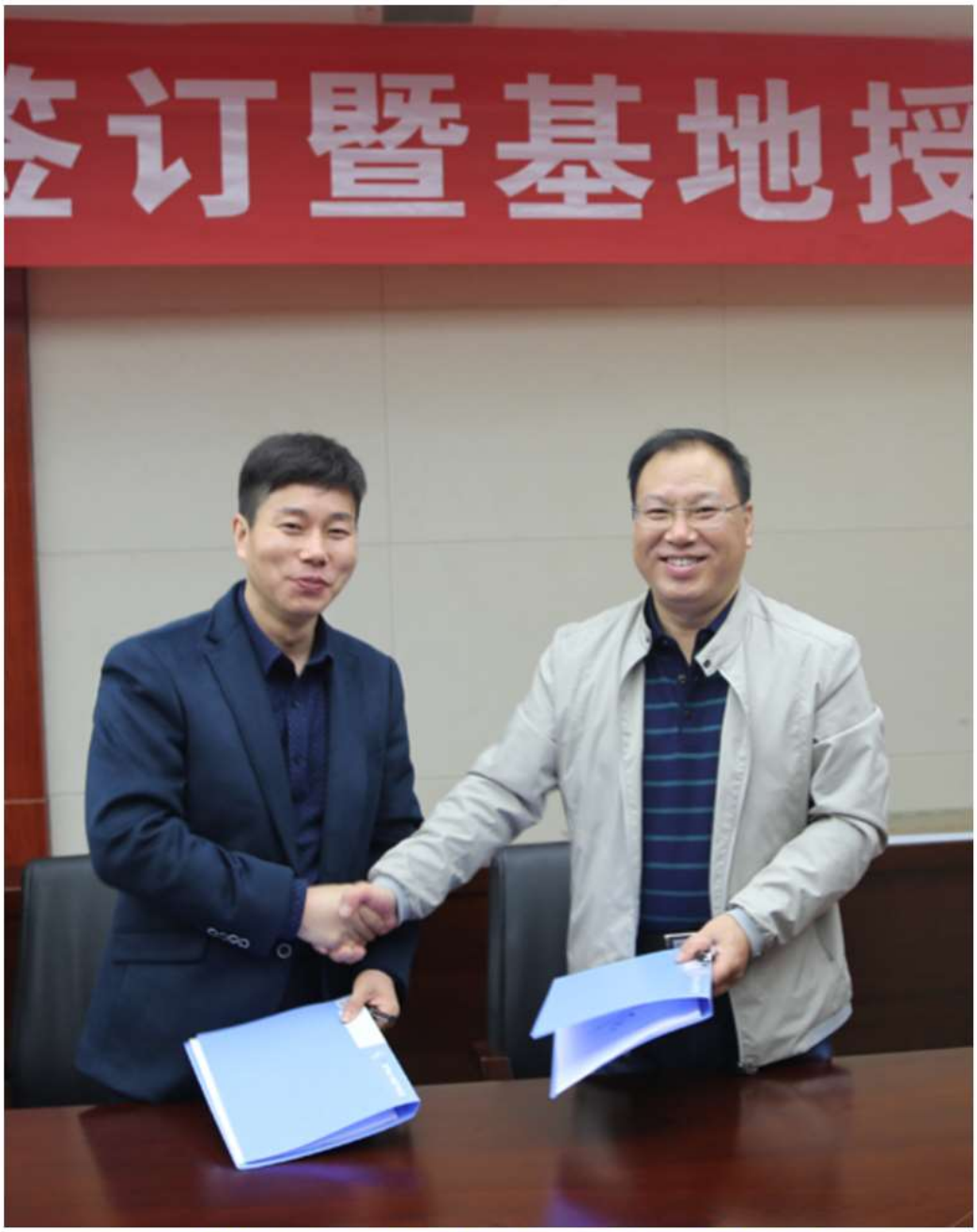
商洛职业技术学院院长程诗有(右)向孙文静授牌

——与瑞声集团签订校企合作协议。 10月12日，商洛职业技术学院与瑞声集团校企合作签订暨基地授牌仪式在学院正式举行。该院院长程诗有和瑞声集团连泰公司总经理孙文静互授实习就业基地和员工培养基地牌匾，该院副院长

