Goldman Sachs

Europe: Energy: Alternative Energy

European Solar: The sun sets on the West, rises in the East; buy equipment and ReneSola

Europe is structurally challenged ...

We analyze the cost base of the global solar PV manufacturing industry and find that China-based manufacturers have a 30% cost advantage over European producers, driven by a combination of scale, low cost location and integrated business models. Given current oversupply in the industry, we believe a competitive cost base will be crucial in determining market share and ultimately profitability. Over the next 12 months we should see a material bifurcation in the companies' underlying performances; with the winners recovering well from the current solar market slump and the rest facing significant challenges.

... creating long-term opportunities

Our analysis indicates that the key winners in Europe will be the solar equipment manufacturers as producers migrate to low cost locations and replace equipment to stay competitive, while Chinese manufacturers keep expanding to reduce unitary costs. We also view European plays on demand growth, which we expect to materially pick up in 2010E/2011E (60%/65%), as attractive.

Manz Automation, ReneSola Conviction Buy

We reiterate our Conviction Buy on Manz Automation; in our view the most attractive equipment manufacturer. We also upgrade ReneSola to Buy and add it to the Conviction List owing to its attractive cost structure and exposure to BRICs, which we believe will be a key driver of volume growth and resulting margin upside from operational leverage. We upgrade Meyer Burger and Centrotherm to Buy (all our equipment stocks are Buys) and upgrade SMA Solar to a Buy; in our view a low risk exposure to volume growth.

Q-Cells down to Sell, onto Conviction List

Based on our European analysis, we downgrade Q-Cells from Neutral and add it to the Conviction List. Q-Cells is not a cost leader in the global cell manufacturing industry, although it is expanding to low cost locations in Malaysia, it is shrinking its manufacturing base, which ultimately should be detrimental to market share and costs. Furthermore, in our view Q-Cells' margins will not recover to normalized levels in the next three years, lagging peers.

ACTION

SUMMARY OF RATINGS AND PRICE TARGETS

	Pricing currency	Target price New	Old	Time frame	Share Price	Rating New	Old
Solar Downstream							
Aleo Solar	€	9.0	9.0	12m	9.0	Neutral	Neutral
Centrosolar	€	2.8	3.5	12m	3.4	Sell	Sell
Conergy	€	0.5	0.6	12m	0.6	Sell	Sell
Phoenix Solar	€	52.0	43.0	12m	34.0	Buy	Buy
Solar Fabrik	€	2.5	4.4	12m	3.8	Sell	Neutral
Solaria Energia	€	2.2	2.7	12m	2.2	Neutral	Neutral
SOLON	€	8.0	11.5	12m	9.3	Sell	Neutral
Sunways	€	2.1	2.5	12m	2.6	Sell	Neutral
Solar Upstream							
PV Crystalox	£	100	115	12m	83.0	Neutral	Buy
Q-Cells	€	9	14	12m	11.9	Sell *	Neutral
Renesola	£	275	215	12m	156.8	Buy *	Neutral
REC	Nkr	40	61	12m	43.0	Neutral	Buy
SolarWorld	€	12	25	12m	15.3	Sell	Neutral
SMA Solar	€	80	65	12m	53.9	Buy	Neutral
Solar Equipment							
Centrotherm	€	50	39	2 yrs	30.0	Buy	Neutral
Manz Automation	€	80	66	2 yrs	41.3	Buy *	Buy *
Meyer Burger	SFr	326	225	2 yrs	177.0	Buy	Neutral
Roth & Rau	€	40	34	2 yrs	20.0	Buy	Buy

* Denotes Conviction List membership.

Source: Goldman Sachs Research estimates, Datastream

Coverage view: Neutral

See the Financial Advisory Disclosure section of this document for important disclosures about transactions in which The Goldman Sachs Group, Inc. or an affiliate is acting as financial advisor.

Mariano Alarco
+44(20)7774-8817 | mariano.alarco@gs.com Goldman Sachs International
Jason Channell
+44(20)7051-5029 | jason.channell@gs.com Goldman Sachs International
Stephen Benson
+44(20)7051-1438 | stephen.benson@gs.com Goldman Sachs International
Sarah Martin
+44(20)7552-3285 | sarah.a.martin@gs.com Goldman Sachs International

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The prices in the body of this report are based on the market close of August 18, 2009

European Solar manufacture in decline: Buy equipment, volume plays and Asian cost base

We analyze the cost base of the global solar PV manufacturing industry and find that China-based manufacturers have a 30% cost advantage to European producers, driven by a combination of scale, low cost location and an integrated business model. Given the current oversupply in the industry, we believe a competitive cost base will be crucial in determining market share and ultimately profitability. Much of the European industry will need to expand and migrate manufacturing capacity to lower cost locations, with ongoing risks of impairments to their high cost legacy manufacturing capacity, in our view.

The key beneficiaries of this trend will be the solar equipment manufacturers. With a combination of large market shares, IP, strong balance sheets and exposure to growth regions such as the BRICs, we expect them to outperform our broader renewable coverage and **reiterate our Conviction Buy on Manz Automation** as our preferred pick in the sector. We also upgrade **ReneSola to Buy and add it to the Conviction List**, a UK-listed Chinese solar manufacturer with an attractive cost base and BRICs exposure, and downgrade **Q-Cells to Sell and add it to the Conviction List** due to its structurally challenged cost position in the highly competitive cell manufacturing market, in which we do not expect margins to improve materially in the medium term.

Exhibit 1: Key winners based on our preference for stocks with: attractive cost base/high market shares; strong balance sheets; and attractive normalized valuation are the solar equipment names (all Buy rated, Manz Automation Conviction Buy); volume plays (SMA Solar and Phoenix Solar, both Buy) and low cost manufacturers with a low cost based such as ReneSola (Conviction Buy)

Thematic screening for our European Solar coverage

Companies	Cost/Revenue leadership	Market share leadership	BRICS exposure	Strong Balnce sheet	Normalized valuation	M&A Potential	Investment rating	Potential uspide/downside
Solar Downstream								
Aleo Solar		↑		↑		↑	Neutral	0.3%
Centrosolar	↓			↓	↓		Sell	-17.4%
Conergy	↓				↓		Sell	-21.9%
Phoenix Solar				↑	↑		Buy	53.0%
Solar Fabrik	↓			↓	↓		Sell	-34.2%
Solaria Energia	↓			↑			Neutral	0.5%
SOLON	↓			↓	↓		Sell	-13.5%
Sunways	↓			↓	↓		Sell	-19.8%
Solar Upstream								
PV Crystalox	↓			↑			Neutral	20.6%
Q-Cells	↓				↓		Sell *	-28.8%
Renesola	↑		↑		↑		Buy *	75%
REC	↑						Neutral	-7.0%
SolarWorld	↓	↑		↑	↓		Sell	-21.3%
SMA Solar		↑		↑			Buy	48.6%
Solar Equipment								
Centrotherm		↑	↑	↑			Buy	66.7%
Manz Automation		↑	↑	↑	↑		Buy *	93.6%
Meyer Burger		↑	↑	↑	↑	↑	Buy	84.2%
Roth & Rau		↑	↑	↑	↑	↑	Buy	100.1%

* denotes Conviction List membership

Source: Goldman Sachs Research estimates.

