

## Company Visit

Not Rated

KuangChi Science Ltd

Sector: Materials

Industry: Paper &amp; Forest Products

Sub-industry: Paper Products

## Key data

Price (HK\$)	5.11
52wk High (HK\$)	6.23
52wk Low (HK\$)	0.20
Market Cap (HK\$m)	17,405
Market Cap (US\$m)	2,245
Shares outstanding (m)	1,450
Free float	26.6%
1M Return	-1.0%
6M Return	590.5%
52wk Return	1903.9%
YTD Return	2102.6%
Dividend yield (FY13)	#VALUE!
S&P	-
HSCEI	11,269

## Inst Ownership (Top 5)

NEW HORIZON WIRELESS	33.27%
NEW HORIZON WIRELESS	-28.95%
SHEK WONG HIN	18.76%
YUAN RUAN	5.75%
YU NAN	4.57%

Source: Bloomberg

## 光启科学 (439:HK)

## 冉冉升起的新星

光启科学是一家独特的企业。光启是一家通过引领新兴技术革命为用户带来创新产品解决方案及卓越体验的高科技公司，总部位于中国深圳。光启开创性地开发了 Meta-RF 电磁调制技术、超材料技术、智能光子技术、临近空间技术等一系列革命性的创新技术，所从事的业务领域涉及航空航天工业、临近空间探索、互联网金融和智慧城市。

**临近空间飞行器是关键。**临近空间是指航空飞行器的飞行上限至航天飞行器的轨道下限之间的高度范围。光启正在开发于临近空间航行的飞行器，开发难度在于飞行器要能承受一段特殊的大气气压（低于航空飞行器所能承受的气压，但高于航天飞行器所能承受的气压），臭氧的腐蚀，紫外线的辐射还有较低的气温。临近空间飞行器可以提供比大多数卫星分辨率更高的图像，其表面积大于传统的航空飞机，还要同时保证运营的低能耗。

**光启创始团队包含五位顶级科学家。**刘若鹏博士是光启的创始人。在读博期间，刘若鹏与所在实验室里的其他几名创业者：赵治亚博士、季春霖博士、栾琳博士以及牛津大学的访问学者张洋洋博士，共同从事前沿技术研究。2010年初，掌握着开启“隐身衣”钥匙的五位年轻人，心怀“改变世界的创新”梦想回国，在深圳筹备建立光启。2010年7月13日，深圳光启高等理工研究院在深圳五洲宾馆正式揭牌成立，光启的发展序幕由此拉开。2012年12月7日，习近平总书记莅临光启视察指导工作，光启是习总书记任内视察的第一家企业。光启在其领域还没有严格意义上的竞争者，全球都在进行临近空间飞行器的技术开发，但还未有试飞成功的案例。光启管理团队有信心成为这个领域的首创者。

**公司难以量化估值。**光启的股价在借壳上市后上涨了 1600%。这一增长主要来源于市场对公司前景的乐观情绪，习近平对公司的访问表明了中国政府的高度关注，但到目前为止，公司的业务，如潜在订单，定价或成本都信息有限，难以量化。光启总市值近 300 亿港元，五创始人持有 26.8 亿优先股，转换后将共持有 34 亿的普通股。

## Financial Table

	10A	11A	12A	13A
Revenue (m)	-	-	81	113
YoY (%)	-100.0%	#DIV/0!	#DIV/0!	39.7%
Net income (m)	(4)	(5)	2	(38)
YoY (%)	-120.4%	9.6%	-146.6%	-1798.4%
Diluted EPS	-0.01	-0.05	0.00	-0.03
YoY (%)	-121.4%	260.5%	-104.1%	-1450.0%
ROE (%)	-6.2%	-7.3%	1.8%	-21.8%
Dividend yield (%)	0.0%	0.0%	0.0%	0.0%
Free cashflow per share	-0.01	-0.03	-0.01	0.01
PE (x)	-	-	66.5	-
PB (x)	0.4	0.1	0.9	2.4
EV/Ebitda	-	-	21.5	60.0
Debt/Equity	0.00	0.00	0.37	0.05

Source: SWS Research, Bloomberg



## Rising star

**Developing high-tech products.** Headquartered in Shenzhen, KuangChi is a high-tech company developing a unique series of innovative technologies for use in satellite transmissions.

**Near space is the place.** KuangChi is developing a special vehicle that can cruise at high altitude, or “near space” – the portion of the Earth’s atmosphere ranging from above normal aircraft cruising levels but below the level at which satellites orbit the Earth. Difficulties of navigating near space include the range of low atmospheric pressures – too low for normal aircraft flight but too dense for satellites, in addition to which strong is the presence of corrosive ozone and exposure to ultraviolet radiation and low temperatures. Near space vehicles, used to provide higher-resolution images of the Earth than most satellites, need to be developed with larger surface area than standard aeroplanes, while being capable of operating at low energy requirements.

**Scientist founders.** Dr. Liu Ruopeng is the founder of KuangChi. During his graduate study, he developed the frontier technology with other KuangChi founders Dr. Zhao Zhiya, Dr. Ji Chunlin, Dr. Lin Luan, and the visiting scholar Dr. Zhang Yangyang from Oxford University. The five founders returned to China in 2010, holding the keys to the ‘invisible cloak’, with the goal of developing “Innovation that Changes the World”. On 13 July 2010, Shenzhen KuangChi Institute of Advanced Technology was officially unveiled in the Shenzhen Wuzhou Guest House, which later became KuangChi. The company has hosted a visit by Chinese President Xi Jinping at its offices.

**Emerging business with no competitors.** The development of near space vehicles is ongoing globally, with no successful launches to date anywhere in the world. As a result, the company has no competition to speak of. KuangChi management is optimistic that they may announce a breakthrough in future.

**Few reference points for valuation.** The company’s stock has rallied +1,600% since it completed its backdoor listing. Much of this growth is driven by positive sentiment over the company’s prospects due to the attention awarded the project by the Chinese government – as evidenced by Xi Jinping’s visit to the company’s headquarters. As yet, though, information on the company’s business, such as potential orders, pricing or costs. Total market cap is nearly HK\$30bn, with the five founders holding 2.68bn preferred shares, and a further 3.4bn in ordinary shares.

## Near space: a new explore

Near space is defined as the region of earth's atmosphere that lies from 20km to 100km above sea level by US Air Force, or 23km to 100km by FAI (International Aeronautical Federation). It's also called high altitude or upper atmosphere in academy. According to resource utilization in engineering, the atmosphere could be divided into aviation layer (below 20km), near space (20-100km) and space (above 100km). Near space lies above where commercial airliners fly in aviation layer but below orbiting satellites in space layer. Further in near space are lower near space (20-30km), mid near space (30-70km) and high near space (>70km).

