

China Solar

Green solution to food safety concern

to summarize...

- Synergistic effect of combining agriculture and solar business
- Heavy drugs in pig farming industry in China a food safety issue
- Green solution in feedstock and fermentation bed to address food safety issue
- Relative fast-turnover models to produce ROI up to 72%
- Success depends on price premium of healthy pork and distribution power
- Current valuation represents 0.43x P/B based on Sep 12A reported book value

Synergistic effect of combining agriculture and solar business. China Solar announced a HK\$100m acquisition of 51% in Chengdu Yuncheng Biological Technology Limited Aug last year, which was valued at RMB209.7m by Peak Vision Appraisals Limited. The acquisition was to be settled by HK\$25.3m zero interest promissory note and 2,074m shares at HK\$0.036 per share that represents no discount to market price at that time. Upon completion, China Solar enters into hog raising business. With 2 patented rights held by the target company, namely Ginseng Health Feed Additives (人參保健飼料添加劑) and Botanical Pesticides (植物源農藥), China Solar plans to leverage on its knowhow to create a business model that provides clean and safe food to customers with government support in terms tax benefits of hog-raising as well as subsidies from solar power generation.

To provide EU-certificated hogs to fight food safety issue with 72% ROI. According to our channel checks, in general pig industry in China applies high doses of growth boosters, vaccines and medicines to pigs. Pork is affected by such chemicals, and potential chemical residue would also directly affect consumers. The company utilizes its patented technology on feedstock and fermentation bed to degrade chemicals from pork for the benefit of consumers. In 2-month time, the company effectively buys pig finishers and sells "safe and clean" pigs at a slight premium. The company sends samples of its pig / pork to EU certification office in Shanghai on regular basis. Combining with solar house for power generation, the company enjoys tax and subsidy benefits of agriculture segment as well as solar segment and yields potential unleveraged return of 72% ROI on full scale basis.

Change in shareholders, directors and management. Since acquisition in Aug last year, there were gradual changes in shareholders and managements. Table 1 shows latest shareholding based on HKEx data. While there were options and other derivatives, as exercise prices are generally above current price, data below does not take into account future potential of dilution effect. Chairman Yeung Ngo had 15.82% shares. Vendors of Chengdu Yuncheng Biological Technology together held 8.06% shares by the latest applicable date.

Table 1. China Solar shareholders

	Shareholding %
Chairman Yeung Ngo (仰翹)	15.82%
Former ED Pierre Seligman	0.11%
Vendors of Chengdu Yuncheng Biological Technology	8.06%
Others and public	76.01%
Total	100%

Source: SBI E2-Capital

Ticker	0155 HK
Rating	Not Rated
Price (HK\$)	0.024
Target Price (HK\$)	n.a.
12m Price Range (HK\$)	0.024 - 0.050
Market cap. (US\$m)	43.6
Daily t/o (US\$m)	0.19
Free float (%)	63.4

Financial summary

Year to Mar	11A	12A
Turnover (HK\$m)	174.4	315.7
Net Profit (HK\$m)	(197.1)	(247.4)
EPS (HK\$)	(0.026)	(0.022)
P/E (x)	-	-
P/B (x)	0.73	0.49
EV/EBITDA (x)	-	-
Yield (%)	-	-
ROE (%)	-	-
ROCE (%)	-	-
N. Gear. (%)	Cash	1.8

Source: SBI/Bloomberg

	12F	13F	14F
Consensus EPS (HK\$)	-	-	-
Previous earnings (HK\$m)	-	-	-
Previous EPS (HK\$)	-	-	-

Price performance

Year to Dec	1m	3m	12m
Relative to HSI (%)	(11.5)	(18.7)	(43.8)
Actual price changes (%)	(14.3)	(20.0)	(40.0)



Source: Bloomberg

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Heavy boosters and vaccinations in pig farming industry in China a food safety issue. According to our channel checks, a majority of pig farms in China raised pigs in 4-5 months to reach a weight of 100kg. As far as we understand, high dose of growth boosters are commonly used since hogs reach 10kg. At the same time, as pig growers (generally 20-60kg) and finishers (generally 60kg – 100kg) are usually packed at a density of 0.9 sqm to 1 sqm per head, heavy vaccination and medication is usually required. Some would classify this as intensive system. In Spain, a country which used to secure a top-5 position of pork production based on UN data, farmers raise pigs in ~6 months to 100kg under intensive systems. In mixed system where pigs are housed in semi-intensive conditions, pigs enter slaughter house at 100kg at an age of 12 months. Heavy chemical usage would affect the pigs itself and chemical residue may be taken by humans.