郑强与孙文静签订校企合作协议。

签字授牌仪式上，该院机电系主任骞龙江回顾了双方校企合作的历程和基本情况，提出了下一步工作思路。孙文静介绍了公司规模、生产经营、订单培养等方面具体情况，并就双方如何更好开展合作进行了说明，表示瑞声公司将进一步发挥在资金、人才和技术上的优势，扩大与学院校企合作的宽度和深度，走长期合作发展之路。程诗有指出，加强校企合作是学院深化教育教学改革，走内涵建设发展道路的必然要求，通过双方合作可以起到提高学院教育教学水平、提升学生生存技能、加快企业发展、帮助贫困户脱贫等多个积极作用，希望瑞声集团能充分发挥自身优势，以本次校企合作为契机，探寻更为广阔的切入点和合作点，共同将校企合作做大做强。(文图/张涛)

责任编辑：linshi2



郑强副院长（右）代表学院与瑞声集团签订校企合作协议

Translation: Zheng Qiang Vice President (right) on behalf of the Academy and AAC Group signed the cooperation Agreement between schools and enterprises

More Sun Wenjing[12]

孙文静经理讲话

Based on a site visit to **Lian Tai Precision**, Address:
江苏省沭阳县沭城镇经济开发区北园区永嘉路 40 号_ , Lian Tai's factory has the AAC logo on the outside rather than its own name[13]:

It is our understanding that someone in Chinese social media, as well as a Citigroup Asia employee, accused us of photoshopping and/or fabricating the above images. We did not; in fact, AAC in its responses last week seems to have validated our findings, that the AAC logo appeared on those buildings show above. **We would not be surprised if more recent claims discrediting us – for example, that "Lian Tai's owner has no relationship with AAC's CEO Pan. He is not a relative, a family member nor an (ex) employee" turns out to be false, as well.**

Lian Tai in employment recruiting adverts claims it is one of Apple's partners, clearly using this connection to attract recruits[14]:

宿迁连泰精密科技

公司简介 | 在招职位 | 公司评价(0)

沐阳连泰精密科技江苏有限公司为沭阳地区大型电子生产企业，拥有4000多名员工，主要生产手机用微型喇叭、受话器、扬声器等电子产品，是苹果、三星、小米、OPPO、HTC等大型知名中国公司的合作伙伴。公司拥有最先进的流水线设备。车间24小时中央空调，工作环境舒适优雅。医务室、食堂、超市、浴室、洗衣房、图书馆、体育场、网吧、ATM等生活配套设施。

公司名称：宿迁连泰精密科技
公司规模：10000人以上
公司行业：生产/制造
公司类型：合资
联 系 人：李主管
联系电话：188-6223-7173
公司地址：江苏宿迁沭阳沭阳县经济产业园北园区永嘉路电子科技园

We know based on Apple's supplier disclosures, that Apple does not purchase casing from AAC.

Based on additional field research related to Lian Tai, we found:

- All sales inquiries were directed to AAC; Lian Tai does not appear to have a sales department.
- According to the site visits, Lian Tai primarily produces cell phone casings and other cell phone components; Lian Tai began operations in March 2016.
- Local sources allege that Lian Tai may be reliant on AAC for all of its orders.

Please see the Lian Tai Precision-related appendix section for more information.

Additional inconsistencies we see with AAC's explanations

The company's explanation for its apparent success

Gotham City Research is skeptical of AAC's explanations as to why its margins are so high, for reasons beyond those described in prior sections.

The company's explanations seem dubious for these additional reasons:

- Free cash flow has been consistently lower than net income since 2007 (only about 24% of profits).
- Despite its highly-touted investment in automation, employee count growth actually exceeded revenue growth from 2013 to 2016.
- Capex vs automation explanation - AAC completed the major phase of automation production (in 2012 AR)
- It's unclear how much of an automation edge AAC has over its peers, given that AAC's automation development has been ongoing since 2007, according to Credit Suisse.
- If AAC's margins are as high and smooth as reported, why haven't Apple, Samsung, or other handset makers entered the space and/or vertically integrated to enjoy the cost savings for themselves?
- Boasting about patents – IBM has many patents, but is not seen as an innovator.
- AAC's explanations regarding its margin advantage don't explain the quarterly smoothness, even when revenues decline quarter over quarter.