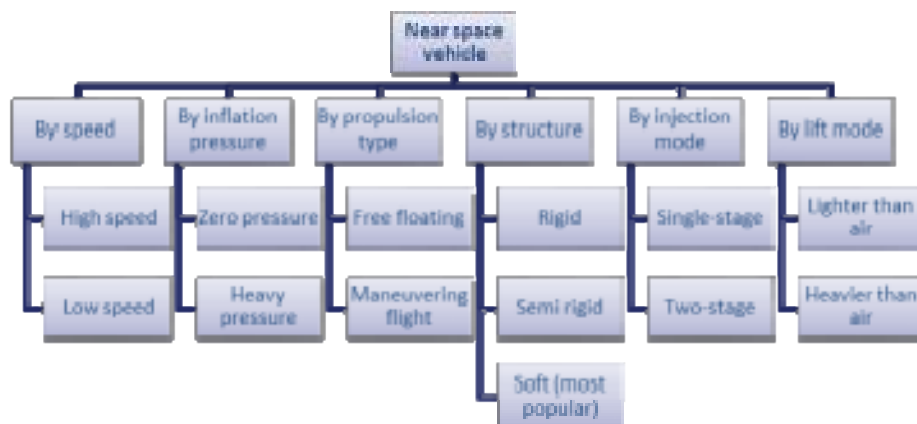
As near space is in the space transition zone, encompassing the stratosphere, mesosphere and the lower thermosphere, the environment has many unique features: (i) rarefied atmosphere: atmospheric density changes with altitude, relative density decreases about 0.0078 every 1km height and decreases an order of magnitude every 16km; (ii) atmospheric pressure attenuation: the pressure decreases linearly and fits equation  $P = 5.4 \times 10^{-6} - 3.2 \times 10^{-7}h$ ; (iii) strong ozone corrosion: density up to  $5 \times 10^{18}/\text{cm}^3$ ; (iv) strong ultraviolet radiation: large amounts of ultraviolet rays pass through without being absorbed due to rare nitrogen; (v) low temperature: temperature ranges from  $-3^\circ\text{C} \sim -110^\circ\text{C}$ , increasing with height in stratosphere and thermosphere but decreasing in mesosphere which is the coldest place.

## Near space vehicles: new trend with great potential

The above features make it hard for either airliners or satellites to operate normally, so here comes near space vehicle. It fills the broad gap as a new space platform. Compared to planes, near space vehicle covers a larger area and works much longer with low energy expenditure; compared with satellites, it provides photos with higher resolution ratio and could focus on specific areas. In addition, near space vehicles benefit from short R&D cycle, low cost and good viability and stealth performance. If necessary, it could be repaired instead of replaced.

Classification of near space vehicle depends on different criterions. If sorted by lift mode which is most popular, stratosphere airship, stratosphere high altitude balloon and half-controllable aerostatics are lighter than air while solar stratosphere flying wing, stratosphere UAV and hypersonic aircraft are heavier than air. The research hotspot at present is focused on: (i) low-speed lifting aircraft such as high-altitude reconnaissance aircraft, long-endurance unmanned aerial vehicles, etc. (ii) low-speed buoyancy balloons which have partly come into use; (iii) stratospheric airship; (iv) high-speed near space manned aircraft; (v) Hypersonic cruise.

**Figure 1: Classification of near space vehicle**



Source: *Status and Trend of Near Space Vehicles (2012)*, Ke Tang, *Cruise Missile, No.11*, SWS Research

Countries such as US, Korea, UK, Japan, and Russia have paid intensive attention on near space vehicles since mid-20<sup>th</sup> century. Overseas near space vehicle technology is still in development and validation phase for key technologies; the US has established a leading position. In China, as a late starter, the Institute of High Energy has been working on projects and developed near space balloons. At present, these vehicles have been developed with military applications at the forefront of consideration, but in future management expects the vehicles to be used for commercial communications, meteorological observation, tourism and space travel. The table below lists major near space vehicles around the world up to now and their parameters.

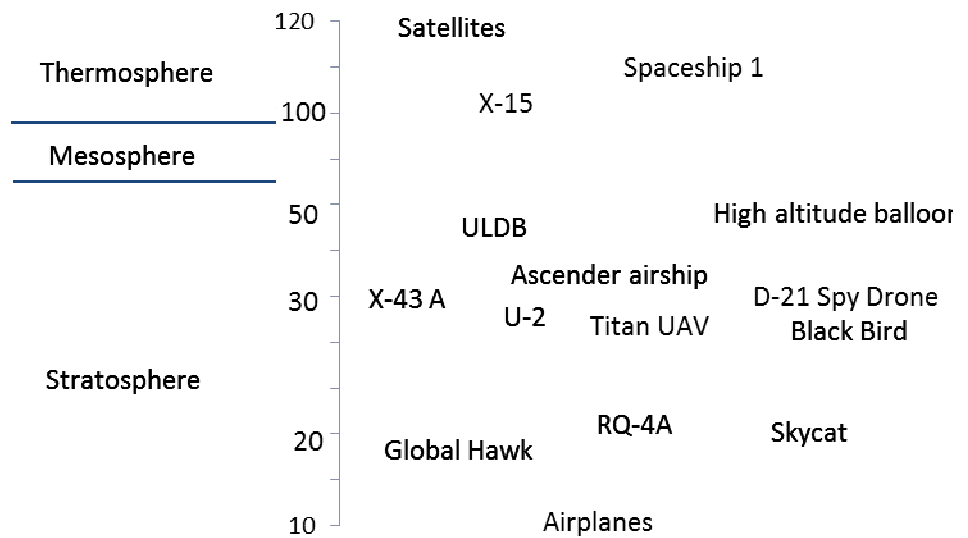
**Figure 2: Major near space vehicles projects in the world**

Vehicle	Country	Height (km)	Highest speed (km/h)	Voyage (km)
<i>U-2 Air Scout</i>	US	27	804	4180
<i>X-15 Rocket-powered trial machine</i>	US	80-100	7274	450
<i>SR-71 Black Bird</i>	US	25	3331	2960
<i>D-21 Spy Drone</i>	US	29	3560	5000
<i>Global Hawk</i>	US	19.8	740	26000
<i>Titan UAV</i>	US	29	-	-
<i>Ascender airship</i>	US	30-50	-	-
<i>Spaceship 1</i>	US	100	3600	-
<i>X-43 A</i>	US	33.5	8047	-
<i>ULDB</i>	US	48.7	-	-
<i>RQ-4A</i>	US	21	-	-
<i>Large airship</i>	Japan	16.4	-	-
<i>High-speed long-endurance manned airship</i>	Russia	-	170	15000
<i>Ka-137</i>	Russia	-	175	530

Skycat-20	UK	20	158	2250
Skycat-200	UK	20	139	5970
Skycat-1000	UK	20	185	11000
Stratospheric trial airship	Korea	30	-	-

Source: Near space vehicles technology, Internet, SWS Research

Figure 3: Distribution map of near space and vehicles



Source: Internet, Research papers, SWS Research

Concerning the technical development and applications in commercial field, the unexploited market in near space vehicles shows huge potential and large opportunities. Earth observation, communication and broad access, battle field alarming, electronic surveillance and interference and RNAV and technological experiment are the main focus in the following years and bring the technologies to practical use.

