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31 October 2017

China Small caps

Xinyi Glass 868 HK
Rec **BUY**
Market cap US\$3.8bn
Price HK\$7.49
Target HK\$9.60 > HK\$9.50
Total return +33.4%

Xinyi Solar 968 HK
Rec **BUY**
Market cap US\$2.5bn
Price HK\$2.66
Target HK\$3.10 > HK\$3.30
Total return +29.5%

ASP vs cost

Price hike to largely offset costs; more on capacity plans

We joined XYG/XYs's site visit to Wuhu last week. Both float glass/solar glass had a good run in 2H17, driven by demand and costs, and backed by flat/slower supply growth, with the price hike mostly covering rising costs. XYG shared more on its overseas float-glass plans in Malaysia/Canada, and is looking for potentials for new, high-end production lines in China. Meanwhile, XYs is likely to further slow down its solar-farm progress, which could affect growth but is good for cashflow. Maintain BUY on both.

XYG - ASP hike to mostly overcome costs

- Float-glass prices in China had a satisfactory run in 2H17, surged c.16% for XYG's ASP, driven by seasonally stronger demand and rising costs amid flat supply.
- Property sales/new starts GFA slowed amid restrictions, but healthier inventory will make the cycle gentler than before, supported by limited new float-glass capacity.
- XYG imports cheaper soda ash from overseas (c.30% of usage) to partly replace the domestic source which has seen prices soar c.39% since 2H. XYG also had a limited portion of capacity subject to the winter natural-gas price hike last year; probably similar this year, if any.
- We expect XYG's float-glass GPM to expand in 2H17; we estimate at c.32.3% vs 30.1% in 1H17, although auto/construction glasses would be dragged slightly. We cut 2017/18/19 core profit by 1.7%/0.6%/0.4% on higher float-glass ASP/costs, and we retain BUY with TP HK\$9.50 (from HK\$9.60) on a blended PE/PB approach.

More on capacity expansion

- For its c.50% float-glass capacity growth plan by 2020, XYG may, on top of the second phase under construction in Malaysia, build more plants in Malaysia (third phase) and in Canada.
- XYG is also exploring the possibility of building new, "ultra-clear" float-glass lines in China. This could raise doubt on supply increase, but given the policy favours foreign investments, and products are for the high-end market, risk appears relatively limited.

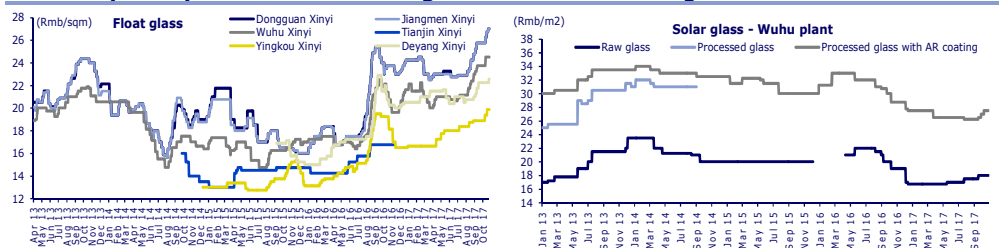
XYs - Solar glass bottomed out

- Solar glass prices have rebounded by 3-5% since August after a year of downtrend, due to better-than-expected demand (9M17 China solar installation reached 42.3GW) and rising costs. Management sees potentially another price hike to come.
- XYs will also use imported soda ash to manage the incremental costs. We expect XYs to record higher solar-glass GPM in 2H17; we forecast at 31.7% vs 28.6% in 1H17.
- New capacity is a medium-term risk but the YTD rollout has been slower than expected.

Slower solar-farm development

- XYs continued to slow down its solar-farm development progress, partly due to local governments' slow quota distribution and imminent lower module costs.
- We forecast XYs to reach cumulative 1.8GW (excluding 100MW under 50:50 JV), or 340MW new addition in 2017, plus 400MW in each of 2018/19.
- This could affect the company's earnings growth pattern, but would help ease its cashflow pressure.
- Overall, we lift our 2017/18/19 core profit by 2.5%/2.4%/2.1% mainly on slightly higher solar-glass ASP/costs and lower solar-farm power sales. TP lifted to HK\$3.30 (from HK\$3.10) based on SOTP.

Product price quotes - XYG's float glass and XYs's solar glass



ASP hike since 2H17 and strong season ...

... and from cost hike which is manageable

We expect float-glass GPM to expand in 2H17, despite auto/construction glasses could have some drag

XYG

ASP hike to mostly overcome costs

Float-glass prices in China had a satisfactory run in 2H17, up c.6% since end-June, and XYG's average prices surged c.16% during the period. In addition to the seasonally stronger demand, the rising costs in the market also triggered producers to raise prices, supported by a flat supply environment (with market capacity only surged 0.5% during since end-June).

The market has been worrying about the slowing property sector amid further restriction policies to affect property sales. We also noted property sales/new construction starts GFA to slow further, which were up 1.6%/1.4% in September 2017 vs 14.6%/6.8% for 9M17. Meanwhile, we still see this property downcycle as gentler than the previous ones given the more reasonable inventory levels, and the limited new float-glass capacity also enabled a healthier glass market than before.

In terms of costs, despite cost pressure from the soaring market soda ash price (from c.Rmb1,750 at end-June to c.Rmb2,425/t now, or a c.39% increase), XYG has already purchased imported soda, which was approximately 30% of its total consumption (including Malaysia), pending for shipments. Besides, the 5% cut in natural-gas prices in early September would also help offset part of the potential increase in natural-gas prices during upcoming winter, like what we observed last year. Meanwhile, management stated that only the Tianjin plant (c.14% of XYG's total float-glass capacity) was actually subject to the winter gas hike, and this year it could also be the case.

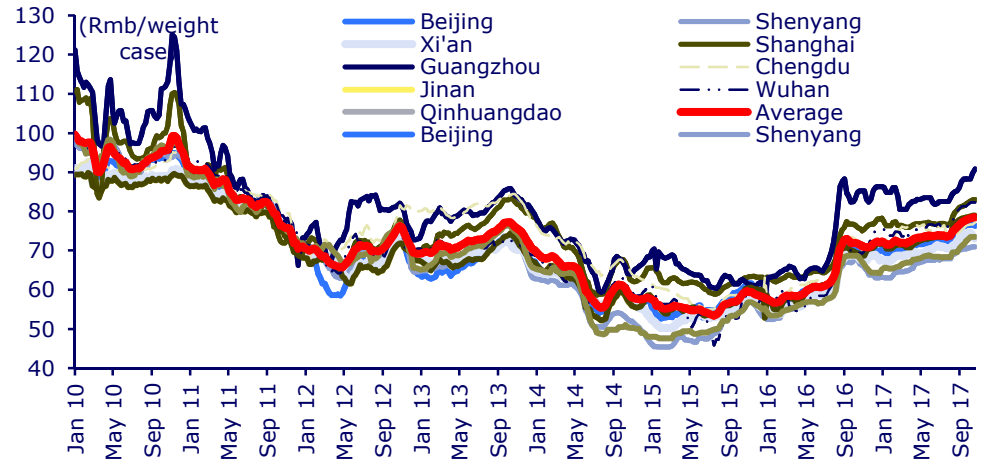
Thus, given better ASP and manageable costs, we expect XYG's float-glass GPM to expand further in 2H17, at c.32.3% vs 30.1% in 1H17, although the auto glass and construction glass segments would be dragged slightly. We cut our 2017/18/19 core profit forecasts slightly by 1.7%/0.6%/0.4% to factor in higher float glass ASP/costs, and we maintain BUY with a target price at HK\$9.50 (from HK\$9.60) based on a blended PE/PB approach: for PE, we apply 10x average 18-19CL EPS; for PB we use a target multiple of 2.0x on average 17-18CL BVPS.

Management expects the 2018 average price level to be higher than 2017, with glass demand remaining strong in 2018 and supply to be limited, and there is support from pollution controls which resulted in higher costs. Demand would be supported by still-growing GFA under construction as well as increasing glass applications.