Asian companies have a c.30% cost advantage relative to European manufacturers

Given our view that the market will remain oversupplied in 2009 and 2010 – we believe it is crucial to understand the differences in production cost structures across the industry, particularly the polysilicon-based manufacturers in Asia relative to the European players. On our estimates, Asian companies have a c.30% relative cost advantage if we assume equalized silicon costs. Under a US$60/kg scenario, low cost Asian manufacturers can supply the European market at c.€1.25, at breakeven EBITDA.

The key driver of cost structure is size of manufacturing base and location, not R&D

We have analyzed the cost structure and for the solar value chain identified two key determinants of manufacturing costs: size and location. As such we believe the major European manufacturers will need to continue to invest to remain cost competitive in the medium term. Of the European manufacturers, only REC has aggressively expanded its capacity and moved to lower cost locations. Q-Cells, although migrating to Malaysia, is actually reducing the size of its manufacturing capacity and slowing down the pace of expansion and as such is a structural loser on our analysis. ReneSola, with its capacity already in low cost locations, and looking to integrate vertically, is a winner on its manufacturing assets, on our analysis.

Equipment makers will be the main beneficiaries of this migration and continued expansion

Three key ideas drive our view on solar equipment:

- the replacement cycle for solar equipment is shortening and the volume (MW) is set to increase;
- the four solar equipment companies in our coverage hold market shares between c.20%-50% globally and currently derive c.50-75% of their sales from BRICs; and
- next generation equipment is being released by these equipment companies at almost yearly intervals, which could result in cost savings of c.10%-20% for the global manufacturers. Being one of the lowest cost manufacturers of solar products is vital in an industry transitioning towards a commodity product.

SMA Solar and Phoenix Solar, remain exposed to secular growth without cost base risk

We have updated our supply and demand model, where we now assume cell/module utilization rates of 36%, 46% and 61% in 2009E/10E/11E, driven by capacity additions, but also by strong demand growth in 2010E and 2011E. This is a result of more attractive IRRs to equity for projects (currently 8.2% for Germany vs. historically c.6%) and particularly for increased expectations for China, Japan, Korea and the US (aggregate demand of 5GW in 2011 vs. 1GW in 2008). As a result, we are bullish on companies exposed to volume growth but with limited risk on pricing such as Phoenix Solar, a European solar project developer and wholesaler, and SMA Solar, an inverter manufacturer, both Buy rated.

Rating and price target change summary

Exhibit 2: Rating and price target changes, with stocks on the Conviction List highlighted.
Priced as of August 18, 2009.

Current price	Current price	Old TP	New TP	change %	upside/ downside	TP period	Old rating	New rating	Valuation at TP EV/EBIT	EV/GCI	
Solar Downstream	**Local**	**Local**	**Local**						**2011E**	**2009E**	**Valuation methodology**
Aleo Solar	9.0	9.0	9.0	0%	0%	12 m	N	N	9.0	1.0	Bid price
Centrosolar	3.4	3.5	2.8	-20%	-17%	12 m	Sell	Sell	18.3	0.6	EV/EBIT multiples on 2011, cross checked with EV/GCI
Conergy	0.6	0.6	0.5	-17%	-22%	12 m	Sell	Sell	26.6	0.7	EV/EBIT multiples on 2011, cross checked with EV/GCI
Phoenix Solar	34.0	43.0	52.0	21%	53%	12 m	Buy	Buy	8.0	2.8	EV/EBIT multiples on 2011
Solar Fabrik	3.8	4.4	2.5	-43%	-34%	12 m	N	Sell	38.4	0.8	EV/EBIT multiples on 2011, cross checked with EV/GCI
Solaria Energia	2.2	2.7	2.2	-19%	0%	12 m	N	N	6.7	0.7	EV/EBIT multiples on 2011, cross checked with EV/GCI
SOLON	9.3	11.5	8.0	-30%	-14%	12 m	N	Sell	10.0	0.6	EV/EBIT multiples on 2011, cross checked with EV/GCI
Sunways	2.6	2.5	2.1	-16%	-20%	12 m	N	Sell	8.7	0.5	EV/EBIT multiples on 2011, cross checked with EV/GCI
Solar downstream average				**-15%**	**-7%**				**15.7**	**1.0**	
Solar Upstream	**Local**	**Local**	**Local**						**2011E**	**2009E**	
PV Crystalox	83.0	115.0	100.0	-13%	21%	12 m	Buy	N	11.2	1.5	EV/EBIT multiples on 2011, cross checked with EV/GCI
Q-Cells	11.9	14.0	8.5	-39%	-29%	12 m	N	Sell *	30.5	0.6	EV/EBIT multiples on 2011, cross checked with EV/GCI
Renesola	156.8	215.0	275.0	28%	75%	12 m	N	Buy *	13.4	1.2	EV/EBIT multiples on 2011, cross checked with EV/GCI
REC	43.0	61.0	40.0	-34%	-7%	12 m	Buy	N	14.9	0.9	EV/EBIT multiples on 2011, cross checked with EV/GCI
SolarWorld	15.3	25.0	12.0	-52%	-21%	12 m	N	Sell	11.6	0.9	EV/EBIT multiples on 2011, cross checked with EV/GCI
SMA Solar	53.9	65.0	80.0	23%	49%	12 m	N	Buy	13.3	6.1	EV/EBIT multiples on 2011
Solar upstream average				**-15%**	**15%**				**15.8**	**1.9**	
Solar Equipment	**Local**	**Local**	**Local**						**2011E**	**2009E**	
Centrotherm	30.0	39.0	50.0	28%	67%	2 yrs	N	Buy	13.2	2.4	EV/EBIT multiples on 2011
Manz Automation	41.3	66.0	80.0	21%	94%	2 yrs	Buy *	Buy *	12.8	1.7	EV/EBIT multiples on 2011
Meyer Burger	177.0	225.0	326	45%	84%	2 yrs	N	Buy	14.0	4.8	EV/EBIT multiples on 2011 with M&A premium
Roth & Rau	20.0	34.0	40	17%	100%	2 yrs	Buy	Buy	13.2	2.7	EV/EBIT multiples on 2011 with M&A premium
Solar equipment average				**28%**	**86%**				**13.3**	**2.9**	