## KuangChi Background

Dr. Liu Ruopeng is the founder of KuangChi. During his graduate study, he developed the frontier technology with other KuangChi founders including Dr. Zhao Zhiya, Dr. Ji Chunlin, Dr. Lin Luan, and the visiting scholar Dr. Zhang Yangyang from Oxford University. The five founders returned to China in 2010, holding the keys to the 'invisible cloak', with the goal of developing "Innovation that Changes the World". On 13 July 2010, Shenzhen KuangChi Institute of Advanced Technology was officially unveiled in the Shenzhen Wuzhou Guest House, which later became KuangChi. The company has hosted a visit by Chinese President Xi Jinping at its offices.

Headquartered in Shenzhen, KuangChi is a high-tech company providing solutions to innovative products by leading newly technology for users from some main European countries, such as Germany, France, Italy; Asian regions, such as Japan, South Korea, Hong Kong, Taiwan, Macau, etc; and American countries: the United States. The company has developed a unique series of innovative technologies for use in satellite transmissions, for digital transfers, and phone or computer communications. Kuang-Chi's business scope covers aerospace, wireless-connected and intelligent industries.

## Backdoor listing and change of shareholding structure

Paper business Climax International (439:HK) reported a net loss of HK\$38m from revenue of HK\$113m in the year ending 31 March 2014.

In May 2014, New Horizon (controlled by KuangChi) took control of Climax International, changing its name to KuangChi Science and issuing new shares.

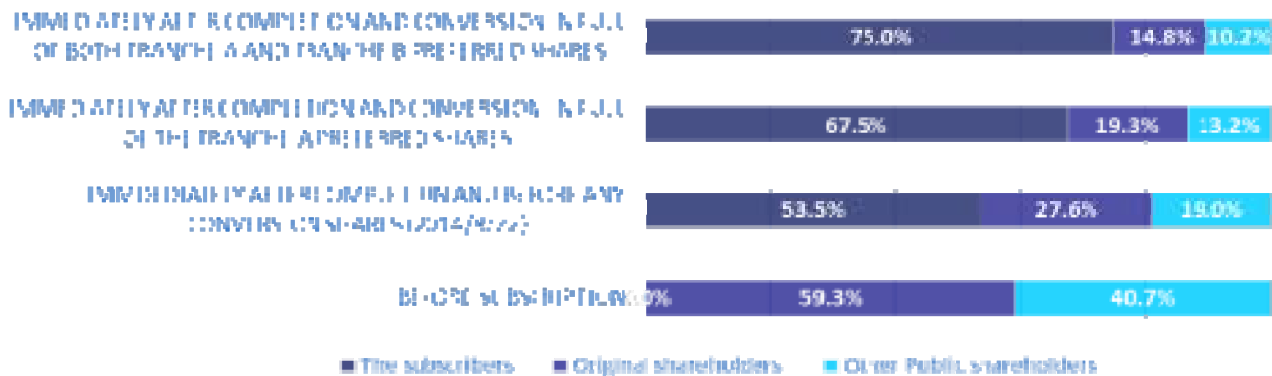
On 29 May 2014, Climax International announced it would issue 4.35bn shares, (of which 2.68bn were preferred shares) to six investors at HK\$0.08/share. Subscribers included New Horizon, Starbliss, Grand Consulting, Lucky Time, Cutting Edge, and Reorient Global. The aggregate subscription price amounts to approximately HK\$348 million. The preferred shares are convertible to ordinary shares at a ratio of 1:1 at a conversion price of HK\$0.08 prior to 22 August 2015. After the deal, New Horizon (controlled by KuangChi) held 36.4% of total issued ordinary shares (assuming zero conversion of preferred shares) or a 51% stake assuming full conversion of all preferred shares.

Figure 4: Subscription on May (1,666,666,668 ordinary shares and 2,683,333,332 preferred convertible shares at HK\$ 0.08 per share)

		Before Subscription	Immediately after completion and before any conversion shares (2014/8/22)	Immediately after completion and conversion in full of the Tranche A preferred shares	Immediately after completion and conversion in full of Tranche A&B preferred shares	Sum
<b>Shares</b>						
The subscribers	New horizon		1,133,333,334	2,045,666,667	2,958,000,000	4,350,000,000
	Starbliss		155,555,556	280,777,778	406,000,000	
	REORTIENT global		66,666,666	120,333,333	174,000,000	
	Grand consulting		77,777,778	140,388,889	203,000,000	
	Lucky time		77,777,778	140,388,889	203,000,000	
	Cutting edge		155,555,556	280,777,778	406,000,000	
Original shareholders	World Treasure Global	638,981,013	638,981,013	638,981,013	638,981,013	858,848,670
	Mr.Ruan Yuan	219,867,657	219,867,657	219,867,657	219,867,657	
Other Public shareholders	Existing publish shareholders	590,652,454	590,652,454	590,652,454	590,652,454	590,652,455
	RFML	1	1	1	1	
<b>Total</b>		<b>1,449,501,125</b>	<b>3,116,167,793</b>	<b>4,457,834,459</b>	<b>5,799,501,125</b>	<b>5,799,501,125</b>
<b>Percentage</b>						
The subscribers	New horizon	0.0%	36.4%	45.9%	51.0%	75.0%
	Starbliss	0.0%	5.0%	6.3%	7.0%	
	REORTIENT global	0.0%	2.1%	2.7%	3.0%	
	Grand consulting	0.0%	2.5%	3.1%	3.5%	
	Lucky time	0.0%	2.5%	3.1%	3.5%	
	Cutting edge	0.0%	5.0%	6.3%	7.0%	
Original shareholders	World Treasure Global	44.1%	20.5%	14.3%	11.0%	14.8%
	Mr.Ruan Yuan	15.2%	7.1%	4.9%	3.8%	
Other Public shareholders	Existing publish shareholders	40.7%	19.0%	13.2%	10.2%	10.2%
	RFML	0.0%	0.0%	0.0%	0.0%	
<b>Total</b>		<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