Float glass prices stayed at high level

Figure 1

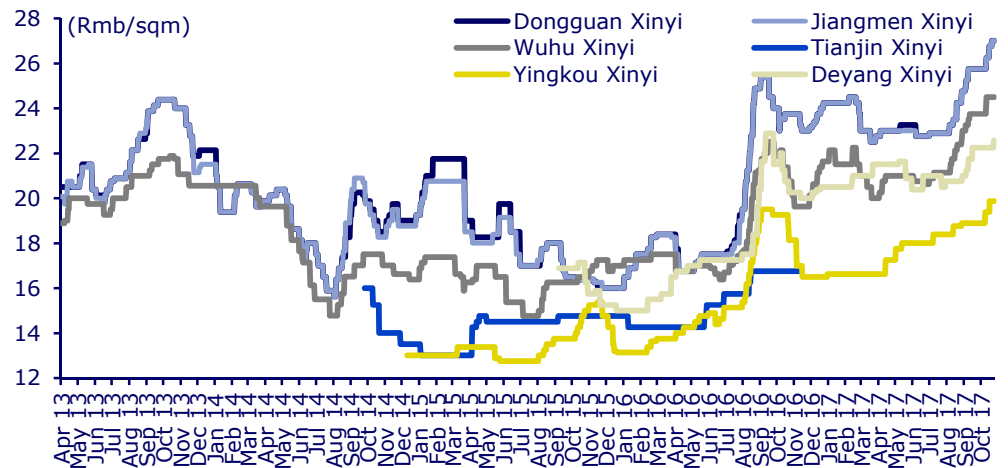
Float-glass prices in various regional markets across China



Source: WIND, CLSA

Figure 2

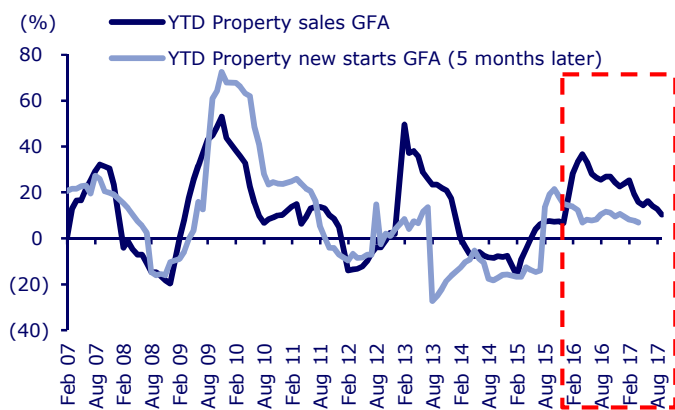
YIG's float-glass product price quotes (5mm clear glass)



Source: SCI99.com, CLSA

Figure 3

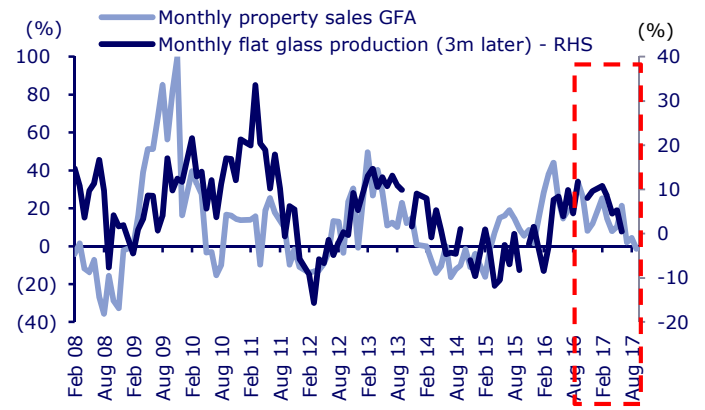
YTD property sales/new starts started to slow



Source: NBS, CLSA

Figure 4

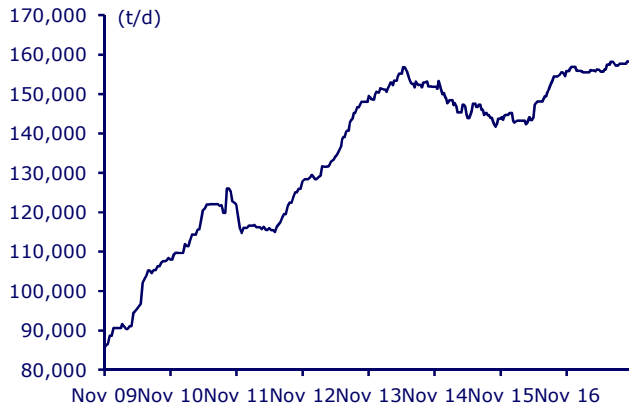
Glass demand lags behind property sales



Source: NBS, CLSA

Figure 5

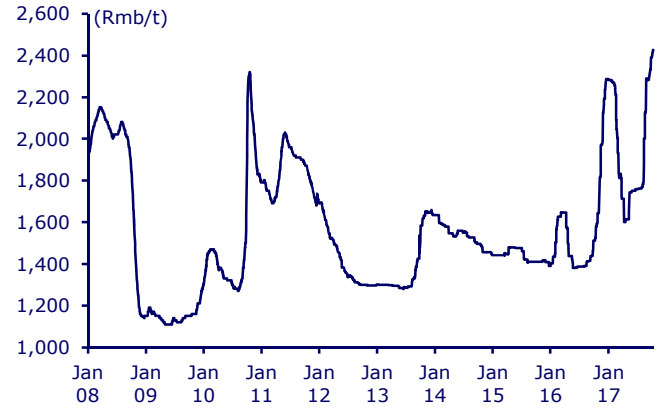
Float-glass capacity under operation in China (including lines just ignited and ultra-clear lines)



Source: WIND, CLSA

Figure 6

Domestic soda-ash prices



Source: WIND, CLSA

New overseas capacity would likely to be at Malaysia and Canada

More on capacity expansion

For its c.50% float-glass capacity expansion plan by 2020 (c.8,500t/d), on top of the second phase in Malaysia (two lines at 2,000t/d) under construction, management shared that other new plants would potentially be in: 1) Malaysia as third phase; and 2) Canada (near Toronto).

For the potential Canada plant, 1,800t/d of capacity will likely be built with around 18 months' construction time. Reasons for choosing Canada instead of the USA include: 1) similar energy costs vs the USA; 2) less power for labour unions; 3) currently no float-glass capacity in Canada, with imports from the USA to fulfil local consumption; 4) lower labour costs by c.30%, and social welfare fund at 17.5% vs 25% for the USA; 5) a lower tax rate. Equipment costs would be similar, but there will be higher building and installation costs (100-150% more than that of China) as well as transportation.

Local demand is around 70% of its planned capacity of 1,800t/d, and XYG targets to have c.50% of the production consumed in Canada and c.50% to the USA. The capacity will be supported by construction glass capacity.

Exploring possibility of building new high-end ultra-clear float glass lines in China

On the other hand, management is also exploring the possibility of building high-end "ultra-clear" glass capacity in China. Despite the limitation of new float-glass approvals, according to the Catalogue of Priority Industries for Foreign Investment in the Central and Western Regions (2017 Revision) (中西部地区外商投资优势产业目录(2017年修订), announced in February 2017), some provinces classify high-end float-glass production (including ultra-clear float glass, ultra-thick float glass) as priority industries supported for foreign investments, like in Wuhu/Sichuan Provinces. Higher-end ultra-clear float glass contributes c.30% of XYG's overall production, and GP can be 15% higher than normal float glass. Management believes peers have limited ability to do this due to a lack of capacity, technology and local demand. The market could question about new float-glass capacity in the market, but given the policy is targeted for foreign investments, and the products would mainly be for the high-end market, the risk of creating pressure of additional overcapacity appears relatively limited.