* denotes inclusion in our Conviction List

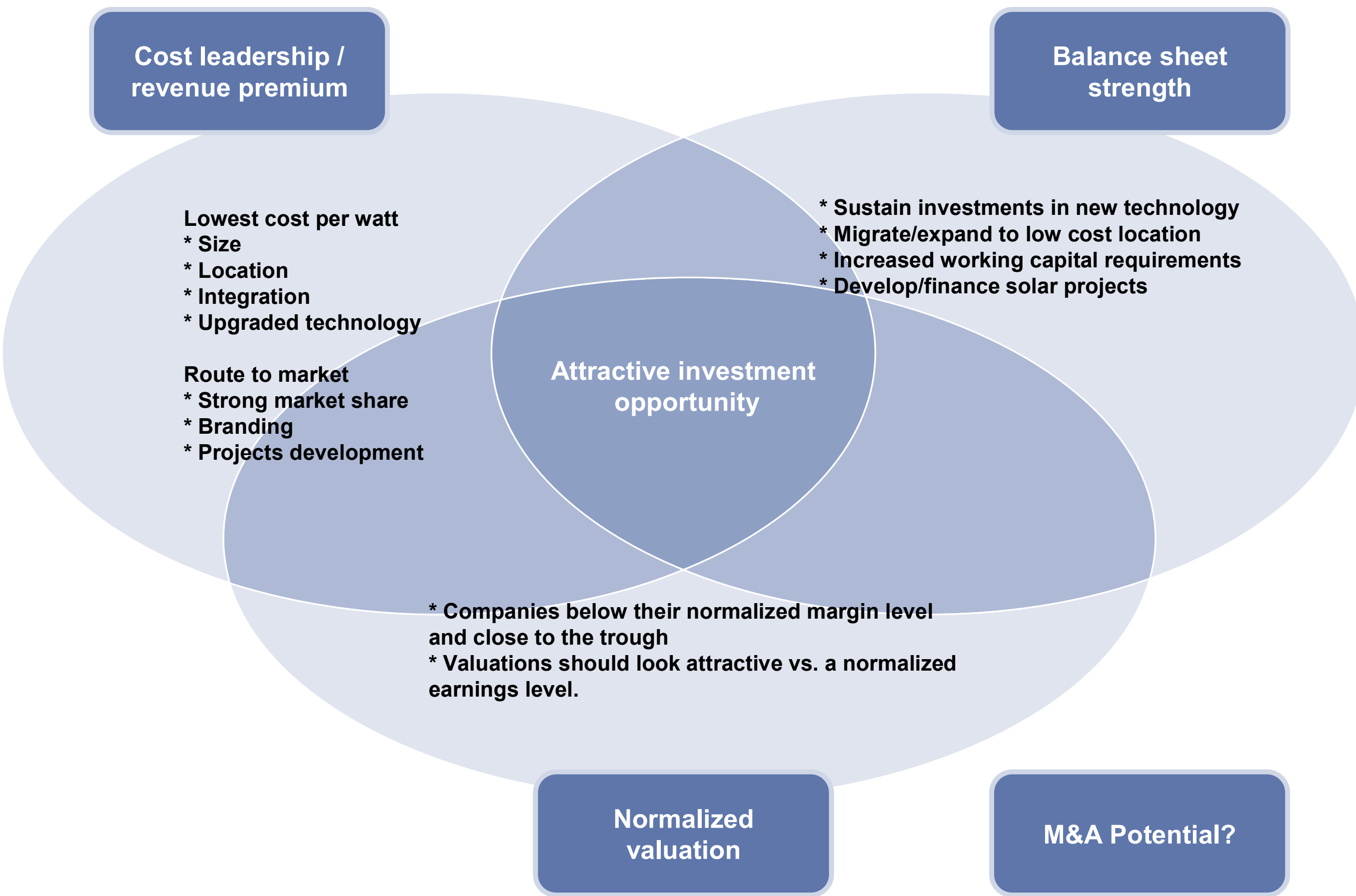
Target price timeframes for Solar Equipment were 12 months previously.

Source: Datastream, Goldman Sachs Research estimates.

Investing in solar stocks: Cost/revenue leadership, balance sheet, normalized valuation

We believe the solar industry has entered a phase of structural adjustment. After several years of 40%-50% growth, the industry has to adjust to low utilization rates and rapidly falling prices as a result of a slowdown in demand – mostly driven by the credit crisis. We believe the current environment represents an opportunity to invest in companies which we believe will be long-term winners in the industry and represent an attractive investment opportunity. We focus on three main screens for investing: cost or revenue leadership to maintain margins in a commoditized environment; strong balance sheets to continue to invest and expand; and stocks that look attractive on normalized earnings levels. We also overlay an M&A screening for stocks.

Exhibit 3: Key investment opportunities should screen well in three key areas: cost/revenue leadership, balance sheet strength, normalized earnings



Source: Goldman Sachs Research.

Asian companies have a c.30% cost advantage, relative to European manufacturers

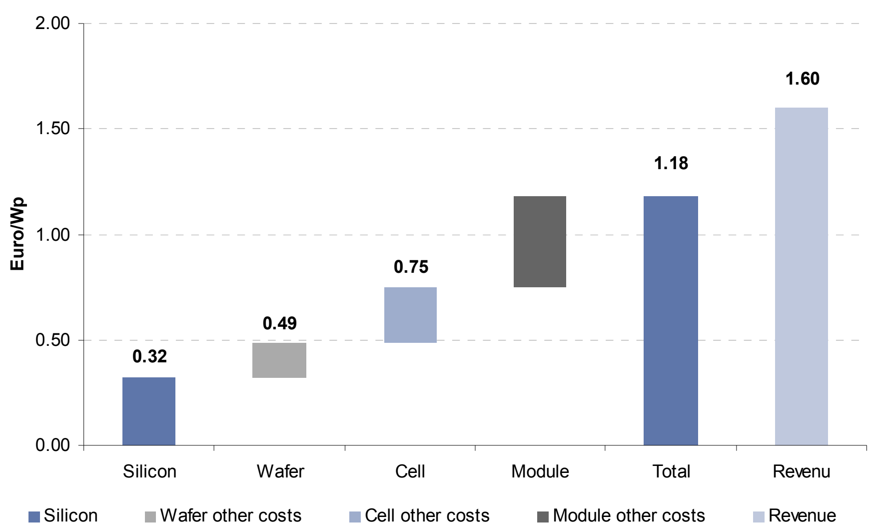
Given our view that the market will remain oversupplied in 2009 and 2010 (and potentially 2011) – we believe it is crucial to understand the differences in production cost structures across the industry, particularly the polysilicon-based manufacturers in Asia relative to the European players.