Green solution in feedstock and fermentation bed to address food safety issue. China Solar plans to address such food safety problem. A pig farm of 98,000 sqm is planned. At 2.5-3.0 sqm per head, the company has introduced first batch of pigs of around 1,000 heads. Photos sets below were taken during our site visit this month. In short, China Solar plans to buy hogs at 100kg and feeds with patented feedstock on fermentation bed for EU certificated pig at 130kg.

Photo set 1. China Solar office building (LHS) and pig house (RHS) in Dali, Yunnan



Photo set 2. Feeds (LHS) and water supply (RHS) for pigs with sufficient living space



Photo set 3. Pigs sleeping on fermentation bed (LHS) and speaker playing music (RHS)



Source: Site visit

Relative fast-turnover models to produce ROI up to 72%. According to the management, the company could buy 100-kg pigs at spot market at market price at around RMB17 per kg. Without raising overall pig supply in the region, the company plans to minimize impact of chemicals on pigs for consumers. The feedstock itself is patented, which is a careful mix including natural Chinese herbs, which could raise weight and reduce illness, according to the management. In the 2 months time, pigs at the company have no exposure to chemicals. At 130kg, live pigs would be sold to agents or slaughter houses for RMB35 per kg, which translates to RMB4,500+ per head, according to the management. Table 2 shows input and sales illustration of combining agriculture and solar segment on 98,000 sqm basis. Table 3 is P&L illustration of the combined project. On RMB220m total CAPEX, sales and a non-leveraged net profit could be RMB687.6m and RMB157.3m respectively for a year on full scale. ROI would be 72% on full scale basis. While solar house is largely constructed, main input for the time being would be RMB98.0m on fermentation bed and RMB67.4m working capital requirement.

Table 2. Input and sales illustration of combining agriculture and solar segment on 98,000 sqm basis

	RMBm	Remarks
<u>CAPEX input</u>		
Building structure	32.9m	RMB336 x 98,000sqm
Solar system	89.2m	RMB13 per MW x 98,000 sqm x 70 W per sqm
Fermentation bed	98.0m	RMB1,000 x 98,000sqm
<u>Working capital</u>		
Pigs-in at 100kg (for 2 months)	44.4m	RMB17 per kg x 100kg x 26,133 heads-in, heads-in = 98,000 sqm / 3 sqm per head x 80% land ratio
Feedstock (for 2-month cycle)	23.0m	RMB880 x 26,133 heads
<u>Expected return</u>		
Electricity generation (after VAT)	9.8m	6,860kW x RMB1.0 per kWh x 1,500 sun hours (minus 5% tax)
Pigs annual sales	677.8m	RMB35 per kg x 130 kg x 148,958 heads-out, heads-out = 26,133 x 12 months / 2 months x 95% out

Table 3. P&L illustration of project on full scale (for RMB17 per kg purchase)

	RMBm	Remarks
Project revenue	687.6	
Sales of pigs	677.8	Zero sales tax on agricultural products
Sales of electricity	9.8	17% sales tax applied
COGS	404.4	(RMB44.4m + RMB23.0m) x 12 months / 2 months
Depreciation	57.1	3-yr depreciation on fermentation bed on 5-yr on solar house
Other costs	34.4	5% of revenue
SG&A	34.4	5% of revenue
EBIT	157.3	
Corporate tax	0	Agricultural free of corporate tax; minimal for solar power
Project net profit	157.3	

Source: SBI E2-Capital

Success of model depends on price premium of healthy pork and distribution power of distributors. The management indicated that adult pigs are actually less subject to diseases and illness. With improved sanitary and health on living environment and feedstock, the management is confident to sell its pigs at a premium price at RMB35 per kg to distributors. If the distributors are to supply pork to corporate clients such as factories at a margin, price should be fixed at RMB70 per kg, which is comparable to other brand names advertised as clean and healthy pork. Table 4 below shows company pig selling prices and corresponding revenue and profit estimations. On a side note, the management indicated that selling contracts are on yearly basis, that decrease in pig purchase price may expand margin while increase in purchase price may squeeze margin.