Free cash flow has been cumulatively only ~25% of net income, since 2007

Since 2007, free cash flow has been cumulatively a tiny fraction of net income. Over the long term, free cash flow is seen by many as a measure of true earnings power. Companies whose free cash flow is consistently lower than its accounting earnings tend to exhibit low earnings quality. The variance between free cash flow and net income does not seem supportive of the company's explanations regarding its "good" margins, even after accounting for growth capital spending (the variance just seems too wide)[1]:

AAC's free cash flow* is consistently lower than net income											
RMB '000	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2007-2016**
Free cash flow	-20,552	308,066	604,194	174,025	-280,414	195,092	1,616,442	-194,489	1,402,918	867,742	**4,673,024**
Net income	548,042	590,603	609,800	987,477	1,032,933	1,756,573	2,571,458	2,310,401	3,110,194	4,024,435	**17,541,916**
FCF as a % of net income	<0%	52.2%	99.1%	17.6%	<0%	11.1%	62.9%	<0%	45.1%	21.6%	**26.6%**

* - we define FCF as cash flow from operations less capex

The above may suggest aggressive accounting 101 for a highflying stock where the internal incentives for management are tied to the stock price and stock liquidity—rather than maximizing cash flow.

If AAC has invested heavily in automation, why has cumulative employee count growth exceeded cumulative revenue growth since 2013?

Revenue nearly doubled between 2013 and 2016, while employee count more than doubled during the same time period[2]:

Revenue and employees - AAC					
RMB'000	**2012**	**2013**	**2014**	**2015**	**2016**
Revenue	6,282,946	8,095,889	8,879,300	11,738,866	15,506,828
Employees	26,575	23,011	32,172	35,687	46,396
Revenue growth		29%	10%	32%	32%
Employees		-13%	40%	11%	30%

The company and some Wall Street Analysts have referenced automation as a driver of better margins, yet we see no evidence of improved operational efficiency as gauged by revenue growth per employee growth. In fact, the above table does not include the employee counts of the undisclosed entities we discussed earlier in this report. If we were to combine the employees of those entities, this would cast further doubts regarding the claimed margin advantage AAC enjoys.

Adding further suspicion: in 2013, AAC actually attributed its reduction in employee count (which coincided with an increase in revenue) to the success of its 'ongoing automation programme'[3]:

> *As at 31st December, 2013, the Group employed 23,011 permanent employees, a reduction from a total of 26,575 as at 31st December, 2012, brought about by the Company's ongoing automation programme.*

Using AAC's own implied logic, would this not suggest that AAC's automation programme has failed in its objectives, seeing that employee growth since then has exceeded revenue growth? How did margins remain so high and smooth since 2013?

How is AAC's automation superior to its peers if SG&A + R&D spending per employee is a fraction of its peers?[4]

SG&A* per employee - AAC vs peers	
USD '000	**2016**
ALPS Electric	23.4
Jinlong Machinery	35.2
Knowles Corp	14.9
AAC Tech	**6.3**

* - including R&D expense

2016 average exchange rates:	
USD/CNY	6.64
USD/JPY	107.76
USD/TWD	32.25

If AAC's automation development began in 2007, what has kept its competitors or customers from simply replicating their "secret sauce"?

According to Credit Suisse, AAC's "proprietary automation" development began in 2007[5]:

CREDIT SUISSE

21 May 2012

Proprietary automation drives earnings sustainability

We visited AAC's manufacturing plant in Changzhou post our Hong Kong NDR. We met with AAC's VP of operations and visited three main manufacturing lines in its Changzhou facility, as well as the in-house tooling factory. AAC adopts a vertically integrated approach with 95% in-house manufacturing capability with four major manufacturing facilities (Changzhou, Suzhou, Shuyang and Shenzhen). The rising cost of Chinese labour and material costs (rare earth elements) are increasing margin pressure for AAC.

Production automation mitigates rising cost pressure

In order to improve the consistency of its product quality and lower its manufacturing cost, AAC embarked on production automation development since 2007. After years of development, AAC now employs a professional team in structural design, automation control and software research and owns proprietary automation equipment technology for micro-acoustic products which were successfully applied in mass production.

Figure 24: **AAC's production facility profile**

Plants	Province	Productions	Production automation	Comments
Changzhou	Jiangsu	Speakers, receivers, vibrators	Semi / lean / full - automation	Low-mix high-volume acoustic products
Shuyang	Jiangsu	Speakers / receivers	Non-automated	High-mix low-volume acoustic products
Suzhou	Jiangsu	Lenses	Semi-automation	High-end optics production
Shenzhen	Guangdong	Microphones: ECM and MEMS	Semi / full	Microphone production

Source: Company data

What has kept AAC's competitors and/or the Apple, Samsung, etc. of the world, from achieving the same margins as AAC? The margin variance, recall, is quite dramatic[6]:

