中美矽晶製品股份有限公司
Sino-American Silicon Products Inc.

Goldman Sachs "Green Energy Day"

04 December, 2015

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SAS Business Sector (Solar)

Sino-American Silicon Products Inc.

SAS Company Profile

- **Established** : 1981
- **Paid-in Capital** : NTD 5,800mn
- **Employees** : 4,489 (M/Nov '15)
- **Headquarter** : Hsinchu Science Park, Taiwan R.O.C.
- **Products** : Solar Wafer / Cell / Module / Power Plant
  Semiconductor Wafer (3"~12")
- **Revenue** : *2015 Jan~ Oct NTD 23,606 mn*

SAS Milestones

1981 Sino-American Silicon Products Inc. established

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1999 SST established in China

2000 Enter Solar Ingot / Wafer Business

2001 SAS IPO in Taiwan (5483 TT)

2008 Acquired GlobiTech Incorporated, TX, USA

2011 Company spin off – SAS / GWC / SSC

2012 Acquired Covalent Silicon, Japan

2014 Acquired ALEO module fab of Bosch group, Germany

Merged Sunrise Global Solar Energy Co., Ltd. Taiwan

2015 SAS Sunrise Inc. (SSR) established for Solar Power Plant, Project Palo ground breaking

2015 GWC IPO in Taiwan (6488 TT)

Organization Structure

SAS Group (Solar)

ALEO (Germany)

Europe

SAS HQ Hsinchu

SAS Yilan (Fab 3)

Taiwan

Philippines

SSR (Project Palo)

SAS Chunan (Fab1 & Fab-2)

Taiwan

SAS Consolidated Financial Statements

NTD mn	2013	%	2014	%	9M-2015	%
Revenue	22,215	100	27,821	100	21,270	100
Gross Margin	2,439	11	3,498	13	3,253	15
Operation Income	629	3	1,447	5	1,782	8
PBT	128	-	1,925	7	1,659	8
PAT	295	1	1,128	4	496	2
Total Debt & Debt ratio	19,088	48	19,304	47	16,146	36
ROE (%)	1.62		6.16		4.61	
EPS	0.57		2.06		0.86	

*ROE: annualized rate

SAS – Solar Financial Statements

NTD mn	2013	%	2014	%	9M-2015	%
Revenue	6,662	100	11,917	100	9,479	100
Gross Margin	(1,226)	(18)	(233)	(2)	59	1
Operation Income	(1,583)	(24)	(906)	(8)	(378)	(4)
PBT	149	2	1,287	11	628	7
PAT	295	4	1,128	9	496	5
Total Debt & Debt ratio	11,467	36	11,193	35	9,185	29
ROE (%)	1.51		5.66		3.02	
EPS	0.57		2.06		0.86	

*ROE: annualized rate

Global Solar PV Forecast 2014~2019

IHS Raises Global Solar PV Forecast

2015 : 59 GW (+33% yoy) & 2016 : 65 GW (+10% yoy)

Top 10 market in 2014~2015

China raised installation forecast to 23.1 GW from 17.8 GW in 2015

SAS Solar Manufacturing Site

(unit: MW)

	Company	Products	2015	2016	Location
SAS	SAS	Wafer	900	1,000	Taiwan
	SAS	Cell	850	850	Taiwan
	Aleo-Sunrise		0	200	Germany
	aleo	Module	340	340	
	SAS-Sunrise (SSR)	Solar Farm	0	50	Philippines
	SAM	EVA	40	90	Taiwan

(as of August 2015)

SAS Sunrise Inc. (SSR)

- Company name: SAS Sunrise Inc. (SSR)
- Established : Jun 2015
- Business scope : Solar Power Plant

- Project Palo (Sepalco)
  . Location : Palo Philippines
  . Capacity : 50MW
  . Groundbreaking on 3 July 2015
  . Commercial operation in Q1/'16
  . Output 71M(KWH) per year
  . 20 years contract with Philippines government
  . To use mainly ALEO high conversion-efficiency mono module

- Next Project :

Solar cell tariff to US market

※ US Commerce department final decision (7 July 2015)

- Anti-dumping duties for solar cell
  Taiwan → average 19.5%
- Anti-dumping & Anti-subsidy duties for solar cell
  China → average 31%

- Impact to Taiwan & China solar industry

Taiwan : Regain competitiveness to US solar market (8GW in 2015)
ASP raise up with optimistic market & high utilization
Transfer order effect from China..

China : loss competitiveness to US solar market
Accelerate expansion of solar cell production outside China
Increasing supply volume of Taiwan cell product
Focus on module i/o cell production in China

SAS Business Sector (SEMI)

GWC fab in Niigata, Japan

GlobalWafers Co., Ltd.

GWC Company Profile

- Established : 2011 (spin off from SAS)
- Paid-in Capital : NTD $3,693mn
- Employees : 2,490 (M/Nov '15)
- Headquarter : Hsinchu Science Park, Taiwan, R.O.C
- Products : 3"~12" Semiconductor Wafer
- Revenue : *2015 Jan~ Oct NTD 12,966 mn*

GWC Milestones

1981	Sino-American Silicon Products Inc. established
……	
1999	**SST established in China**
2001	SAS IPO in Taiwan (5483 TT)
2008	**Acquired GlobiTech Incorporated, TX, USA**
2011	Company spin off – SAS / GWC / SSC
2012	**Acquired Covalent Silicon, Japan**
2015	**GWC IPO in Taiwan (6488 TT)**

GWC Milestones

2011/10
- GlobalWafer Co. , Ltd. Established (spin off from SAS)
- Initial Paid in Capital **NTD 1,800mn**