Figure 7

	17CL			18CL		
	New	Old	Change	New	Old	Change
Earnings revisions						
Revenue (HK\$ m)	14,747	14,336	2.9%	15,734	15,292	2.9%
- Automobile glass products	3,841	3,806	0.9%	3,915	3,879	0.9%
- Construction glass	2,665	2,638	1.0%	2,750	2,722	1.0%
- Float glass (inc. electronic glass)	8,221	7,873	4.4%	8,993	8,616	4.4%
- Wind farm	19	19	0.0%	75	75	0.0%
Gross profit margin	36.3%	37.7%	-1.4 ppt	37.5%	38.6%	-1.1 ppt
- Automobile glass products	47.0%	49.3%	-2.3 ppt	48.1%	50.6%	-2.5 ppt
- Construction glass	35.9%	39.0%	-3.1 ppt	35.6%	38.4%	-2.8 ppt
- Float glass (inc. electronic glass)	31.4%	31.6%	-0.2 ppt	33.3%	33.1%	0.2 ppt
- Wind farm	70.3%	70.3%	0.0 ppt	70.3%	70.3%	0.0 ppt
Core profit (HK\$ m)	3,682	3,745	-1.7%	4,137	4,161	-0.6%

Source: CLSA

Figure 8

XYG - Financials					
Year to 31 December	15A	16A	17CL	18CL	19CL
Revenue (HK\$m)	11,460	12,848	14,747	15,734	16,533
Rev forecast change (%)	-	-	2.9	2.9	2.9
Adjusted net profit (HK\$m)	1,734	3,055	3,682	4,137	4,634
NP forecast change (%)	-	-	(1.7)	(0.6)	(0.4)
Adjusted EPS (HK¢)	43.0	76.5	92.8	103.2	115.5
CL/consensus (8) (EPS%)	-	-	99	99	108
Adj EPS growth (% YoY)	51.7	77.8	21.3	11.2	12.0
Adjusted PE (x)	17.4	9.8	8.1	7.3	6.5
Dividend yield (%)	3.5	5.3	5.9	6.7	7.5
ROE (%)	16.9	24.8	26.1	25.6	25.2
Net debt/equity (%)	37.2	37.0	38.5	27.8	17.4

Source: CLSA

Figure 9

Valuation of Xinyi Glass	
PE basis	
Average 18-19CL EPS (HK\$)	1.09
Target multiple (x)	10.0
Fair value (HK\$)	10.90
PB basis	
Average 17-18CL BVPS (HK\$)	4.05
Target multiple (x)	2.0
Fair value (HK\$)	8.10
Average (HK\$)	9.50
Implied 17/18CL PE	10.2x/9.2x

Source: CLSA

Figure 10

Valuation of Xinyi Glass's non-solar business			
HK\$m		FY17CL	FY18CL
Net profit of Xinyi Glass		3,682	4,137
Less: after-tax share of profits of Xinyi Solar		(652)	(660)
Non-solar profit	(a)	3,031	3,478
Current market cap of Xinyi Glass	(b)	29,955	29,955
Current market cap of Xinyi Solar	(c)	19,747	19,747
M'cap of Xinyi Glass's non-solar business	(d) = (b) - 29.5%*(c)	24,124	24,124
PE of Xinyi Glass's non-solar business	(e) = (d)/(a)	8.0	6.9

Source: CLSA

Our TP is based on a blended PE and PB approach, with higher multiples amid market rerating

Current market-cap implies 8.0x/6.9x its non-solar businesses earnings in 17/18CL

Figure 11

Xinyi Glass 12-month fwd PE chart

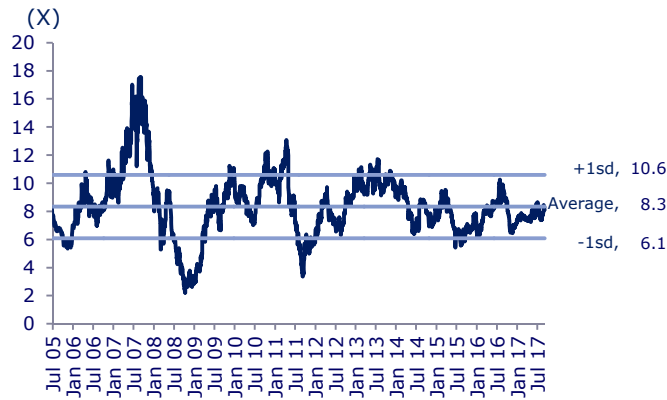
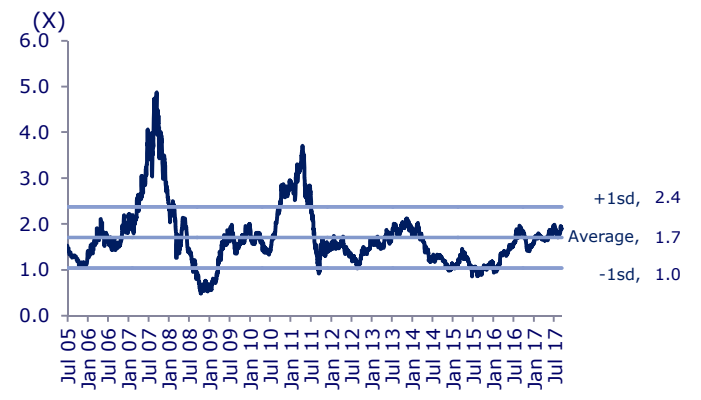


Figure 12

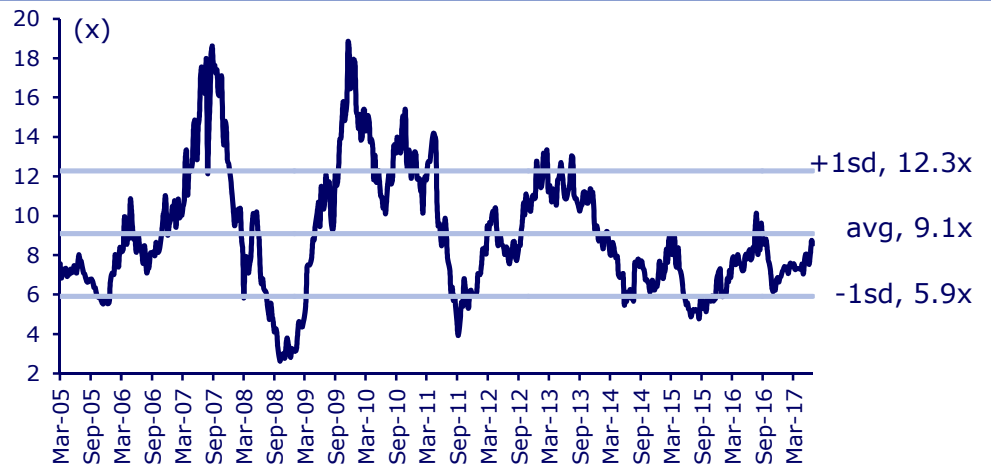
Xinyi Glass 12-month fwd PB chart



Source: CLSA, Datastream

Figure 13

12-month fwd PE chart - Xinyi Glass after stripping out Xinyi Solar at market price (since Dec-13)



Source: CLSA, Datastream

Solar-glass prices rebounded on better-than-expected demand and rising costs

We expect solar-glass GPM to expand in 2H17

XYS

Solar glass bottomed out

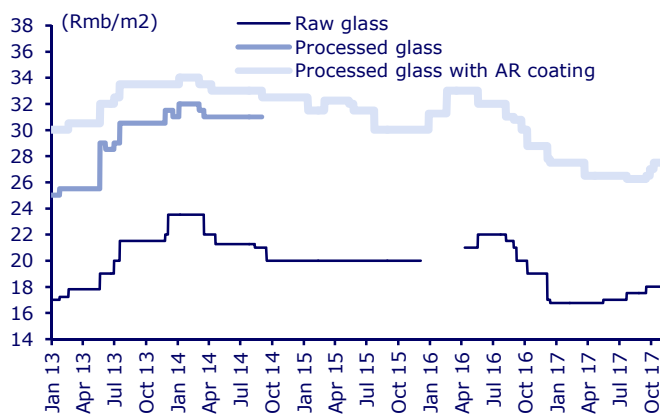
Solar glass continued the improvement trend in 2H17, where prices have started to rebound gradually by c.3-5% since August after about a year's downtrend. We believe the price hike was due to: 1) solar-glass demand being much stronger than what the market used to expect at the beginning of the year, with solar capacity installation reaching 42.3MW in 9M17, thanks to soaring distributed generation projects (DG) and projects from top-runners programmes. Solar-glass makers' shipments remained satisfactory even during the traditional slack season, as some projects were allowed to be completed later than the 30 June deadline under the FiT cut announced in late 2016. 2) Increasing costs like soda ash and the relatively steady demand allow producers to pass on the incremental costs.