Net Profit Margins - AAC versus Peers			
	2014	**2015**	**2016**
Goertek	13.0%	9.2%	8.6%
ALPS Electric	3.0%	5.8%	6.0%
Knowles Corp	13.1%	1.9%	2.2%
Merry Electronics	10.1%	5.2%	11.9%
Jinlong Machinery	9.5%	10.8%	4.0%
AAC Tech	**26.0%**	**26.5%**	**26.0%**

Operating Profit Margins - AAC versus Peers			
	2014	**2015**	**2016**
Goertek	15.2%	10.6%	9.5%
ALPS Electric	4.2%	7.2%	6.8%
Knowles Corp	14.7%	4.2%	5.5%
Merry Electronics	11.7%	6.9%	9.7%
Jinlong Machinery	8.6%	11.8%	3.0%
AAC Tech	**29.2%**	**29.5%**	**30.3%**

Gross Profit Margins - AAC versus Peers			
	2014	**2015**	**2016**
Goertek	27.4%	24.9%	22.4%
ALPS Electric	18.5%	20.7%	19.7%
Knowles Corp	38.9%	36.8%	38.2%
Merry Electronics	24.1%	19.6%	19.9%
Jinlong Machinery	28.9%	24.6%	11.5%
AAC Tech	**41.4%**	**41.5%**	**41.5%**

AAC's "margin advantage" explanation does not explain margin smoothness amidst seasonality

As shown below, AAC's quarterly revenue declines, quarter over quarter, from Q4 to Q1. How is that margins remain rather resilient?[7]

RMB '000	**Q4 2013**	**Q1 2014**
Revenue	2,181,953	1,854,007
QoQ % change		-15.0%
Gross margin	42.8%	40.2%
Operating margin	30.8%	29.6%
Net margin	27.6%	26.2%

RMB '000	**Q4 2014**	**Q1 2015**
Revenue	3,098,894	2,304,711
QoQ % change		-25.6%
Gross margin	41.1%	41.5%
Operating margin	28.6%	28.5%
Net margin	25.4%	26.2%

RMB '000	**Q4 2015**	**Q1 2016**
Revenue	3,848,260	2,544,746
QoQ % change		-33.9%
Gross margin	41.4%	40.5%
Operating margin	28.9%	26.7%
Net margin	26.3%	24.3%

RMB '000	**Q4 2016**	**Q1 2017**
Revenue	5,736,578	4,215,065
QoQ % change		-26.5%
Gross margin	41.7%	41.6%
Operating margin	32.3%	30.0%
Net margin	27.4%	25.2%

Valuation

Why we believe shares are worth no more than 40-50 HKD per share

We use two different methodologies for the purpose of valuation:

1. Free cash flow as a more accurate measure of earnings.
2. Adjusting AAC's earnings for possible offloading of costs via the undisclosed related parties.

Free cash flow approach implies up to -70% downside

Free cash flow has consistently been a small fraction of reported earnings, and over a long time horizon[1]:

AAC's free cash flow* is consistently lower than net income											
RMB '000	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2007-2016**
Free cash flow	-20,552	308,066	604,194	174,025	-280,414	195,092	1,616,442	-194,489	1,402,918	867,742	**4,673,024**
Net income	548,042	590,603	609,800	987,477	1,032,933	1,756,573	2,571,458	2,310,401	3,110,194	4,024,435	**17,541,916**
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* - we define FCF as cash flow from operations less capex

Assumptions:

- Let's be conservative and use 5.32 HKD per share (which is on the high end of consensus estimates) as our estimate for 2017 EPS.
- We believe that AAC's true earnings is closer to 25% of whatever earnings is reported, given the historical variances between free cash flow and earnings as shown above.
- 25% of 5.32 HKD per share implies a true earnings power of around 1.33 per share.
- **If we apply a 20x-30x P/E multiple we arrive at a measure of intrinsic value closer to 27-40 HKD per share, implying significant downside (up to -70% downside) from current market prices.**

Adjusted earnings approach implies shares are worth around 40-50 HKD per share

We believe investors may have failed to take account for what appears to be suspect accounting based on our findings discussed earlier in this report; specifically, we estimate that at least RMB1.5 billion of costs might be off AAC's books. We make the following adjustments:

Adjustments/assumptions:

- 40% of the revenues come from haptics and 60% come from acoustics & other.
- AAC's revenue will grow 24% this year.
- We applied operating margins of 12%-15% (using Goertek and Nidec's margins as proxies); this is the adjustment factor for the suspect behavior we flagged in this report.
- We use a 20x-25x P/E multiple for 2017 to arrive at a stock price of HKD 41/share based on a 0.886 Chinese yuan to Hong Kong dollar foreign exchange rate.