Exhibits 4 and Exhibit 5 contrast the "best in class" processing costs for the Asian and European manufacturers at different stages of the value chain. For this analysis we define "best in class" as the average of processing costs (ex. silicon) for those companies who are below the median for each stage of the chain. For example, for the wafer costs in Asia we take the average ex. silicon costs to manufacture wafers for LDK and Yingli; in Europe we use REC and Ersol. Our analysis is based on costs all the way down to EBITDA, excluding the cost of silicon, and tries to capture the non commodity-related component of the cost base, including overheads.

Based on 2008 annual reported figures by the Asian and European companies, Asian companies have a c.30% relative cost advantage if we assume silicon costs are equalized at US$60/kg (or €0.32/Wp assuming 7 grams per Wp conversion efficiency and €/US$ 1.31 FX rate). This analysis does not include transport costs, but these are very small at c. 4 euro cents per Wp, which does not make a material difference to the analysis.

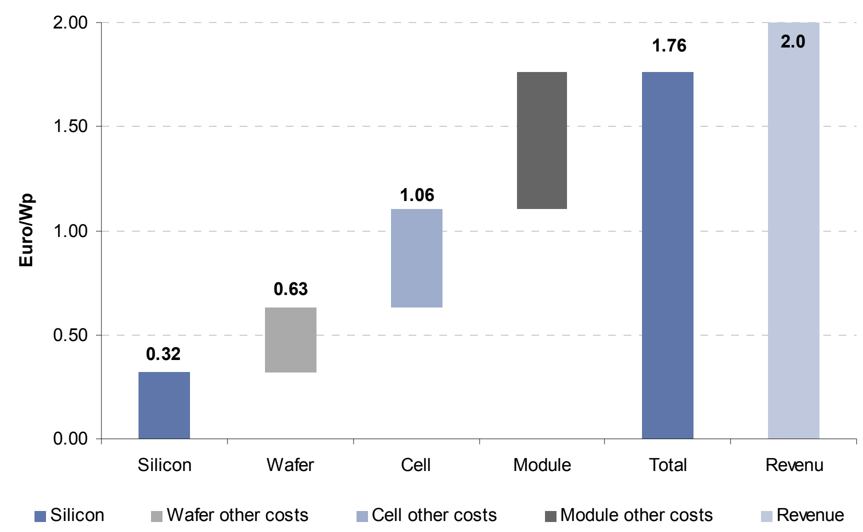
Under this scenario, low cost Asian manufacturers can supply the European market at c.€1.25, at breakeven EBITDA. This is the key reason why we believe price pressure on the industry is likely to continue into 2010.

Exhibit 4: On our analysis, Asian cost structure is c.30% lower ...
China based solar manufacturers cost structure based on US$60/kg silicon



Source: Company data, Goldman Sachs Research

Exhibit 5: ... than European peers. We believe price pressure will remain
European based solar manufacturers cost structure based on US$60/kg silicon



Source: Company data, Goldman Sachs Research

Processing costs are key, particularly as polysilicon costs equalize across manufacturers

Exhibit 6 gives more detail on the aggregate cost assessment for China and European-based solar manufacturers, with a breakdown by company. We only include analysis for companies for which we have been able to derive the data using published information (generally 2008 annual reports), and where it has been possible to break down the cost figures into different parts of the value chain without using arbitrary assumptions.

Wafers: On our analysis the lowest cost manufacturer of wafers is LDK with non-silicon costs (up to EBITDA) of €0.17 per Wp. The average for the Chinese producers is €0.18 per Wp, with limited dispersion around the average. In Europe, the lowest cost producer is REC at €0.31 per Wp, based on 2008 figures. The average in Europe is €0.35 per Wp, with higher dispersion around the mean. In all cases cost estimates will include overheads and expansion costs. We believe it is fair to assess all companies on this basis as they are all undergoing different degrees of expansion, and as growth stocks we would expect them to continue to incur expansion costs. Assuming polysilicon costs normalize at US$60, Chinese players could cover manufacturing costs and overheads by selling wafers at €0.50 per Wp.

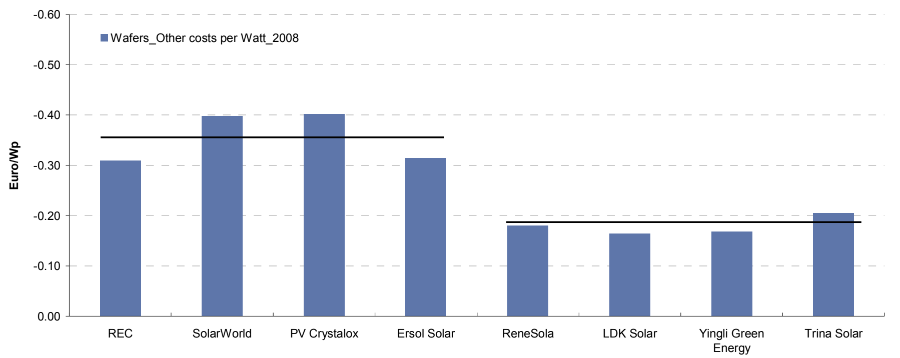
Cells: There is a similar differential for manufacturing cells, with China-based players averaging costs of €0.28 per Wp, with Yingli one of the lowest at €0.25 per Wp. In Europe, the average cost is €0.60 per Wp, but this is pulled up by Sunways at €0.90 per Wp. The lowest cost in Europe on our calculations is for Q-Cells at €0.45 per Wp. Using an equalized wafer price of €0.59 for all manufacturers; China based players could supply the market at an EBITDA cost of €0.87 per Wp. Q-Cells could supply at €1.04 per Wp, assuming 0% EBITDA margin.

Modules: Module manufacturing also shows a material difference in processing costs. The average processing cost for Chinese modules comes in at €0.45 per Wp versus €0.75 per Wp in Europe. Yingli is one of the lowest cost manufacturers at €0.42 per Wp. We see a lot of dispersion among the European manufacturers, which tend to be the smaller downstream producers. Assuming equalized €0.90 per Wp cell costs, Chinese players could supply the market at €1.35 and Europe at €1.65.

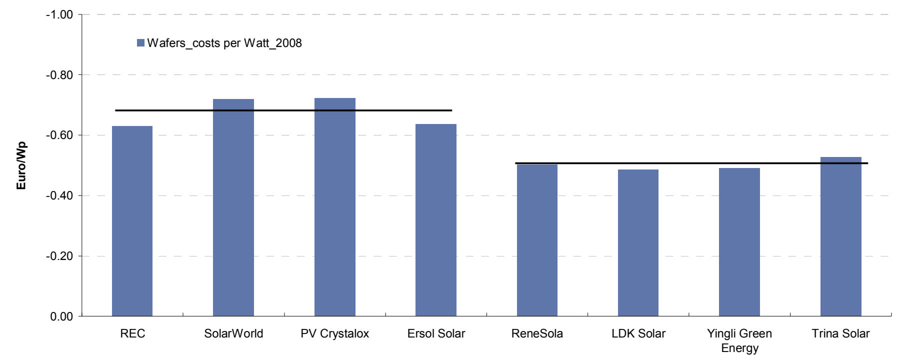
As highlighted in Exhibit 4, the advantage of many of the Chinese manufacturers is their vertical integration, which would allow them to take advantage of the lower processing costs at each stage of the value chain. Therefore, it is valid to look at the fully loaded costs of supply (ex. D&A) for the Chinese as c.€1.20 per Wp, rather than the €1.35 mentioned earlier. For European manufacturers, we would assume €1.73 per Wp as the highest cost, as it implies all stages of the value chain are processed in Europe, while it is perfectly plausible for module manufacturers such as Aleo or Solon to procure low cost cells from Chinese manufacturers at competitive prices.