Table 4. Quick sensitivity analysis on pig ASP (for RMB17 per kg purchase)

Selling price	Revenue (RMBm)	Net profit (RMBm)
RMB40 per kg	784.4	254.1
RMB35 per kg	687.5	157.3
RMB30 per kg	590.7	60.5
RMB26.89 per kg	530.5	0.2

Source: SBI E2-Capital

Capital injection is required to execute latest business mode; valuation. By the end of Sep 2012A, China Solar had a total equity of HK\$850.3m. Cash position was HK\$16.6m, and on the other hand China Solar had CB and promissory note on the balance sheet. In order to launch pig-raising business in full-scale, the company needs RMB98m for fermentation bed and potential working capital of RMB67.4m. If the company could secure full bank financing for the fermentation bed, it would be best for the company to raise an extra RMB60m to cover working capital. Based on reported book value of HK\$850.3m, with a current market capitalization of HK\$368m, the counter is trading at 0.43x P/B by the end of Sep 2012. Nevertheless, taking into account of intangible asset and goodwill impairment, on an extreme measure for illustration purpose, a complete write-off suggests 1.1x P/B. Table 5 shows profit and loss summary. Table 6 on the next page shows balance sheet items on China Solar.

Table 5. Profit and loss summary

HK\$m	FY11/03A	FY12/03A	1H FY13/03A
Revenue	174.4	315.7	8.0
Cost of sales	(169.3)	(308.4)	(10.0)
Gross profit	5.1	7.3	(2.0)
Other income, gains and losses	0.0	0.7	0.4
Unrealized fair value change on held-for-trading investments	-	-	(6.7)
Loss on available-for-sale investments	-	-	-
Loss on financial instruments	(0.9)	(4.8)	-
Staff costs	(20.7)	(16.1)	(7.6)
Consultancy expenses	(159.8)	(1.2)	(0.2)
Equity-settled share option expenses	-	-	(23.9)
Depreciation of property, plant and equipment	(0.2)	(0.4)	(0.2)
Amortization of intangible assets	(14.1)	(14.1)	(0.2)
Gain on disposal of subsidiaries	15.6	-	-
Impairment loss on available-for-sale investments	-	(15.0)	-
Impairment loss on loan receivable	-	(5.0)	-
Allowance for obsolete inventories	-	(3.8)	-
Other operating expenses	(17.2)	(18.7)	(6.7)
Impairment loss on goodwill	-	(145.3)	(35.1)
Impairment loss on intangible assets	-	(49.4)	(4.3)
EBIT	(209.9)	(265.7)	(86.4)
Share of results of associates	(0.3)	(1.3)	-
Gain from a bargain purchase	-	-	36.4
Finance Costs	-	(2.9)	(1.8)
EBT	(192.4)	(269.8)	(51.9)
Income tax expenses	-	0.5	0.3
Profit for the year	(192.4)	(269.4)	(51.6)
Attributable profit	(197.1)	(247.4)	(50.1)
Profit from discontinued operation	(6.4)	-	-

Source: SBI E2-Capital

Table 6. Balance sheet items

HK\$m	FY11/03A	FY12/03A	1H FY13/03A
Non-current assets	128.6	586.8	792.4
Property, plant and equipment	0.2	106.5	100.2
Construction in progress	-	83.4	113.3
Intangible asset	67.9	4.5	222.2
Goodwill	36.6	329.4	294.3
Other non-current assets	23.9	63.0	62.3
Current assets	355.9	270.9	253.9
Deposits, prepayments and other receivables	26.5	110.0	100.2
Amount due from a customer for contract work	218.3	123.9	110.7
Cash and cash equivalents	93.2	10.7	16.6
Other current assets	17.8	26.3	26.4
Non-current liability	-	147.8	168.1
Government grant	-	115.9	115.3
Convertible notes	-	23.6	25.2
Promissory notes	-	-	19.6
Other non-current liability	-	8.3	8.0
Current liabilities	16.2	10.0	27.9
Total equity	468.3	700.0	850.3
Shareholders' equity	468.4	722.0	757.5

Source: SBI E2-Capital

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