Management expects one more round of price hike (potentially c.Rmb1/sqm or c.3-4%) to come soon. Besides, the company will also purchase imported soda ash to manage the incremental costs. Thus, we expect YYS to record higher solar-glass GPM in 2H17 and forecast 31.7% vs 28.6% in 1H17.

We believe the potential new capacity in the market is a medium-term risk to solar-glass prices/GPM, but the new capacity rollout since 2017 has been slower than originally thought (eg, CNBM Group put its 1,000t/d capacity on hold, and Hebei Jinxin's second 700t/d line also hasn't rolled out after completed construction for months).

Figure 14

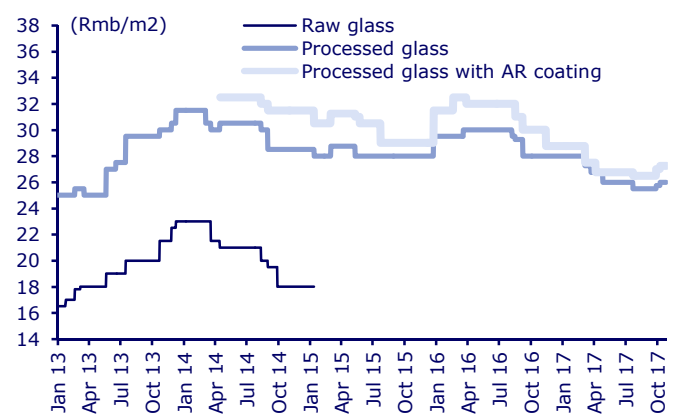
Selling prices of YYS's solar glass – Wuhu plant



Source: SCI99.com, CLSA

Figure 15

Selling prices of YYS's solar glass – Tianjin plant



Source: SCI99.com, CLSA

Figure 16

Ultra-clear PV raw glass producers globally

(t/d)	2014	15CL	16CL	17CL	18CL	Capacity commenced in 2011 or before
Xinyi Solar	3,800	3,900	5,800	5,800	6,800	1,000
Flat Glass Group	2,300	2,300	2,300	2,800	4,300	500
Irico	750	1,500	1,500	2,600	2,600	250
CSG	1,300	1,300	1,300	1,300	1,300	
CNBM Group	160	970	970	1,470	1,470	
Jinxin Solar	250	250	1,450	1,200	1,900	
Ancai	750	750	750	750	750	750
AVIC Sanxin	650	650	950	950	950	650
Tuori New Energy	550	550	550	550	550	250
Rishengda Solar	500	500	500	500	500	
Henan Yuhua	250	250	250	250	250	250
Henan Sikeda	150	150	150	150	150	

Sulate Solar	250	250	250	250	250	250
Pilkington	120	250	250	250	250	250
Nantong Taide	150	150	150	150	150	
Taiwan Glass	600	600	490	490	490	
Jiangsu Gangyue	250	250	250	250	850	
Yuandong Photoelectric		-	500	780	780	
Fuzhou Xinfuxing			550	550	550	
Qinghai Guangke	250	250	250	250	250	
Jiangsu Xinda	520	650	650	650	650	
Nantong Deli		-	300	300	300	
Anyuan Solar			250	250	250	
Kibing					700	
Hongsheng Solar				300	300	
Other overseas	940	940	940	690	690	
Total capacity (t/d)	14,490	16,410	21,300	23,480	27,980	4,150
YoY growth	20.4%	13.3%	29.8%	10.2%	19.2%	
Thickness (mm)	3.2	3.2	3.2	3.2	3.2	
Density (kg/m ³)	2,500	2,500	2,500	2,500	2,500	
Total capacity (m m²)	661	749	972	1,071	1,277	
Effective capacity (m m²)	317	393	456	542	623	
YoY growth	29.5%	24.0%	16.1%	18.7%	14.9%	
Assuming:						
Raw glass yield rate	66%	68%	68%	68%	68%	
Effective utilisation	82%	82%	78%	78%	78%	
<i>Assuming new capacity launches mid-year</i>						

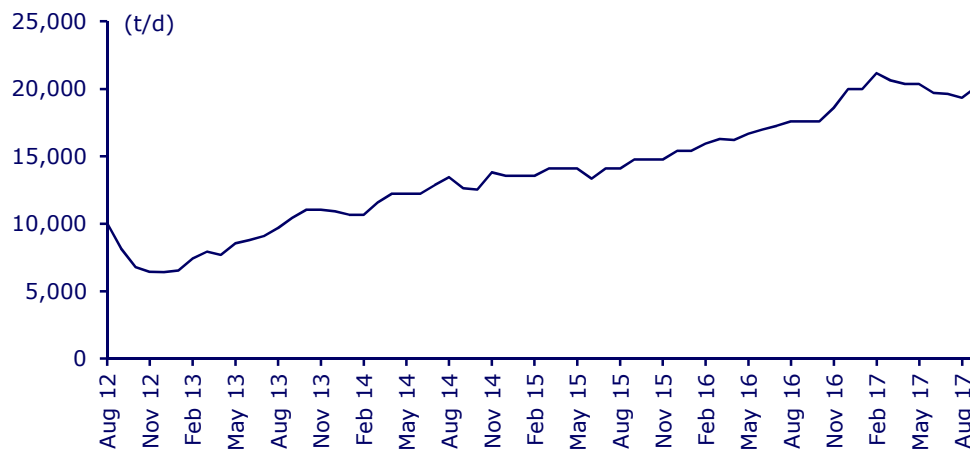
Source: sci99.com, CLSA

YTD new capacity rollout for solar glass has been slower than original thought

Slower solar-farm development affects earnings growth but better from cash perspective

Figure 17

Monthly operating solar-glass capacity in China



Source: sci99.com, CLSA

Slower solar-farm development

On the other hand, XYS continued to slow down its solar-farm development progress, partly due to local governments' slow quota distribution and the potential for an imminent further decline in module costs. We forecast XYS to reach cumulative installation of 1.8GW (excluding the 100MW under 50:50 JV), vs 1.46GW/1.58GW by end-16/end-1H17, or 340MW new addition in 2017, plus 400MW in each of 2018/19 (from 600/700/700MW in 17-19CL previously). This could affect the company's earnings growth pattern, but would help ease its cashflow pressure - the latter is further supported by the recent announcement of settlement of outstanding subsidy payments until December 2016 for projects under the sixth batch of the renewable energy catalogue, which XYS could receive c.Rmb230m outstanding subsidy this round. On the other hand, the spin-off of Xinyi Energy is likely to be postponed to 2018.