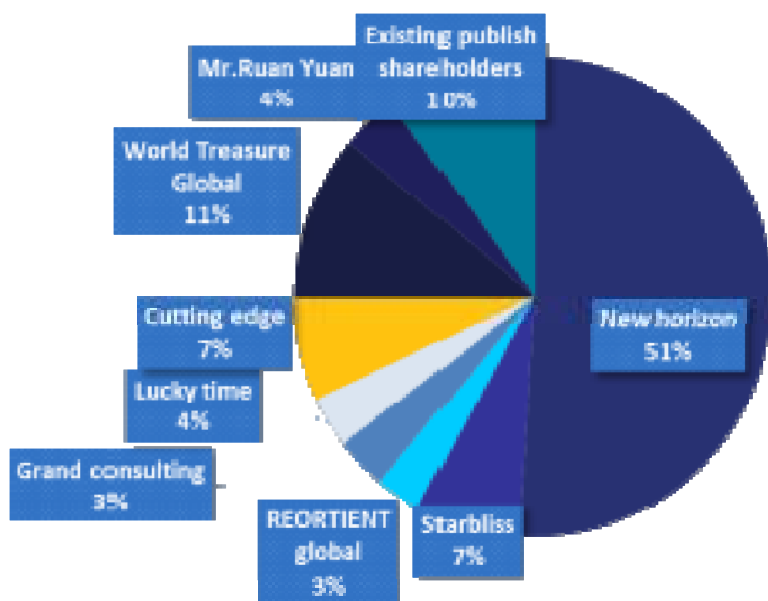
Source: Company data, SWS Research

Figure 5: Impact on shareholding structure after first subscription



Source: Company data, SWS Research

Figure 6: Shareholding structure after first subscription with full conversion



Source: Company data, SWS Research

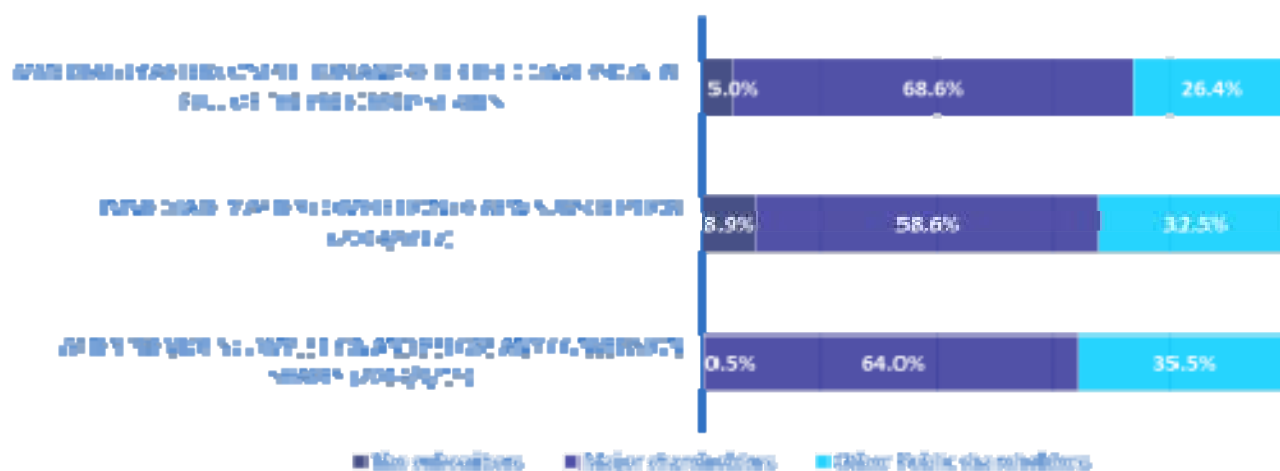
From 12-15 September 2014 KuangChi Science issued 289.9m new shares at HK\$5.39 to 10 investors, raising HK\$1.56bn. The issue diluted New Horizon’s holdings to 33.3% assuming zero conversion of preferred shares, or 48.6% assuming full conversion.

Figure 7: Subscription on September (289,900,000 ordinary shares at HK\$ 5.386 per share)

		After previous completion and before any conversion shares (2014/9/15)	Immediately after completion of new subscription (2014/9/17)	Immediately after completion and after the conversion in full of the Preferred Shares
<b>Shares</b>				
Major holders	New horizon	1,133,333,334	1,133,333,334	2,958,000,000
	Starbliss	155,555,556	155,555,556	406,000,000
	REORTIENT global	66,666,666	66,666,666	174,000,000
	World Treasure Global	638,981,013	638,981,013	638,981,013
	RFML	1	1	1
<b>The subscribers</b>	<b>10 Subscribers</b>	<b>14,783,000</b>	<b>304,683,000</b>	<b>304,683,000</b>
Other public shareholders	Other public shareholders	1,106,848,223	1,106,848,223	1,607,737,111
Total		3,116,167,793	3,406,067,793	6,089,401,125
<b>Percentage</b>				
Major holders	New horizon	36.4%	33.3%	48.6%
	Starbliss	5.0%	4.6%	6.7%
	REORTIENT global	2.1%	2.0%	2.9%
	World Treasure Global	20.5%	18.8%	10.5%
	RFML	0.0%	0.0%	0.0%
<b>The subscribers</b>	<b>10 Subscribers</b>	<b>0.5%</b>	<b>8.9%</b>	<b>5.0%</b>
Other public shareholders	Other public shareholders	35.5%	32.5%	26.4%
Total		100.0%	100.0%	100.0%

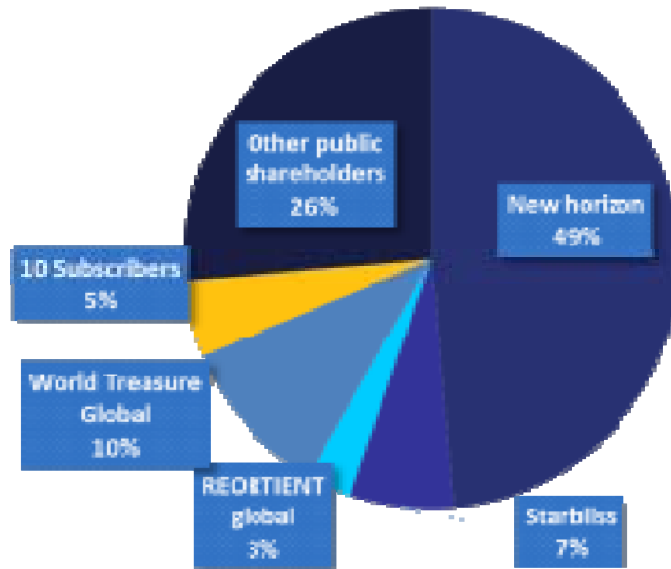
Source: Company data, SWS Research

Figure 8: Impact on shareholding structure after the September subscription



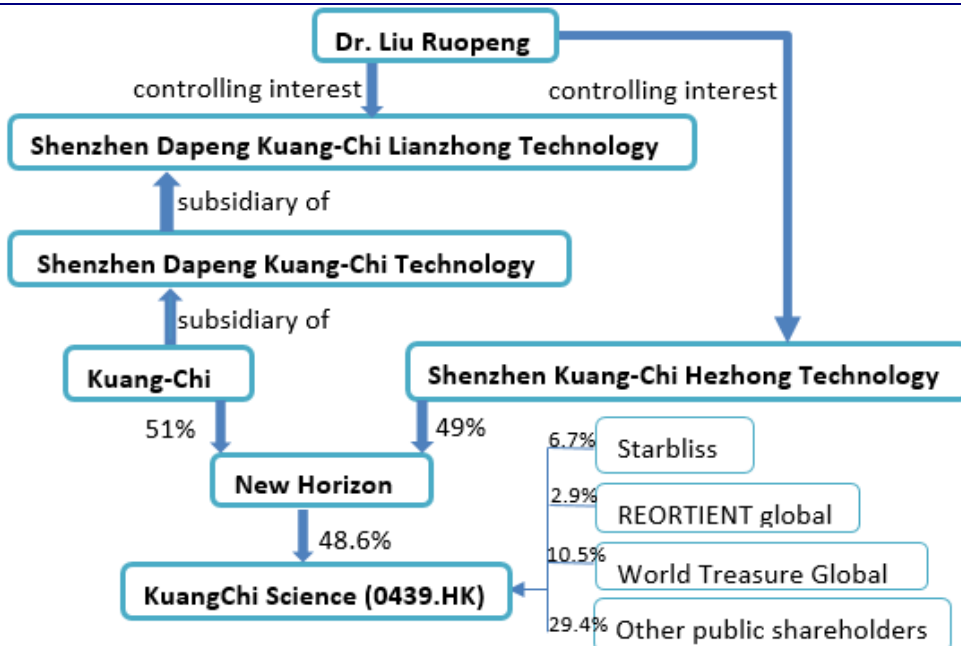
Source: Company data, SWS Research

Figure 9: Shareholding structure after the September subscription with full conversion