Exhibit 6: Processing and overhead costs are materially lower for China-based manufacturers than for Europeans, across the value chain.
Analysis of fully loaded manufacturing costs (ex. DD&A, but including overheads) across the solar value chain. Right hand charts assume uniform silicon, wafer and cell costs to provide an all-in cost (ex DD&A)

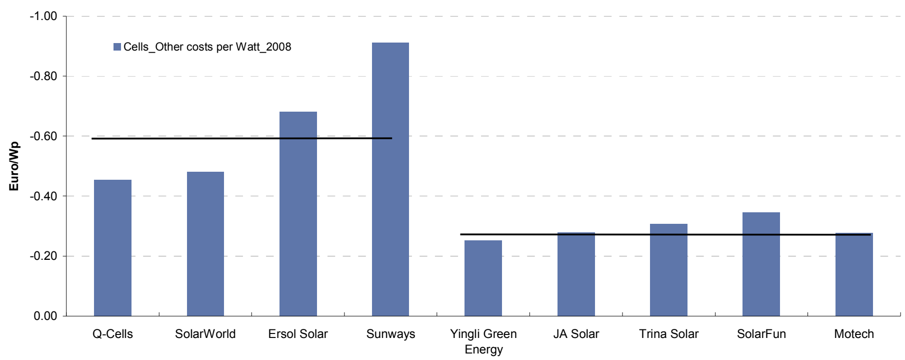
Wafers; Other costs per Watt; 2008



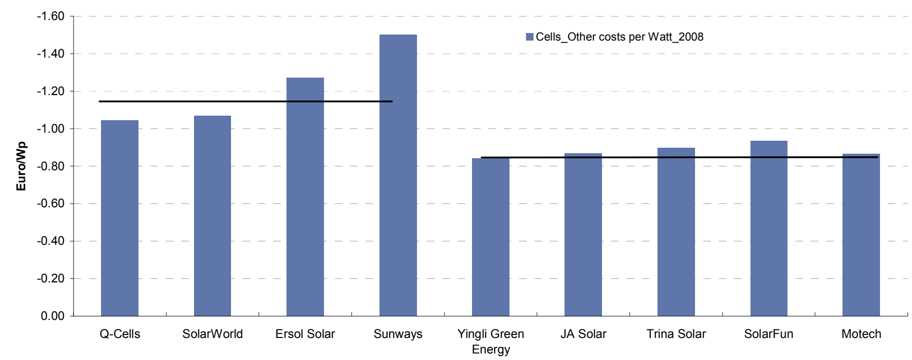
Wafers; Costs per Watt assuming US$60/kg polysilicon costs; 2008



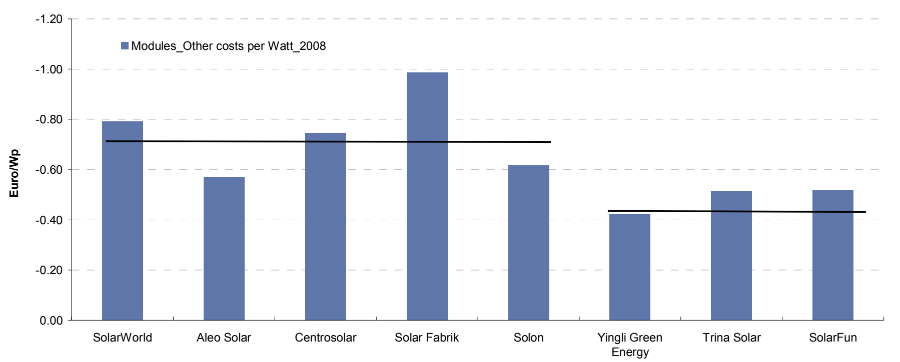
Cells; Other costs per Watt; 2008



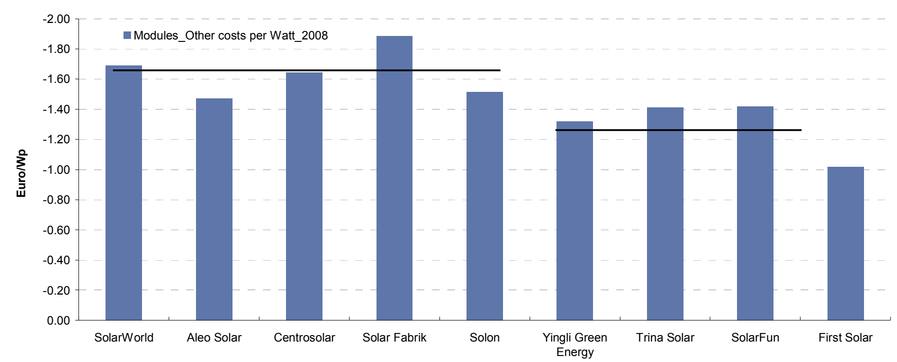
Cells; Costs per Watt assuming Euro 0.59/Wp wafer costs; 2008



Modules; Other costs per Watt; 2008



Module; Costs per Watt assuming Euro 0.9/Wp cell costs; 2008

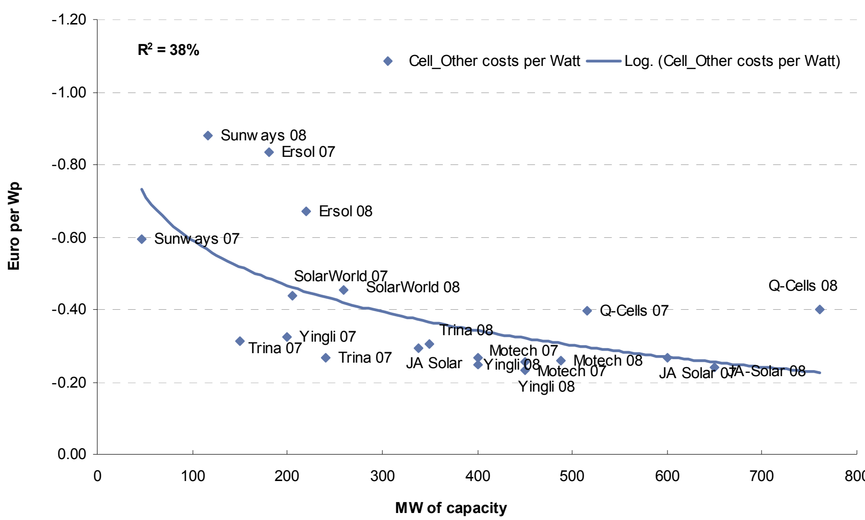


Source: Company data, Goldman Sachs Research.