Figure 18

XYS: Key solar-farm assumptions - under Xinyi Energy

	2014	2015	2016CL	2017CL	2018CL	2019CL	2020CL	2021CL	2022CL
Total capacity (MW)	250	620	1,464	1,804	2,204	2,604	2,604	2,604	2,604
- 250MW in Anhui	250	250	250	250	250	250	250	250	250
- 30MW in Fujian		30	30	30	30	30	30	30	30
- 100MW in Hongan, Hubei		100	100	100	100	100	100	100	100
- 40MW Lixin County, Anhui		40	40	40	40	40	40	40	40
- 174MW in Tianjin			174	174	174	174	174	174	174
- 100MW in Lixin County, Anhui			100	100	100	100	100	100	100
- 100MW in Wuwei County, Anhui		100	100	100	100	100	100	100	100
- 60MW in Fanchang County, Anhui			60	60	60	60	60	60	60
- 100MW in Shou County, Anhui		100	100	100	100	100	100	100	100
- 20MW in Huainan, Anhui			20	20	20	20	20	20	20
- 300MW in Anhui in 16CL			250	300	300	300	300	300	300
- 130MW in Hubei in 16CL			130	130	130	130	130	130	130
- 110MW in Henan in 16CL			110	110	110	110	110	110	110
- Addition in 2016CL				150	150	150	150	150	150
- Addition in 2017CL				140	140	140	140	140	140
- Addition in 2018CL					400	400	400	400	400
- Addition in 2019CL						400	400	400	400
Effective capacity (MW)	25	309	1,019	1,537	1,937	2,337	2,604	2,604	2,604
- 250MW in Anhui	25	250	250	250	250	250	250	250	250
- 30MW in Fujian		23	30	30	30	30	30	30	30
- 100MW in Hongan, Hubei		17	100	100	100	100	100	100	100
- 40MW Lixin County, Anhui		12	40	40	40	40	40	40	40
- 174MW in Tianjin			145.0	174	174	174	174	174	174
- 100MW in Lixin County, Anhui		-	91.67	100	100	100	100	100	100
- 100MW in Wuwei County, Anhui		4	100	100	100	100	100	100	100
- 60MW in Fanchang County, Anhui			52	60	60	60	60	60	60
- 100MW in Shou County, Anhui		4	100	100	100	100	100	100	100
- 20MW in Huainan, Anhui			15.00	20	20	20	20	20	20
- 300MW in Anhui in 16CL			41.67	263	300	300	300	300	300
- 130MW in Hubei in 16CL			27.08	130	130	130	130	130	130
- 110MW in Henan in 16CL			27.50	110	110	110	110	110	110
- Addition in 2016CL				37.50	150	150	150	150	150
- Addition in 2017CL				23.33	140.00	140	140	140	140
- Addition in 2018CL					133.33	400	400	400	400
- Addition in 2019CL						133.33	400	400	400
Total power generated (m kWh)¹	30	307	1,116	1,675	1,946	2,503	2,759	2,720	2,692
- 250MW in Anhui	30	248	270	267	264	262	259	256	254
- 30MW in Fujian		23	33	32	32	32	31	31	31
- 100MW in Hongan, Hubei		17	109	108	107	106	105	104	103
- 40MW Lixin County, Anhui		12	44	43	43	42	42	41	41
- 174MW in Tianjin		-	165	196	194	192	190	188	187
- 100MW in Lixin County, Anhui		-	100	108	107	106	105	104	103
- 100MW in Wuwei County, Anhui		4	109	108	107	106	105	104	103
- 60MW in Fanchang County, Anhui		-	56	65	64	63	63	62	62
- 100MW in Shou County, Anhui		4	109	108	107	106	105	104	103
- 20MW in Huainan, Anhui			17	22	22	21	21	21	21
- 300MW in Anhui in 16CL			46	288	324	320	317	314	311
- 130MW in Hubei in 16CL			30	143	140	139	137	136	135
- 110MW in Henan in 16CL			30	121	119	117	116	115	114
- Addition in 2016CL			-	41	164	160	158	157	155
- Addition in 2017CL				26	153	149	148	146	145
- Addition in 2018CL				-	-	436	423	418	414
- Addition in 2019CL						-	147	434	418
FIT (Rmb/kWh) (excl. VAT)	0.84	0.82	0.82	0.80	0.78	0.72	0.70	0.70	0.70
- 250MW in Anhui	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
- 30MW in Fujian		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
- 100MW in Hongan, Hubei		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
- 40MW Lixin County, Anhui		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
- 174MW in Tianjin		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
- 100MW in Lixin County, Anhui		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
- 100MW in Wuwei County, Anhui		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
- 60MW in Fanchang County, Anhui		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

	2014	2015	2016CL	2017CL	2018CL	2019CL	2020CL	2021CL	2022CL
- 100MW in Shou County, Anhui		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
- 20MW in Huainan, Anhui			1.00	1.00	1.00	1.00	1.00	1.00	1.00
- 300MW in Anhui in 16CL			0.98	0.94	0.94	0.94	0.94	0.94	0.94
- 130MW in Hubei in 16CL			1.00	1.00	1.00	1.00	1.00	1.00	1.00
- 110MW in Henan in 16CL			0.98	0.98	0.98	0.98	0.98	0.98	0.98
- Addition in 2016CL			0.75	0.75	0.75	0.75	0.75	0.75	0.75
- Addition in 2017CL				0.70	0.70	0.70	0.70	0.70	0.70
- Addition in 2018CL					0.65	0.65	0.65	0.65	0.65
- Addition in 2019CL						0.60	0.60	0.60	0.60
Utilisation hours	845	1,000	1,107	1,106	1,104	1,104	1,103	1,103	1,103
- 250MW in Anhui	845	1,000	1,100	1,100	1,100	1,100	1,100	1,100	1,100
- 30MW in Fujian		1,000	1,100	1,100	1,100	1,100	1,100	1,100	1,100
- 100MW in Hongan, Hubei		1,000	1,100	1,100	1,100	1,100	1,100	1,100	1,100
- 40MW Lixin County, Anhui		1,000	1,100	1,100	1,100	1,100	1,100	1,100	1,100
- 174MW in Tianjin		1,000	1,150	1,150	1,150	1,150	1,150	1,150	1,150
- 100MW in Lixin County, Anhui		1,000	1,100	1,100	1,100	1,100	1,100	1,100	1,100
- 100MW in Wuwei County, Anhui		1,000	1,100	1,100	1,100	1,100	1,100	1,100	1,100
- 60MW in Fanchang County, Anhui		1,000	1,100	1,100	1,100	1,100	1,100	1,100	1,100
- 100MW in Shou County, Anhui		1,000	1,100	1,100	1,100	1,100	1,100	1,100	1,100
- 20MW in Huainan, Anhui			1,100	1,100	1,100	1,100	1,100	1,100	1,100
- 300MW in Anhui in 16CL			1,100	1,100	1,100	1,100	1,100	1,100	1,100
- 130MW in Hubei in 16CL			1,100	1,100	1,100	1,100	1,100	1,100	1,100
- 110MW in Henan in 16CL			1,100	1,100	1,100	1,100	1,100	1,100	1,100
- Addition in 2016CL			1,100	1,100	1,100	1,100	1,100	1,100	1,100
- Addition in 2017CL				1,100	1,100	1,100	1,100	1,100	1,100
- Addition in 2018CL					1,100	1,100	1,100	1,100	1,100
- Addition in 2019CL						1,100	1,100	1,100	1,100
Revenue (Rmb m)	24	250	914	1,347	1,513	1,802	1,924	1,899	1,880
- 250MW in Anhui	24	201	219	217	215	213	211	208	206
- 30MW in Fujian	-	19	27	27	27	26	26	26	26
- 100MW in Hongan, Hubei		14	90	89	89	88	87	86	85
- 40MW Lixin County, Anhui		10	36	36	35	35	35	34	34
- 174MW in Tianjin		-	130	155	153	152	150	149	147
- 100MW in Lixin County, Anhui		-	83	89	89	88	87	86	85
- 100MW in Wuwei County, Anhui		3	90	89	89	88	87	86	85
- 60MW in Fanchang County, Anhui		-	47	54	53	53	52	52	51
- 100MW in Shou County, Anhui		3	90	89	89	88	87	86	85
- 20MW in Huainan, Anhui			14	18	18	18	18	17	17
- 300MW in Anhui in 16CL			37	225	253	250	248	245	243
- 130MW in Hubei in 16CL			25	118	116	115	114	113	112
- 110MW in Henan in 16CL			25	98	96	95	95	94	93
- Addition in 2016CL			-	26	102	100	99	98	97
- Addition in 2017CL			-	15	89	87	86	85	84
- Addition in 2018CL			-	-	-	235	228	226	223
- Addition in 2019CL			-	-	-	73	216	208	206
Unit capex (Rmb/W)									
- 250MW in Anhui	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
- 30MW in Fujian	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
- 100MW in Hongan, Hubei		6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
- 40MW Lixin County, Anhui		6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
- 174MW in Tianjin		6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
- 100MW in Lixin County, Anhui		6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
- 100MW in Wuwei County, Anhui		6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
- 60MW in Fanchang County, Anhui		6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
- 100MW in Shou County, Anhui		6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
- 20MW in Huainan, Anhui			6.0	6.0	6.0	6.0	6.0	6.0	6.0
- 300MW in Anhui in 16CL			5.8	5.8	5.8	5.8	5.8	5.8	5.8
- 130MW in Hubei in 16CL			5.5	5.5	5.5	5.5	5.5	5.5	5.5
- 110MW in Henan in 16CL			5.5	5.5	5.5	5.5	5.5	5.5	5.5
- Addition in 2016CL			5.5	5.3	5.3	5.3	5.3	5.3	5.3
- Addition in 2017CL				5.3	5.3	5.3	5.3	5.3	5.3
- Addition in 2018CL					5.2	5.2	5.2	5.2	5.2
- Addition in 2019CL						5.0	5.0	5.0	5.0