Source: Company data, SWS Research

Figure 10: Group relations after all subscriptions with full conversion of the Preferred Shares



Source: Company data, SWS Research

**Figure 11: Capital raised from subscription**

Date	Shares Issued	Category	Price (HK\$)	Total Capital Raised (HK\$)	Paid Method
29-May-14	1,666,666,668	ordinary	0.08	133.33	Fully
29-May-14	2,683,333,332	Preferred (convertible till 22-Aug-15)	0.08	214.67	Partially first
12-Sep-14	289,900,000	ordinary	5.39	1561.40	Fully
<b>Total</b>	<b>4,639,900,000</b>			<b>1909.40</b>	

Source: Company data, SWS Research

## Corporate Business

KuangChi Science has been principally engaged in novel space services and other innovative technology business, as well as the legacy business from Climax International - the manufacture and trading of paper packaging products and paper gift items and the printing of paper promotional materials – as well as property investment.

For the six months from 1 April 2014 to 30 September 2014, KuangChi Science recorded revenue of HK\$45m, down 25% YoY, booking a net profit of HK\$32m (vs a net loss of HK\$2m in 2013). The company attributed the loss to one-time items such as recognition of research expenses, falling operating profit and impairment of goodwill from the paper business and the impairment of goodwill from the paper business.

### Novel space services and other innovative technology businesses

The company's novel space services segment, with more than 2,600 patents based on metamaterial technology, aims to provide various novel space services, such as telecommunications, mineral exploration, meteorological observations and surveillance, space tourism and disaster detection.

**Figure 12: 3 Technologies, 3 Products and 6 Solutions**

Technologies	Products	Solutions
Meta-RF technology	Special electromagnetic metamaterial	Smart Industrial Park Solution
Metamaterial technology	New Meta-RF satellite communication products	Super Wi-Fi wireless Internet solution
Intelligent photonic technology	Near space technology	Photonic Access Control Solution
		Photonic payment solutions
		Photonic coverage solutions
		Photonic anti-counterfeiting solutions

Source: Company data, SWS Research

## Technologies

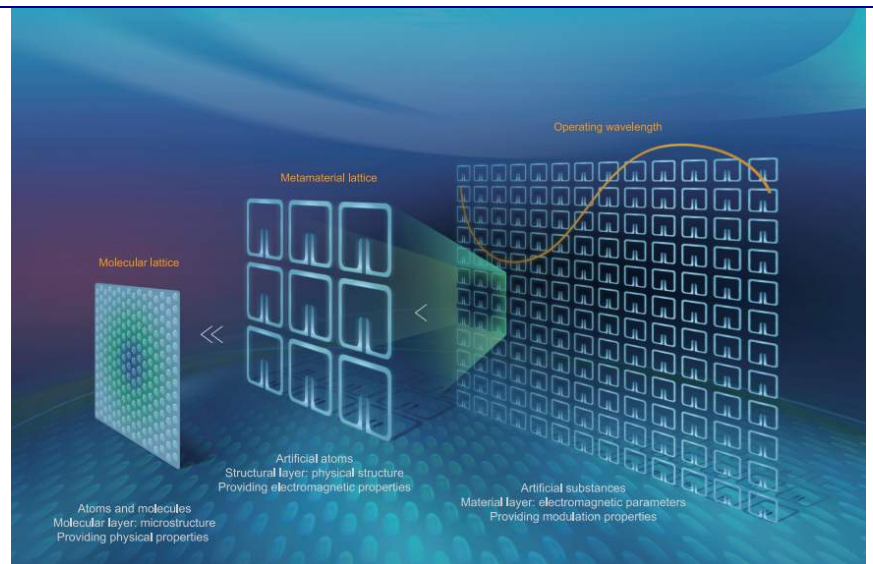
### Meta-RF

The Meta-RF technology is a ground-breaking technology which, based on a complex electromagnetic structure design, controls and modulates the transmission of electromagnetic waves with high accuracy. It has the following innovative features: Realizes the reverse design of the electromagnetic properties of materials based on application requirements; Provides superior electromagnetic performance beyond the limits of electromagnetic response; Implements electromagnetic modulation over a wide range of the electromagnetic spectrum, including low-frequency electromagnetic waves, RF electromagnetic waves, microwaves and millimeter waves, infrared electromagnetic waves, and optical waves. The metamaterial technology is an important means of Meta-RF modulation.

## Metamaterial technology

Metamaterials are special composite materials with physical properties not found in conventional materials. By breaking the natural limits of surface appearance, metamaterials gain their properties that are not found in nature based on their structural and orderly design at the level of key physical dimensions, thus achieving custom electromagnetic functions. As a subject of research in the emerging electromagnetic material discipline, metamaterials are recognized by the Science magazine as one of the top10 technological breakthroughs in the past decade and have seen wide application in electromagnetic wave modulation.

**Figure 13: Principle of metamaterial-aided electromagnetic modulation—comprehensive modulation of electromagnetic wave transmission**



Source: Company

With their unique response to electromagnetic waves, metamaterials are used to realize any desired electromagnetic wave transmission. Metamaterials that make electromagnetic waves be refracted on the same side of the normal are called negative index metamaterials (NIMs). They have the following characteristics: Cause polarization rotation to electromagnetic waves; Converge remote electromagnetic wave signals onto a single point; Make electromagnetic waves bypass an object like water flows, making the object invisible. Therefore, it is feasible to design and manufacture metamaterial devices with high performance in spatial gain, beam deflection, polarization rotation, absorption, and transparency. The core of the metamaterial technology is realizing the artificial design and desired control of electromagnetic wave transmission.

## Intelligent photonic technology

The intelligent photonic technology utilizes light as the service medium for authorization, identification, and information transmission. It prevents electromagnetic capture and interference effectively, and features high security and ease of use. The technology is widely applied in fields such as photonic identification, photonic coverage, and photonic anti-counterfeiting, and photonic payment.

## Products

### Special electromagnetic metamaterial

The special electromagnetic metamaterial is thin and portable, with characteristics of an excellent wireless electromagnetic performance and smart structure solution that can integrate materials and devices, so that it can meet user-defined functional requirements such as wave transmission, polar rotation, radiation pattern, and shielding.