The key driver of cost structure is size of manufacturing base and location, not R&D

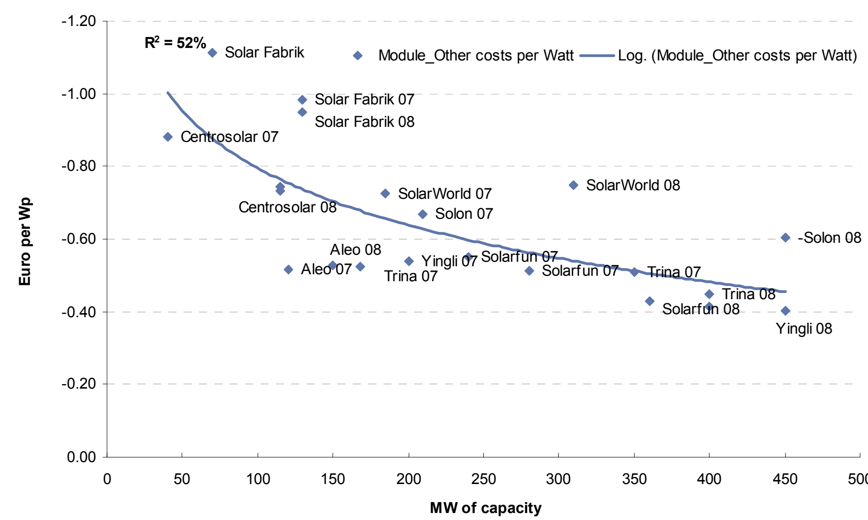
We have analyzed the cost structure for the solar value chain and identified two key determinants of manufacturing costs; size and location. Exhibits 7 and 8 illustrate the strength of the relationship between the size of the manufacturing capacity and its unitary cost. Not surprisingly, the bigger the capacity, the lower the cost, R^2 is 38% for Cells and 52% for modules. We do not have enough data points for wafers to make a material correlation. This suggests that the most important factor in determining production economics is scale. All the China-based manufacturers are below the line of best fit, suggesting that size is not an issue for them and in their case location is a key driver. We have also run the correlation between R&D expenses and unitary costs and find no correlation between higher R&D spend as a % of revenue and lower production costs. For this analysis we have stripped R&D from the overheads so as not penalize companies for higher R&D expenses.

Exhibit 7: Cell and modules manufacturing costs are largely explained ...
Fully loaded manufacturing cell costs (ex. DD&A and R&D, but including other overheads, in euro per Wp



Source: Company data, Goldman Sachs Research.

Exhibit 8: ... by size of manufacturing base and location
Fully loaded manufacturing module costs (ex. DD&A and R&D, but including other overheads, in euro per Wp



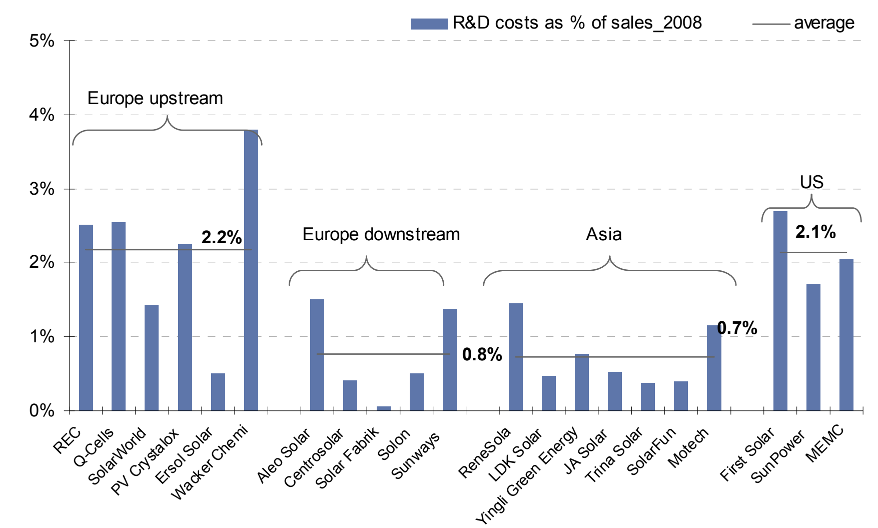
Source: Company data, Goldman Sachs Research.

Europe outspends Asia in R&D – China-based producers focus on employment

Exhibit 9 indicates the amount of R&D expenditure by the listed industry players relative to sales for 2008. There is a clear indication that Europe and US-based players have spent materially more than China-based manufacturers in R&D, but for the European players this had not translated into an improved cost structure – except for First Solar, which has a separate thin film technology.

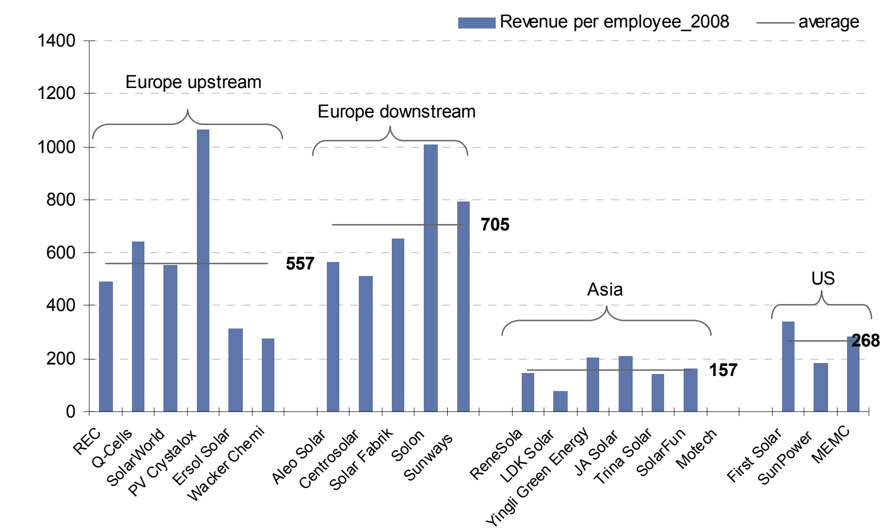
Exhibit 10 shows the amount of revenue per employee for different manufacturers on a global basis. The China-based manufacturers have much lower revenue per employee than Europe, despite a lower cost structure. This clearly reflects the lower unitary costs for China, but in our view also reflects an emphasis on increasing employment in the industry to potentially gain government support; China has recently moved ahead with a new subsidy system for solar PV, largely to support the local industry.