¹ With 1% degradation every year. Source: CLSA, Company

Figure 19

XYS: Key solar-farm assumptions – JVs

	2015CL	2016CL	2017CL	2018CL	2019CL	2020CL	2021CL	2022CL
Total capacity (MW)	100	100	100	100	100	100	100	100
- Anhui Jinzhai Solar Plant Phase II	100	100	100	100	100	100	100	100
Effective capacity (MW)		92	92	92	92	92	92	92
- Anhui Jinzhai Solar Plant Phase II		92	92	92	92	92	92	92
Total power generated (m kWh)*		101	100	99	98	97	96	95
- Anhui Jinzhai Solar Plant Phase II		101	100	99	98	97	96	95
FiT (Rmb/kWh) (excl. VAT)		0.81	0.81	0.81	0.81	0.81	0.81	0.81
- Anhui Jinzhai Solar Plant Phase II		0.98	0.98	0.98	0.98	0.98	0.98	0.98
Utilisation hours		1,100	1,100	1,100	1,100	1,100	1,100	1,100
- Anhui Jinzhai Solar Plant Phase II		1,100	1,100	1,100	1,100	1,100	1,100	1,100
Revenue (Rmb m)		82	81	80	80	79	78	77
- Anhui Jinzhai Solar Plant Phase II		82	81	80	80	79	78	77
Unit capex (Rmb/W)								
- Anhui Jinzhai Solar Plant Phase II		6.8	6.8	6.8	6.8	6.8	6.8	6.8
Effective equity interest		50%	50%	50%	50%	50%	50%	50%
- Anhui Jinzhai Solar Plant Phase II		50%	50%	50%	50%	50%	50%	50%

* With 1% degradation every year. Source: CLSA

Overall, we lift our 2017/18/19 core profit forecasts by 2.5%/2.4%/2.1%, mainly factoring in slightly higher solar-glass ASP/costs and lower solar-farm power sales. We are lower than consensus for 18CL profit partly because we have not yet factored in a lot contributions from EPC after a very robust 2017 given relatively low visibility.

Figure 20

Earnings revisions - YYS

	New		Old		Change	
	17CL	18CL	17CL	18CL	17CL	18CL
Revenue						
Ultra-clear photovoltaic raw glass	247	267	257	270	-4.1%	-1.2%
Ultra-clear photovoltaic processed glass	4,988	5,633	4,725	5,274	5.6%	6.8%
Sale of electricity	1,606	1,832	1,553	1,897	3.4%	-3.4%
Solar EPC	2,176	1,666	2,380	1,666	-8.6%	0.0%
Total	9,017	9,398	8,915	9,108	1.1%	3.2%
Gross margin						
Ultra-clear photovoltaic raw glass	7.7%	10.1%	8.9%	8.3%	-1.2 ppt	1.9 ppt
Ultra-clear photovoltaic processed glass	31.3%	32.7%	31.4%	32.2%	0.0 ppt	0.5 ppt
Sale of electricity	71.5%	69.6%	71.7%	68.3%	-0.2 ppt	1.3 ppt
Solar EPC	25.4%	24.4%	25.4%	24.4%	0.0 ppt	0.0 ppt
Total	36.4%	37.8%	36.1%	37.6%	0.3 ppt	0.2 ppt
Core profit	2,207	2,234	2,152	2,182	2.5%	2.4%

Source: CLSA

Figure 21

XYS - Financials

Year to 31 December	15A	16A	17CL	18CL	19CL
Revenue (HK\$m)	4,750	6,007	9,017	9,398	11,200
Rev forecast change (%)	-	-	1.1	3.2	1.5
Adjusted net profit (HK\$m)	1,144	1,977	2,207	2,234	2,749
NP forecast change (%)	-	-	2.5	2.4	2.1
Adjusted EPS (HK\$)	0.18	0.29	0.31	0.30	0.37
CL/consensus (21) (EPS%)	-	-	96	86	97
Adj EPS growth (% YoY)	103.4	66.6	4.7	(1.9)	23.0
Adjusted PE (x)	15.1	9.1	8.7	8.8	7.2
Dividend yield (%)	3.3	5.3	5.5	5.4	6.6
ROE (%)	25.3	33.1	29.0	23.4	25.0
Net debt/equity (%)	10.5	78.4	28.6	30.3	27.3

Source: CLSA

We value YYS using SOTP, with the solar glass/EPC businesses using a PE approach and solar farms/DG projects using DCF.

- 1) Solar glass: We use a PE approach with the same target multiple of 8x on average 18-19CL;
- 2) Solar farms: DCF model with a WACC of 7.8% (from 8.0%), derived from a risk-free rate of 4.0% (from 3.0%); market risk premium of 7.0% (from 8.0%); beta of 1.4; after-tax interest rate of 1.9%; leverage of 50%; and terminal growth rate of 0.5%;
- 3) DG project: DCF model on the two rooftop projects (25MW in Tianjin and 13.1MW in Wuhu) with the same WACC of 7.8%;
- 4) EPC: We use a PE approach with the same target multiple of 5x average 18-19CL (from 18CL).

Overall, our valuation for the company is HK\$24.4bn, implying a one-year target price of HK\$3.30 (from HK\$3.10), translating into 10.9x 18CL PE.

Figure 22

SOTP valuation summary - YYS

(HK\$m)	18CL earnings for glass/EPC, 18CL onwards projections for solar farm/DG DCF
Valuation of solar glass business	12,748
Valuation of solar farms	9,984
Valuation of distributed project	394
Valuation of EPC	1,277
Total valuation	24,403
Total no. of shares (m)	7,424
Value per share	3.30
Net profit for Xinyi Solar in 18CL	2,234
Implied 18CL PE (x)	10.9

Figure 23

Valuation of solar glass and EPC business - YYS

(HK\$m)	Avg 18-19CL
Net profit for Xinyi Solar	2,492
Less: Net profit for solar farms	(640)
Less: Net profit for distributed project	(3)
Less: Net profit for EPC	(255)
Net profit for solar glass	1,594
Fair PE of solar glass (x)	8
Valuation of solar-glass business	12,748
Fair PE of solar EPC (x)	5
Valuation of solar-EPC business	1,277

Source: CLSA

We continue to use an SOTP valuation for YYS

Overall one-year valuation of HK\$24.4bn

Solar-glass segment valued at HK\$12.7bn

Figure 24

DCF valuation of the solar-farm business - XYS

	2018CL	2019CL	2020CL	2021CL	2022CL
Ebitda	1,476	1,750	1,865	1,841	1,822
Less: Tax	(29)	(98)	(142)	(199)	(297)
Less: Minority interests	(313)	(362)	(366)	(345)	(318)
Less: Working capital	-	-	-	-	-
Less: Capex	(1,485)	(2,040)	(1,000)	(126)	-
Less: Acquisitions	-	-	-	-	-
Free cash flow	(351)	(750)	357	1,171	1,208
PV of FCF	(338)	(670)	296	899	860
WACC:					
Risk free rate	4.0%				
Market risk premium	7.0%				
Equity beta	1.4				
Cost of equity	13.8%				
Cost of debt (Pre-tax)	2.5%				
Cost of debt (After tax)	1.9%				
Target debt weight	50.0%				
Target equity weight	50.0%				
Tax rate	25.0%				
WACC	7.8%				
Terminal growth	0.5%				
				DCF valuation	
				Sum of PV of FCF (Rmb m)	1,047
				PV of terminal value	11,759
				Investment securities (book value)	0
				Investment in assoc. & JCEs (book value)	0
				Enterprise value	12,806
				Less: Net debt (avg 17-18CL)	(4,561)
				Equity value (Rmb m)	8,245
				Equity value (HK\$ m)	9,984
				No. of ord shares (m), fully diluted	7,424
				Value per share, Rmb	\$1.11
				Value per share, HK\$	\$1.34