**Figure 14 Special electromagnetic metamaterial examples**



*Source: Company*

### New Meta-RF satellite communication products

New Meta-RF satellite communication products comprise a line of patented products and solutions, which are developed by KuangChi based on innovative technologies such as Meta-RF electromagnetic modulation and metamaterial. These products are highlighted by flexible modulation on satellite radio waves, thereby meeting tailored requirements such as portability and conformality. The new Meta-RF satellite communication apparatus and implements can receive strong domestic and international satellite signals, which makes more convenience for people no matter in work or in life. Rental services for these products are also available. The Meta-RF ultra-thin panel satellite communication antenna technology won the golden innovation prize awarded in the first China Information Technology Expo.

**Figure 15 New meta-RF satellite communication products examples**



*Source: Company*

### Near space technology

Near space is the space between 20km and 100km above the sea level. Kuangchi develops new platform with omni-directional and high quality services on this virgin space, where breeds a vast potentials for a novel platform for communication, a new platform for air-to-ground monitoring, an innovative solution for smart city and an exciting brand new destination for tourism.

**Figure 16 Near space platform development examples**



Source: Company

## Solutions

### Smart industrial park solution

The innovative solution for future smart industrial parks is comprehensively based on a number of innovative technologies developed by Kuang-Chi. Focusing on users' personalized experience and equipped with a mobile internet platform, the intelligence solution adopts integrated intelligent photonic technology, super Wi-Fi wireless interconnection technology and Meta-RF electromagnetic modulation technology, hence providing users with operable and serviceable smart park solutions.

### Super Wi-Fi wireless Internet solution

The super Wi-Fi wireless Internet solution is a patented Wi-Fi wireless coverage solution geared to high-density and complicated electromagnetic environments with a large flow of people, which is based on the Meta-RF electromagnetic modulation technology. This solution allows people to present the signal propagation range, strictly control signal interference and reduce electromagnetic wave radiation power. It has been used for wireless Internet services in high-density areas with a large flow of people, such as large-sized venues, rail transits, and industrial parks.

**Figure 17 Super Wi-Fi wireless internet solution examples**



*Source: Company*

### **Photonic Access Control Solution: New Technology for Enhanced Safety**

Photonic identification utilizes light as its identification medium and integrates Kuang-Chi's unique dynamic encryption algorithm, which will substantially improve the security of identification and provide users a more convenient identification method for access control and other security authorization systems. Currently, KuangChi has successfully installed and applied photonic access control systems for several industrial parks, making it the first enterprise in the world to commercialize the intelligent photonic technology.

**Figure 18 Photonic access control solution examples**

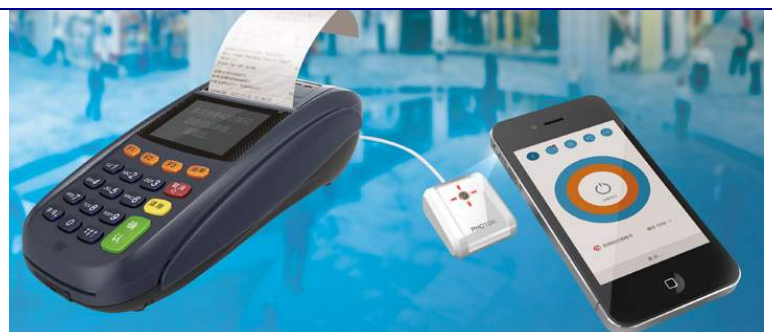


*Source: Company*

### **Photonic payment solutions**

Photonic payment, first introduced by KuangChi around the world, is a revolutionary solution for mobile payment. With light as the payment medium, the transmission of payment information from smart phones to POS is realized by using flash lights.

**Figure 19 Photonic payment solution examples**



*Source: Company*

## Photonic coverage solutions

The photonic coverage system provides a new information exchange mode, enabling secure transmission for data such as texts, pictures, and videos through indoor light. The system is very suitable for communication in environments requiring confidentiality and stability. The photonic coverage system provides good privacy, saves energy consumptions with low cost for deployment and operation.

**Figure 20 Photonic payment solution examples**



*Source: Company, SWS research*

## Photonic anti-counterfeiting solutions

Photonic anti-counterfeiting solution ensures the security and reliability of the anti-counterfeiting system relying on the photonic anti-counterfeiting label, photonic mobile APP, and data management platform. The photonic anti-counterfeiting solution also provides the powerful data analysis capability, which completely avoids counterfeiting and comprehensively meets diversified value-added service (VAS) needs of enterprises for anti-counterfeiting. With double ID that secure its working results, it can identify counterfeit products in a flash, making counterfeit products traceable and controllable.

**Figure 21 Photonic payment solution examples**



*Source: Company*

## Paper Business

A legacy from Climax International, which has yet to show signals of a turnaround. With the increase in labour and other production costs, the results from this segment dropped due to the weakening global demand and fierce competition in the printing and packaging industry. It is expected that the printing and packaging industry will most likely remain weak and unpredictable during the ensuing year.

## Property Investment

Another legacy from Climax International, this segment has an expected stable cash flow

of rental income. The company holds properties for investment purposes, with a view that it can establish an additional stream of recurring rental income, as well as capturing possible future capital appreciation.

## Biography of the main Board of Directors

Figure 22: Board of Directors Brief Summary

Board Directors	Age	Background	Position
<b>Dr. Liu Ruopeng</b>	30	Doctor Degree from Duke University	Founder of Kuang-Chi
<b>Dr. Luan Lin</b>	34	Doctor Degree from Duke University	Founder of Kuang-Chi
<b>Dr. Zhang Yangyang</b>	35	Doctor Degree from University of Oxford	Founder of Kuang-Chi
<b>Dr. Liu Jun</b>	49	Doctor Degree from University of Chicago	Founder of Kuang-Chi
<b>Dr. Wong Kai Kit</b>	40	Doctor Degree from Hong Kong University of Science and Technology	Founder of Kuang-Chi
<b>Mr. Ko Chun Shun, Johnson</b>	62	More than 30 Years of Professional Experience	Sole Director of Starbliss

Source: Company data, SWS Research

### Dr. Liu Ruopeng

Dr. Liu Ruopeng, aged 30, is the sole director of New Horizon. Dr. Liu is the president of KuangChi Institute of Advanced Technology (深圳光启高等理工研究院). Dr. Liu was the vice chairman of The 6th Executive Committee of the Shenzhen Federation of Industry and Commerce (深圳市总商会第六届理事会) in 2012. He was appointed a member of the First Shenzhen-Hong Kong Youth Consulting Committee for Authority of Qin Hai Shenzhen-Hong Kong Modern Service Industry Cooperation Zone of Shenzhen in 2014. Dr. Liu was awarded "4th May Youth Excellence Award in China" (中国青年五四奖章) in 2014 and "2010 Guangdong News-Focus People Top 10" (2010 年度广东十大新闻人物) in 2011. Dr. Liu obtained a Master of Science degree and a Doctorate degree from Duke University, the United States of America in 2008 and a bachelor's degree in engineering from Zhejiang University, the PRC in 2006.