We do not penalize AAC for possible competitive pressures and threats, as other Apple suppliers have faced; shares would be worth meaningfully less than 40-50 HKD per share, if AAC were to face such threats.

APPENDIX

Lian Tai Precision Field Research

连泰精密科技江苏有限公司

江苏省宿迁市沭阳县经济开发区永嘉路 40 号

**下图即为连泰精密科技江苏有限公司的工厂 如图所见厂区内只有三个大的厂房（车间）

因为每个厂房的长度都超过了两百米以及工厂周围的树木遮挡我很难对其整体拍照

**这里的工人告诉我这个工厂是归江苏鸿利达铝业有限公司所有的
现在连太精密科技有限公司只是租用了鸿利达的厂房几年（可能是出于节约成本的考虑）而之所以连泰会租用鸿利达的厂房是因为鸿利达经营不善几乎倒闭

因为我无法进入厂内 所以只能绕厂一周 拍摄照片

在厂房的墙壁上你能看到"**瑞声科技**"四个大字 也就是 AAC 集团的中文名称

我认为**连泰精密** 之所以没有把它们的名字印在厂房墙壁上是因为现在这个工厂还不归他们所有但是我认为这也足以证明这个工厂现在是瑞声的分厂

瑞声科技

40

一些远景拍摄你可以看到这只有三个车间 且每个车间长度都超过了 200 米

关于为什么我可以确认这里就是连泰精密工厂

这是因为我有在网络上查看他们的招聘信息 上面有写他们的详细地址

链接如下

http://qy.58.com/13599122782215/

招聘信息写到连泰精密工厂位于沭阳县经济开发区永嘉路 40 号

而下图中门卫室墙壁上的蓝色标牌也写着永嘉路 40 号

图片不是特别清晰 是因为那里门卫太多我无法太靠近

同时我也跟附近的居民以及工人确认过这个工厂就是连泰精密

40
vivo
vivo
禁止通行

END NOTES

Introduction

1. https://www.wsj.com/articles/apple-watch-faulty-taptic-engine-slows-roll-out-1430339460
2. Company filings, Bloomberg, and/or CapitalIQ
3. “”
4. AAC analyst reports, AAC earnings call(s).
5. OLP Global

Does AAC Use Undisclosed Related Parties to Inflate Profits?

1. Company filings, Bloomberg, and/or CapitalIQ
2. “”
3. AAC’s recent further clarification announcement
4. SAIC registration filings and field research
5. “”

Are undisclosed associated parties used to offload costs? I of II

1. SAIC filings and/or other local filings, field research, and job/web postings
2. SuQian QiXiang SAIC filings and/or other local filings, field research, and job/web postings
3. Field research
4. http://www.jsrsrc.com/jobs/jobs-show.php?id=151444
5. http://qy.58.com/41040341179155/
6. http://school.freekaoyan.com/bj/pku/dongtai/2016/05-09/1462778832588693.shtml , cached version via baidu
7. CLSA research note titled, “No alternative fact”
8. SAIC registration filings
9. “”
10. “”
11. “”
12. ShuYang LiSheng SAIC filings and/or other local filings, field research, and job/web postings
13. http://wenku.baidu.com/link?url=q8yrrb3mMzwM82q2d89Lvy_YDTenWOJWBzOad_3iE5n9RPoY2MryX0MpPdmjhFLskb1sikg_VerajiH-VUl07KRoPKLNyg5oTxVKMJDVWdO
14. http://www.ganji.com/gongsi/117332/?agentCompany=34148599
15. http://cz.58.com/zpshengchankaifa/26340670025267x.shtml
16. Local filings

Are undisclosed associated parties used to offload costs? II of II

1. Xuan Ying Tong related SAIC filings and/or other local filings, field research, and job/web postings

2. http://www.tianyancha.com/human/2054184456/%E6%BD%98%E4%B8%96%E5%8D%97/1459914286?hbase=gd
3. Various SAIC filings and/or other local filings, field research, and web postings
4. http://scsxsdzschsxsdzscshixsdzscsxuansdz.cn.biz72.com/introduction/
5. ZhongBeiTong Magnetic Materials related SAIC filings and/or other local filings, field research, and job/web postings
6. AAC Technologies Annual Report 2016
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Additional inconsistencies we see with AAC's explanations

1. AAC annual reports
2. “”
3. AAC 2013 annual report
4. Various company filings
5. Credit Suisse research report
6. Various company filings
7. AAC quarterly releases

Valuation

1. AAC annual reports