Source: CLSA

Figure 25

DCF valuation of the DG business (25MW in Tianjin + 13.1MW in Wuhu) - XYS

	2018CL	2019CL	2020CL	2021CL	2022CL
Ebitda	42	42	41	41	40
Less: Tax	(5)	(5)	(5)	(10)	(10)
Free cash flow	37	36	36	31	30
PV of FCF	35	32	30	23	22
WACC:					
Risk free rate	4.0%				
Market risk premium	7.0%				
Equity beta	1.4				
Cost of equity	13.8%				
Cost of debt (pre-tax)	2.5%				
Cost of debt (after tax)	1.9%				
Target debt weight	50.0%				
Target equity weight	50.0%				
Tax rate	25.0%				
WACC	7.8%				
Terminal growth	0.0%				
					DCF valuation
					Sum of PV of FCF (Rmb m)
					PV of terminal value
					Investment securities (book value)
					Investment in assoc. & JCEs (book value)
					Enterprise value
					Less: Net debt (avg 17-18CL)
					Equity value (Rmb m)
					Equity value (HK\$ m)
					No. of ord shares (m), fully diluted
					Value per share, Rmb
					Value per share, HK\$

Source: CLSA

Figure 26

12-month forward PE of XYS

Figure 27

12-month forward PB of XYS

Source: Datastream, CLSA

Valuation details - Xinyi Glass Holdings Ltd 868 HK

We value XYG using a blended PE and PB approach. We apply a target multiple of 10x to avg 18-19CL EPS and a target multiple of 2.0x to avg 17-18CL BVPS, in line with the historical averages.

Investment risks - Xinyi Glass Holdings Ltd 868 HK

Key risks include: 1) Weakening of the property market or even the auto market. Demand for float glass and construction glass is highly dependent on the property market. Besides, despite being a stable business, the auto glass segment is correlated to the global number of vehicles in use, and any significant slowdown in the global auto industry may also affect the segment's performance. 2) Further tightening of credit. Tightening of credit also affects developers' cash flows and progress in construction of property projects. 3) Incremental production costs. A significant surge in natural gas, international crude oil prices and other raw material costs may affect XYG's gross margin if it cannot pass on incremental costs by raising ASP. 4) More capacity additions in the market.

Valuation details - Xinyi Solar Holdings Ltd 968 HK

We value XYS on an SOTP basis, using a PE approach for the solar glass/EPC businesses and DCF valuation for solar farm/DG projects.

Investment risks - Xinyi Solar Holdings Ltd 968 HK

Key risks include: 1) A change in the governments' supportive stance on the solar sector, as the solar industry is still in a relatively early stage of development and is getting a boost from incentive programmes implemented by the governments of various countries. 2) Risk of oversupply. The expansion in production capacity of various solar-glass producers may not be commensurate to increase in demand for solar-glass products, which could result in pressure on their prices. 3) Technological advancement. The solar industry is developing rapidly and the associated technologies are also advancing quickly. It is important for XYS to develop and improve its technologies quickly to respond to changes in the market, by means of improving its existing products and developing new ones. 4) Payment of government subsidy on solar projects as well as risk of curtailment, which would affect downstream-project returns.

XYG - Summary financials

Year to 31 December	2015A	2016A	2017CL	2018CL	2019CL
Summary P&L forecast (HK\$m)					
Revenue	11,460	12,848	14,747	15,734	16,533
Op Ebitda	2,313	3,664	4,240	4,886	5,351
Op Ebit	1,518	2,837	3,361	3,893	4,266
Interest income	40	51	71	53	32
Interest expense	(90)	(128)	(133)	(128)	(84)
Other items	912	1,063	1,018	1,047	1,216
Profit before tax	2,380	3,823	4,318	4,864	5,431
Taxation	(266)	(607)	(633)	(724)	(794)
Minorities/Pref divs	0	(3)	(3)	(3)	(3)
Net profit	2,113	3,213	3,682	4,137	4,635
Summary cashflow forecast (HK\$m)					
Operating profit	1,518	2,837	3,361	3,893	4,266
Operating adjustments	-	-	-	-	-
Depreciation/amortisation	795	827	879	994	1,085
Working capital changes	(207)	(426)	(267)	(105)	(86)
Net interest/taxes/other	(421)	(784)	(766)	(852)	(877)
Net operating cashflow	1,685	2,453	3,207	3,929	4,388
Capital expenditure	(1,967)	(1,853)	(3,000)	(2,000)	(2,000)
Free cashflow	(282)	600	207	1,929	2,388
Acq/inv/disposals	-	-	-	-	-
Int, invt & associate div	951	1,112	1,087	1,097	1,246
Net investing cashflow	(1,016)	(741)	(1,913)	(903)	(754)
Increase in loans	16	1,646	1,114	(2,716)	(1,330)
Dividends	(1,029)	(1,622)	(1,780)	(2,000)	(2,240)
Net equity raised/other	812	(267)	(446)	0	-
Net financing cashflow	(202)	(244)	(1,113)	(4,717)	(3,570)
Incr/(decr) in net cash	468	1,468	181	(1,691)	64
Exch rate movements	-	-	-	-	-
Opening cash	832	1,300	2,768	2,949	1,259
Closing cash	1,300	2,768	2,949	1,259	1,323
Summary balance sheet forecast (HK\$m)					
Cash & equivalents	1,300	2,768	2,949	1,259	1,323
Debtors	1,136	1,036	1,247	1,330	1,398
Inventories	1,223	1,321	1,475	1,529	1,575
Other current assets	1,337	1,412	1,858	1,858	1,858
Fixed assets	11,971	11,831	14,009	15,069	16,036
Intangible assets	1,281	1,193	1,136	1,082	1,030
Other term assets	3,174	4,462	4,462	4,462	4,462
Total assets	21,422	24,022	27,136	26,589	27,682
Short-term debt	2,514	3,165	3,625	2,504	1,956
Creditors	740	789	887	919	947
Other current liabs	1,705	2,046	2,046	2,046	2,046
Long-term debt/CBs	3,514	4,509	5,163	3,567	2,786
Provisions/other LT liabs	223	266	266	266	266
Minorities/other equity	7	66	66	66	66
Shareholder funds	12,718	13,181	15,083	17,220	19,615
Total liabs & equity	21,422	24,022	27,136	26,589	27,682
Ratio analysis					
Revenue growth (% YoY)	5.5	12.1	14.8	6.7	5.1
Ebitda growth (% YoY)	33.0	58.4	15.7	15.2	9.5
Ebitda margin (%)	20.2	28.5	28.8	31.1	32.4
Net profit margin (%)	18.4	25.0	25.0	26.3	28.0
Dividend payout (%)	50.5	49.7	48.0	48.5	48.5
Effective tax rate (%)	11.2	15.9	14.7	14.9	14.6
Ebitda/net int exp (x)	46.1	47.7	69.1	64.8	104.4
Net debt/equity (%)	37.2	37.0	38.5	27.8	17.4
ROE (%)	16.9	24.8	26.1	25.6	25.2
ROIC (%)	8.7	15.7	17.3	17.9	18.6
EVA@/IC (%)	(1.9)	5.1	6.7	7.2	8.0