### Dr. Luan Lin

Dr. Luan Lin, aged 34, has been the vice president of KuangChi Institute of Advanced Technology (深圳光启高等理工研究院) since 2010. Dr. Luan obtained a doctorate degree from Duke University, the United States of America in 2010 and a master's degree from Peking University, the PRC in 2004.

### Dr. Zhang Yangyang

Dr. Zhang Yangyang, aged 35, has been the executive vice president of KuangChi Institute of Advanced Technology (深圳光启高等理工研究院) since 2009. Dr. Zhang has been the vice president of Shenzhen Young Science and Technology Talents Association (深圳市情奶奶科技人才协会) since 2012. Dr. Zhang obtained a doctorate degree from the University of Oxford, the United Kingdom in 2009, and graduated as Master Research Student from Northeastern University, the PRC in 2004.

### Dr. Liu Jun

Dr. Liu Jun, aged 49, was appointed a professor of statistics at Harvard University in 2000 and has written research papers and publications about Markov chain Monte Carlo algorithms. Dr. Liu received a number of awards including The Committee of Presidents of Statistical Societies 2002 Presidents' Award in 2002 and the Morningside Gold Medal in Mathematics in 2010. Dr. Liu was elected as a fellow of the Institute of Mathematical

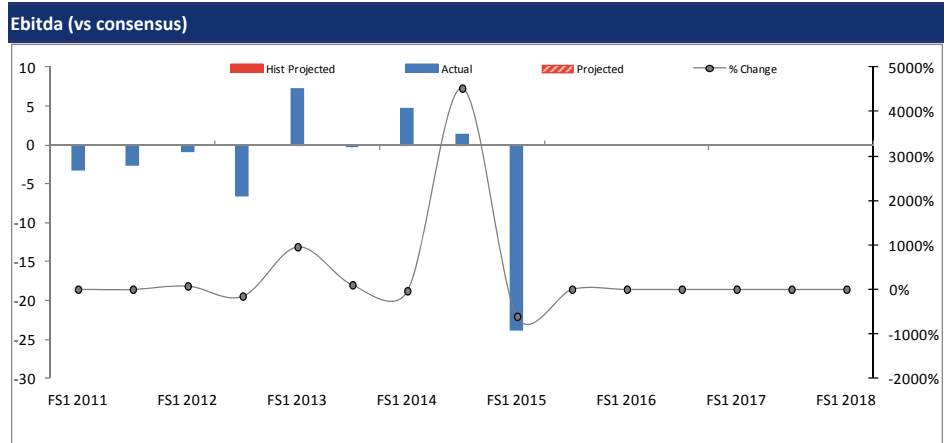
Statistics in 2004 and the American Statistical Association in 2005. Dr. Liu obtained a Doctorate degree from The University of Chicago, the United States of America in 1991.

#### **Dr. Wong Kai Kit**

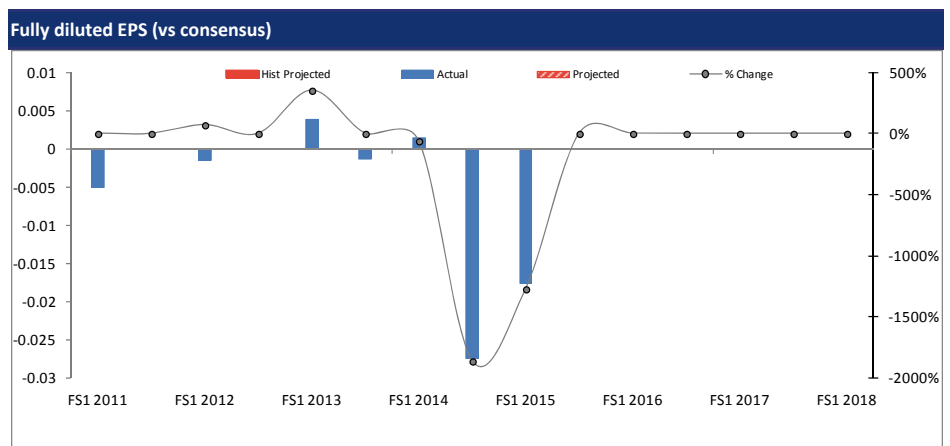
Dr. Wong Kai Kit, aged 40, was appointed a reader at the Department of Electronic and Electrical Engineering, University College London, United Kingdom in October 2011. Dr. Wong had other teaching and research roles in universities and education institutes in Hong Kong, the United States of America and the United Kingdom. Dr. Wong is a senior member of The Institute of Electrical and Electronics Engineers Inc. ("IEEE") and is also on the editorial board of IEEE Wireless Communications Letters, IEEE Communications Letters, Journal of Communications and Networks, and IET Communications. He is the senior editor for the IEEE Communications Letters. Dr. Wong obtained a doctorate degree, a master's degree and a bachelor's degree from the Hong Kong University of Science and Technology, Hong Kong, in 2001, 1998 and 1996 respectively.

#### **Mr. Ko Chun Shun, Johnson**

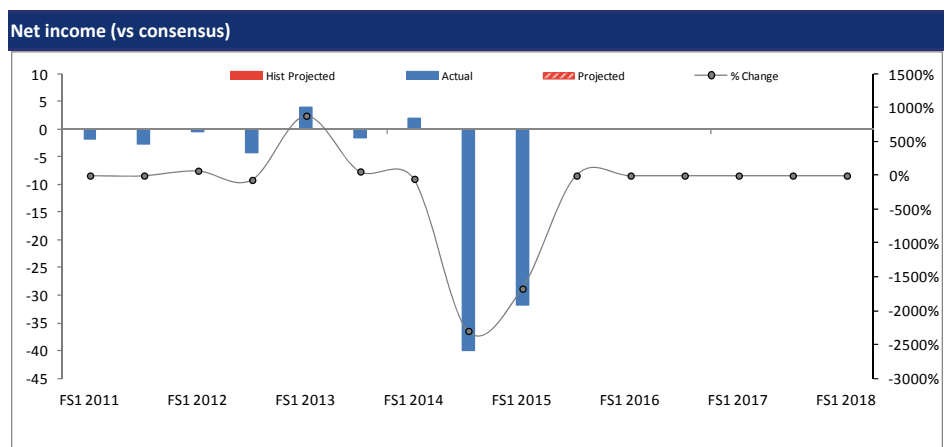
Mr. Ko Chun Shun, Johnson, aged 62, is the sole director of Starbliss. Mr. Ko has extensive experience in a variety of activities, including manufacturing, securities trading, international trade, electronics and the renewable energy industry. He also has extensive experience in corporate finance, corporate restructuring and mergers and acquisitions. Mr. Ko is the chairman and an executive director of both REORIENT Group Limited (376:HK) and Varitronix International Limited (710:HK); the vice chairman and an executive director of China WindPower Group Limited (182:HK); and the deputy chairman and an executive director of Frontier Services Group Limited (500:HK), the shares of which are all listed on the Stock Exchange.