Exhibit 9: R&D expenditure is highest in Europe/US ...
R&D expenditure as % of sales in 2008



Source: Company data, Goldman Sachs Research.

Exhibit 10: ... with revenue per employee lowest in Asia, despite its low cost
Revenue per employee (€ '000 per average employee) in 2008



Source: Company data, Goldman Sachs Research.

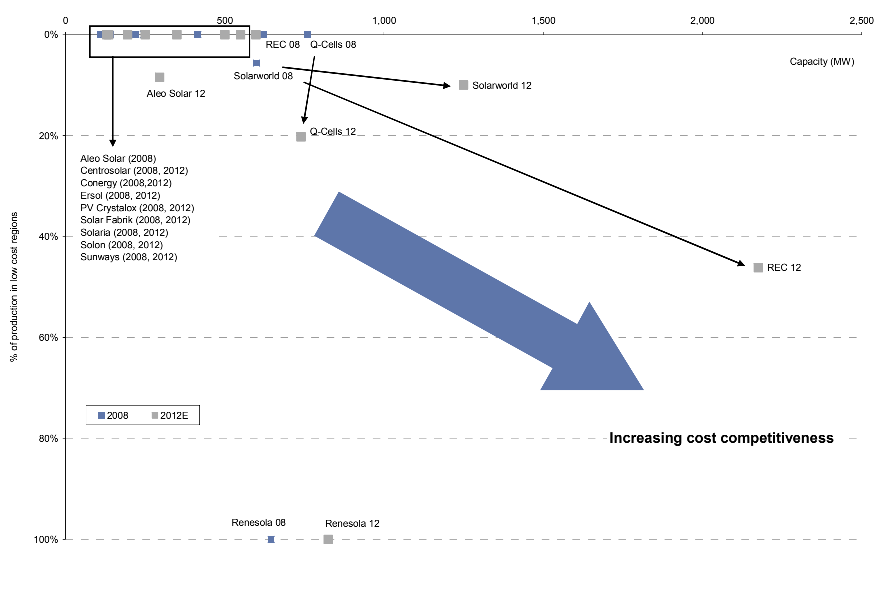
Despite the current market, companies must expand and migrate to low cost locations

Given our view that capacity expansion, together with migration to low cost locations, are the key to low cost manufacturing, we believe the major European manufacturers will need to continue to invest to remain cost competitive in the medium term. Exhibit 11 illustrates the size of the manufacturing base (we use the largest part of the value chain for integrated producers) against the % of production from low cost locations (in this case Asia ex. Japan). On this basis, only REC and Solarworld have started to move towards a large manufacturing base. REC and Q-Cells are in the process of building new capacity in Malaysia. ReneSola, a UK-listed, but China-based manufacturer is expanding and integrating vertically.

Exhibit 12 assesses the level of vertical integration for the manufacturing base. We believe that vertical integration also helps to reduce costs, as Exhibits 7 and 8 suggest, there is a higher cost saving by having a 400MW cell and a 400MW module business; than having an 800MW cell business. This, we believe, validates the business models the China manufacturers have followed, both large, and integrated. In Europe, SolarWorld and Ersol are the most integrated among the larger manufacturers, while REC is increasing its level of integration due to its expansion in Malaysia

Exhibit 11: REC has been the most aggressive European company to expand in size and to move to low cost manufacturing locations ...

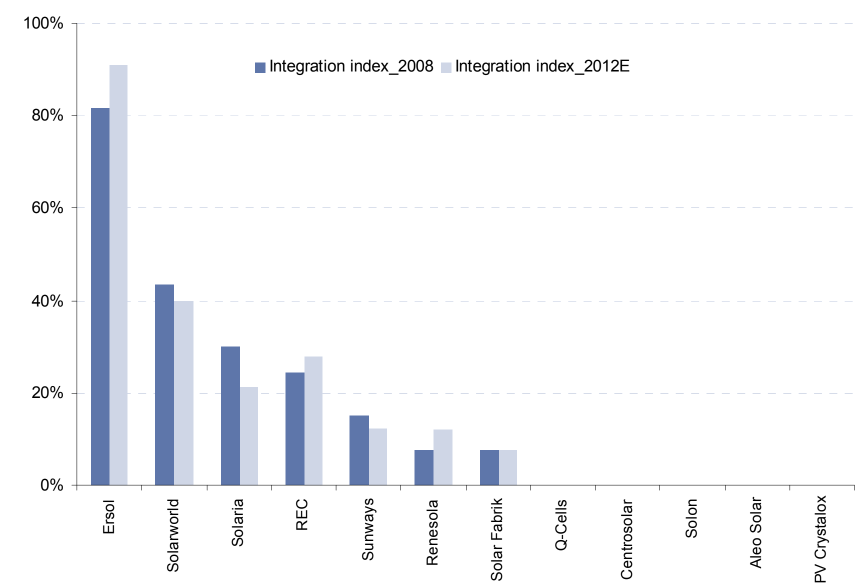
Size of manufacturing base (if integrated the largest portion in value chain) vs. production from low cost locations



Source: Company data, Goldman Sachs Research.

Exhibit 12: ... while SolarWorld has integrated across the chain more than the large European peers

Integration index, smallest manufacturing capacity in the chain divided by the largest, by company



Source: Company data, Goldman Sachs Research.

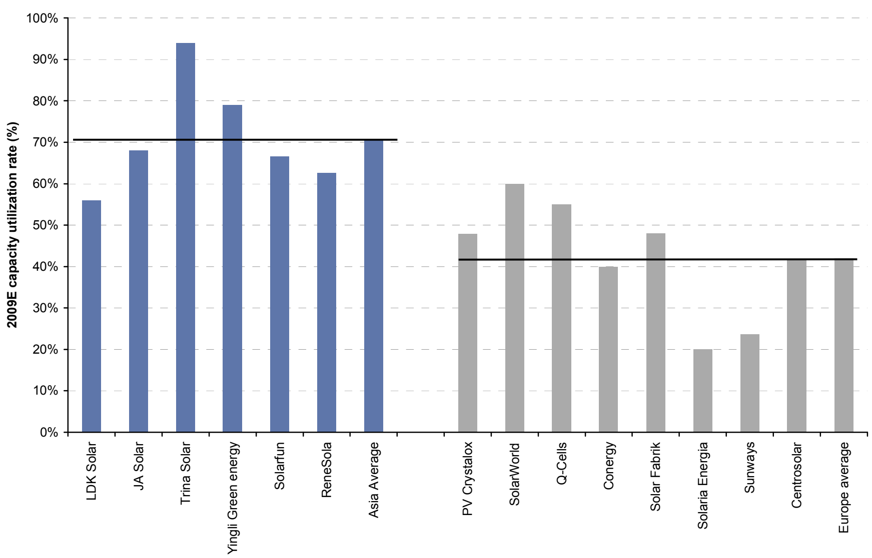
Equipment makers will be the main beneficiaries of this migration to lower cost areas