Source: CLSA

XYS - Summary financials

Year to 31 December	2015A	2016A	2017CL	2018CL	2019CL
Summary P&L forecast (HK\$m)					
Revenue	4,750	6,007	9,017	9,398	11,200
Op Ebitda	1,432	2,665	3,252	3,619	4,438
Op Ebit	1,206	2,265	2,686	2,930	3,637
Interest income	5	9	9	12	10
Interest expense	(21)	(104)	(170)	(160)	(165)
Other items	143	212	162	162	163
Profit before tax	1,332	2,382	2,687	2,943	3,646
Taxation	(188)	(241)	(286)	(330)	(455)
Minorities/Pref divs	0	(164)	(194)	(379)	(442)
Net profit	1,144	1,977	2,207	2,234	2,749
Summary cashflow forecast (HK\$m)					
Operating profit	1,206	2,265	2,686	2,930	3,637
Operating adjustments	-	-	-	-	-
Depreciation/amortisation	226	400	566	689	801
Working capital changes	(638)	(1,845)	(1,118)	(103)	(485)
Net interest/taxes/other	53	(148)	(294)	(328)	(457)
Net operating cashflow	846	671	1,840	3,188	3,496
Capital expenditure	(3,583)	(4,810)	(3,162)	(2,798)	(2,590)
Free cashflow	(2,736)	(4,139)	(1,322)	390	906
Acq/inv/disposals	1,676	(151)	2,800	-	-
Int, invt & associate div	5	9	9	12	10
Net investing cashflow	(1,902)	(4,952)	(353)	(2,787)	(2,579)
Increase in loans	2,290	3,076	(186)	(143)	507
Dividends	(434)	(844)	(945)	(1,083)	(1,063)
Net equity raised/other	1,526	23	1,505	-	-
Net financing cashflow	3,382	2,255	374	(1,227)	(556)
Incr/(decr) in net cash	2,326	(2,025)	1,862	(825)	360
Exch rate movements	-	-	-	-	-
Opening cash	543	2,869	843	2,705	1,880
Closing cash	2,869	843	2,705	1,880	2,240
Summary balance sheet forecast (HK\$m)					
Cash & equivalents	2,869	843	2,705	1,880	2,240
Debtors	806	1,895	2,845	2,965	3,534
Inventories	199	288	894	932	1,110
Other current assets	0	0	0	0	0
Fixed assets	7,104	11,079	13,679	15,792	17,584
Intangible assets	180	327	323	319	315
Other term assets	1,577	2,354	2,354	2,354	2,354
Total assets	12,735	16,786	22,799	24,241	27,137
Short-term debt	474	1,952	1,898	1,856	2,005
Creditors	794	873	1,311	1,366	1,628
Other current liabs	1,441	1,766	1,766	1,766	1,766
Long-term debt/CBs	3,116	4,714	4,582	4,481	4,839
Provisions/other LT liabs	17	54	54	54	54
Minorities/other equity	1,146	1,212	4,206	4,585	5,027
Shareholder funds	5,745	6,216	8,983	10,134	11,819
Total liabs & equity	12,735	16,786	22,799	24,241	27,137
Ratio analysis					
Revenue growth (% YoY)	97.1	26.5	50.1	4.2	19.2
Ebitda growth (% YoY)	139.9	86.1	22.0	11.3	22.6
Ebitda margin (%)	30.1	44.4	36.1	38.5	39.6
Net profit margin (%)	24.1	32.9	24.5	23.8	24.5
Dividend payout (%)	49.5	47.8	47.6	47.6	47.6
Effective tax rate (%)	14.1	10.1	10.6	11.2	12.5
Ebitda/net int exp (x)	86.8	28.2	20.1	24.3	28.7
Net debt/equity (%)	10.5	78.4	28.6	30.3	27.3
ROE (%)	25.3	33.1	29.0	23.4	25.0
ROIC (%)	18.0	20.0	16.3	14.7	15.9
EVA@/IC (%)	7.7	9.7	6.0	4.4	5.7

Source: CLSA

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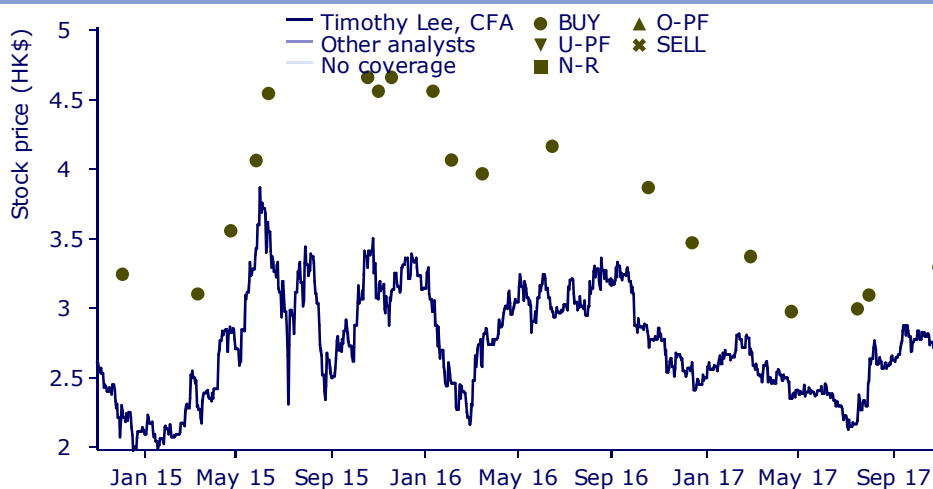
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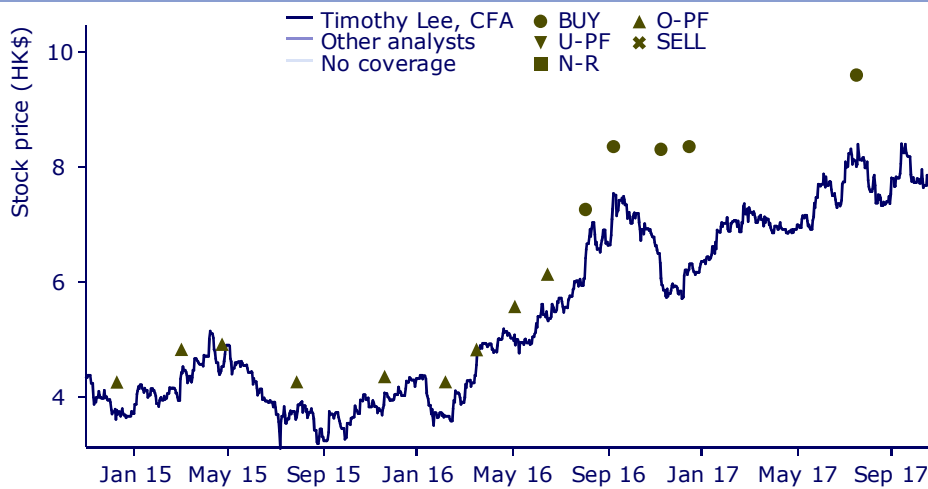
Recommendation history of Xinyi Solar Holdings Ltd 968 HK



Date	Rec	Target	Date	Rec	Target
LATEST	BUY	3.30	12 Jan 2016	BUY	4.57*
01 Aug 2017	BUY	3.10	19 Nov 2015	BUY	4.67*
17 Jul 2017	BUY	3.00	02 Nov 2015	BUY	4.57*
22 Apr 2017	BUY	2.98*	19 Oct 2015	BUY	4.67*
28 Feb 2017	BUY	3.38*	12 Jun 2015	BUY	4.55*
14 Dec 2016	BUY	3.48*	27 May 2015	BUY	4.07*
18 Oct 2016	BUY	3.87*	24 Apr 2015	BUY	3.56*
15 Jun 2016	BUY	4.17*	12 Mar 2015	BUY	3.11*
16 Mar 2016	BUY	3.97*	04 Dec 2014	BUY	3.25*
05 Feb 2016	BUY	4.07*			

Source: CLSA; * Adjusted for corporate action

Recommendation history of Xinyi Glass Holdings Ltd 868 HK



Date	Rec	Target	Date	Rec	Target
LATEST	BUY	9.50	16 Mar 2016	O-PF	4.80*
17 Jul 2017	BUY	9.60	05 Feb 2016	O-PF	4.24*
14 Dec 2016	BUY	8.35	19 Nov 2015	O-PF	4.33*
08 Nov 2016	BUY	8.30	29 Jul 2015	O-PF	4.24*
08 Sep 2016	BUY	8.35	24 Apr 2015	O-PF	4.90*
03 Aug 2016	BUY	7.25	03 Mar 2015	O-PF	4.81*
15 Jun 2016	O-PF	6.12*	10 Dec 2014	O-PF	4.24*
04 May 2016	O-PF	5.56*			

Source: CLSA; * Adjusted for corporate action

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