2012/04
- Acquired Covalent Silicon
- Paid in Capital **NTD 3,175mn**

2013/08
- ISO14001 certified

2013/12
- Taiwan Intellectual Property management System (TIPS) certified

2014/07
- TS16949 : 2009 certified

2014/09
- Issued of shares

2014/10
- Listed in Emerging Stock market (6488TT)

2015/01
- Paid in Capital **NTD 3,493mn**

2015/09
- Paid in Capital **NTD 3,693mn**

GWC Group (Semi)

Japan

GWJ

GWJ Oguni

GWJ Niigata

GWJ Tokuyama

GWJ Sekikawa

Taiwan

GWC HQ Hsinchu

China

SST Kunshan

USA

Globitech TX

GWC Consolidated Financial Statements

unit: NTD M	2013	%	2014	%	9M-2015	%
Revenue	15,570	100	15,922	100	11,792	100
GM	3,663	23	3,728	23	3,192	27
OI	2,194	14	2,336	14	2,148	18
PBT	2,204	14	2,679	16	2,245	19
PAT	1,948	12	2,095	13	1,582	13
Total Debt & Debt ratio	7,939	37	8,184	38	7,009	30
ROE(%)	14.95		15.91		14.22	
EPS	6.14		6.60		4.56	

*ROE: annualized rate

GWC Product vs. Application

Products	Diameter	Main Applications
Annealed wafer	8”、12”	Memory, LCD driver & Logic IC
EPI wafer	4”、5”、6”、8”	Discrete, Logic IC, Analog & Memory
Polished wafer	4”、5”、6”、8”、12”	4”~6” for Epi substrates & Analog 8”~12” mainly in logic IC
Diffused wafer	3”、4”、5”、6”	Discrete
Non-polished wafer	3”、4”、5”、6”	Discrete

GWC wafers are used in..

Automotive devices
Power/Discrete device
Memory Applications
LCD Driver IC/CIS/Logic
Consumer Electronic
Industrial Applications

Smart phone is driving new MEMS developments

New Products Roadmap

Items	Application
8” ultra heavy dopant ingots growth	Low power consumption device
GaN on Silicon	Power device/ RF
Nano-structure wafers	Ultra thin wafers/ Strengthen substrate
Ultra high resolution CIS wafers	Image sensor、Sensor
Next generation automotive power device SiC wafers	Automotive power, High temp. power, Microwave & RF devices, UV LED, Photodiodes, Blue laser diodes

Specializing in next generation wafer development

Semiconductor Revenue Forecast

Source : Gartner, 2015-07

Source : SC IQ, 2015-11

Revised forecast growth downward to ±1% in 2015

Forecast for Wafer Size Shares

Source : IC Insights, 2015-09

Monthly Installed Capacity (200mm-Equiv. Wafers)

200mm & 300mm = Main Stream

200mm Fab count & capacity

2015~2018

- ***Strong 200mm demand for IoT, sensors, MEMS, analog, power device***
- ***200mm input to increase 400kspm***
- ***Eight new 200mm facility/lines to begin operation***
- ***China & Southeast Asia to lead 200mm expansion***

IC Market Growth Rate by Applications

Source: IC Insights, 2015-11

Total ICs CAGR shows 4.3% up till 2019
Automotive, Communication, Industrial & Medical indicate strong growth prominently

Revenue Target of 2014 Guideline (China IC industry new policy)

Source: SEMI 2015-04

Source: CSIA, SEMI

Challenges and Opportunities Coexist

Expanding 300mm Capacity in China

Company	Location	Tech-node (nm)	Capacity (K/month)	Products	Status
Huali	Shanghai	55	25	Foundry	Will add capacity to 35K/M
SK Hynix	Wuxi	29	130	DRAM	Production & Upgrade
Intel	Dalian	65	15	Chipset	Production
Samsung	Xi'an	20	40	NAND Flash	Total plan for Xi'an 1st phase: 100K/month
SMIC	Beijing	40	36	Foundry	Production
SMIC	Beijing	40-20 (Planned)	-	Foundry	Construction. 5K—6K/M in end of 2014
SMIC	Shanghai	40	14	Foundry	Production and expand to 14K/M in 2014
WXIC	Wuhan	45	9	NOR Flash, Foundry	Production

Source: SEMI China, Oct. 2014

more to come:
UMC (Xiamen 50kpm), Nexchip (Hefei, 40kpm), TSMC..

Tier -1 Client base

ASIA

tsmc
VISHAY
Panasonic
SHARP SIMPLY THE BEST Solar
MXIC
UMC
TOSHIBA
Powerchip
ROHM SEMICONDUCTOR
MITSUBISHI ELECTRIC
世界先進 VIS
RENESAS
Fuji Electric
SHINDENGEN
SanKen
HS 华虹宏力
HITACHI Inspire the Next

US/ Europe

FAIRCHILD SEMICONDUCTOR
ON Semiconductor
XFAB MIXED-SIGNAL FOUNDRY EXPERTS
TEXAS INSTRUMENTS
NXP
DIODES INCORPORATED
SPANSION
FUJITSU
ST
BOSCH Invented for life
Micron
MICROCHIP
ABB
TOWER SEMICONDUCTOR LTD.
MAXIM
Infineon
GLOBAL FOUNDRIES
FAGOR

Dividend Policy

	Year	EPS	Dividend
SAS	2010	10.5	NTD 5.5
	2011	1.02	NTD 0.85
	2012	(4.9)	-
	2013	0.57	NTD 1.0
	2014	2.06	NTD 1.8
	2015 Q3	0.86	

	Year	EPS	Dividend
GWC	2011	-	spin off
	2012	3.44	NTD 2.8
	2013	6.14	NTD 5.5
	2014	6.60	NTD 5.7
	2015 Q3	4.56	

Q&A