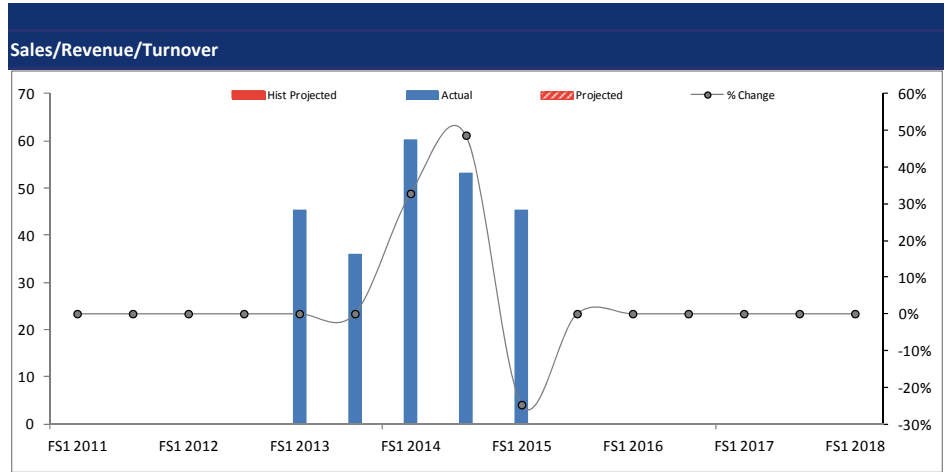
Source: Bloomberg, SWS Research



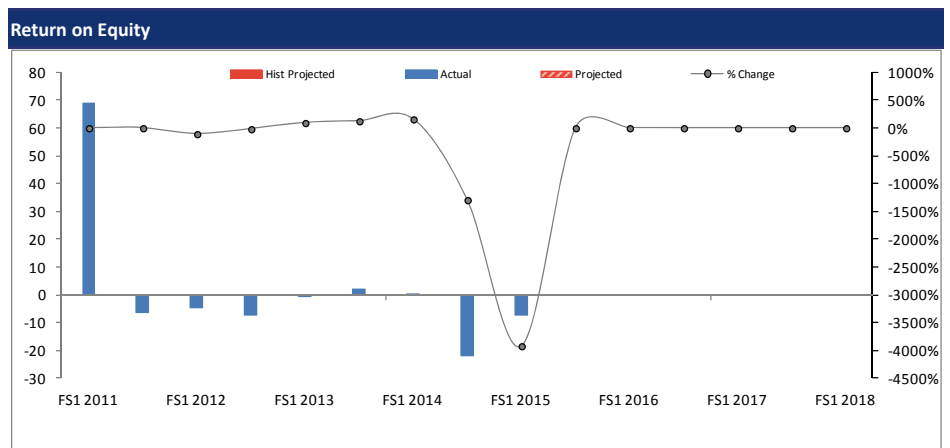
Source: Bloomberg, SWS Research



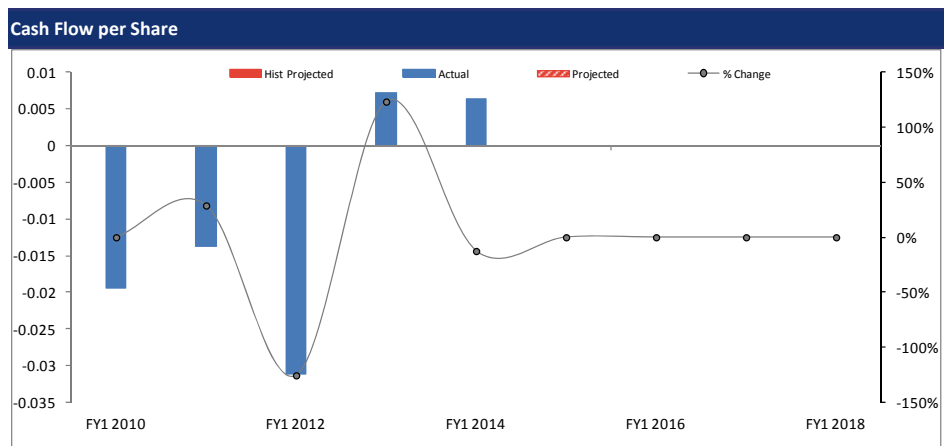
Source: Bloomberg, SWS Research



Source: Bloomberg, SWS Research



Source: Bloomberg, SWS Research



Source: Bloomberg, SWS Research

## Appendix

### Income Statement

HK\$	2010	2011	2012	2013
Revenue	0.0	0.0	81.2	113.4
Operating Income	-5.9	-7.8	2.4	0.9
Pretax Income	-5.7	-4.7	3.5	-37.3
Income bef XO Items	-5.7	-4.7	2.2	-37.9
Net Income	-4.4	-4.8	2.2	-37.9
Basic EPS Before XO Items	0.0	-0.1	0.0	0.0
Basic EPS	0.0	0.0	0.0	0.0
Diluted EPS Before XO Items	0.0	-0.1	0.0	0.0
Diluted EPS	0.0	0.0	0.0	0.0
Dividends per Share	0.0	0.0	0.0	0.0
Ebitda	-5.9	-7.4	7.2	6.0
Return on Common Equity	-6.2	-7.3	1.8	-21.8

Source: Bloomberg

### Balance Sheet

HK\$	2010	2011	2012	2013
Total Current Assets	70.6	67.1	114.1	78.8
Total Long-Term Assets	0.2	0.6	154.3	110.9
Total Assets	70.8	67.7	268.4	189.7
Total Current Liabilities	2.5	4.2	84.0	21.0
Total Long-Term Liabilities	0.0	0.0	3.1	1.6
Total Liabilities	2.6	4.2	87.1	22.6
Total Shareholders' Equity	68.3	63.5	181.2	167.2
Shares Outstanding	340.8	57.4	1,207.9	1,449.5
Book Value per Share	0.2	1.1	0.2	0.1
Tangible Book Value / Sh	0.2	1.1	0.1	0.1
Shareholder Equity/Total Liab	96.4	93.7	67.5	88.1

Source: Bloomberg

### Cash Flow Statement

	2010	2011	2012	2013
Net Income	-4.4	-4.8	2.2	-37.9
Depreciation and Amortisation	0.1	0.4	4.7	5.0
Change in Working Capital	-4.3	-5.2	-32.8	27.7
Cash - Operating Activities	-4.7	-3.1	8.0	8.9
Capital Expenditures	0.0	-0.3	-16.8	-0.5
Cash - Investing Activities	-5.0	-10.3	-55.4	2.1
Cash - Financing Activities	0.0	0.0	68.3	-34.3
Net Changes in Cash	-9.7	-13.3	21.0	-23.4
Free Cash Flow	-4.7	-3.3	-8.8	8.3
Free Cash Flow / Basic Sh	0.0	0.0	0.0	0.0
Free Cash Flow / Diluted Sh	0.0	0.0	0.0	0.0
Cash flow per Share	0.0	0.0	0.0	0.0

Source: Bloomberg

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