While we expect the Europe-based solar wafer, cell and module manufacturers to struggle in coming years under intense competition on price and cost from Asian manufacturers, we have high hopes for the key European equipment makers in our coverage (Centrotherm, Manz Automation, Meyer Burger, and Roth & Rau). We take this view for three key reasons:

- **The replacement cycle for solar equipment is shortening and the volume (MW) is set to increase**: global solar companies will need to upgrade and/or replace existing equipment at an increasing frequency to remain competitive, in our view. For example Q-Cells recently shutdown cell lines in Germany that were ramped up 3.5 years ago because of costs.
- **Dominant market share (including Asia):** the four solar equipment companies in our coverage have market share of c.20%-50% globally and currently derive c.50%-75% of their sales from Asia (Exhibit 14). Price pressure still exists in selected areas (particularly in 2009E) but the equipment market is still relatively concentrated compared to the solar cell or module manufacturing market.
- **Technology leadership:** next generation equipment is being released by these equipment companies at almost yearly intervals, which can result in cost savings of c.10%-20% for the global manufacturers. Being one of the lowest cost manufacturers of solar products is vital in an industry transitioning towards a commodity product.

Exhibit 13: Capacity utilization is running at c.70% for China-based manufacturers, likely leading to demand for equipment

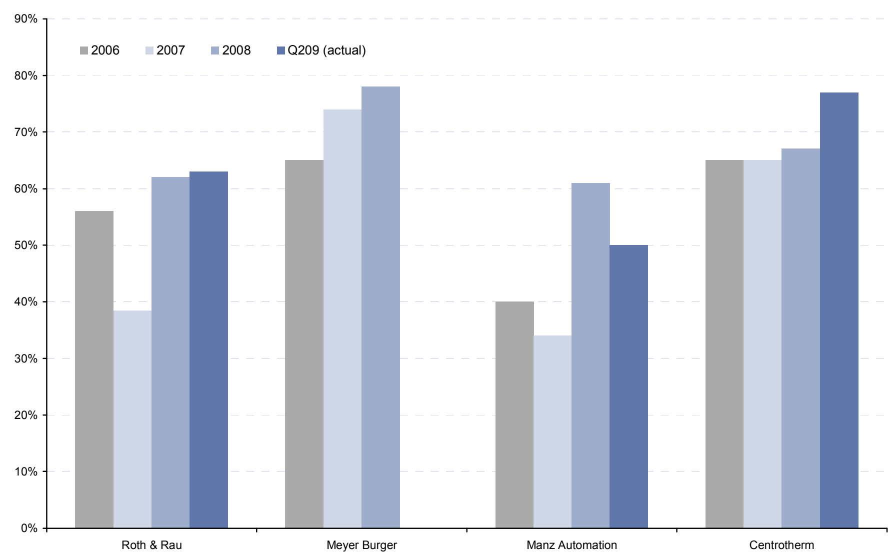
Expected utilization rates for Asia-based producers using expected shipments



Source: Company data, Goldman Sachs Research.

Exhibit 14: Asia is the main region for solar equipment sales

Asian sales split for European solar equipment makers 2006-2Q2009 (actual)



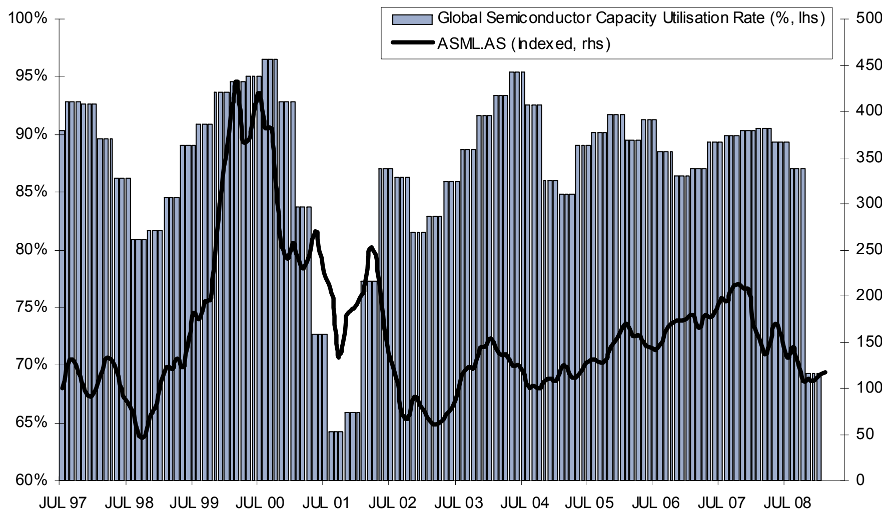
Source: Company data.

Semiconductor history suggests it's a good time to buy selected equipment stocks

We believe that trading history in the semiconductor equipment industry suggests that predicting order troughs, rather than the timing of a potential recovery, is one of the most meaningful basic indicators for future stock price performance.

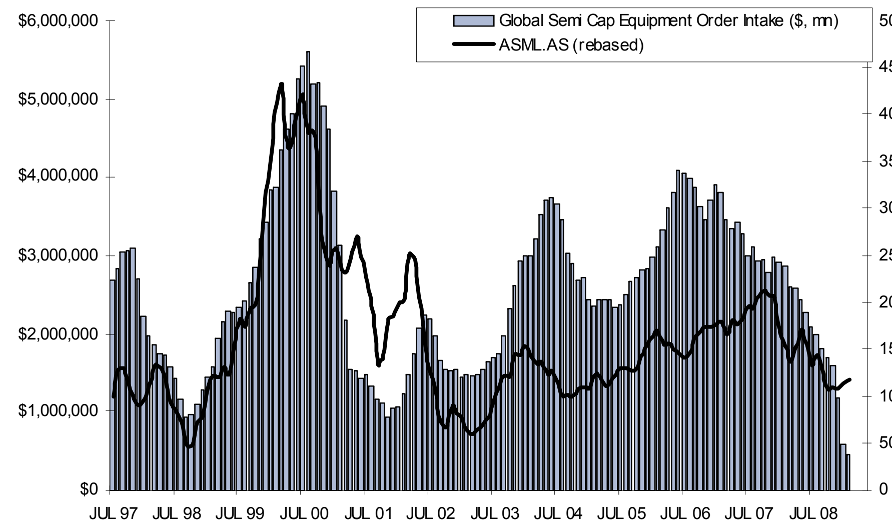
Stocks tend to anticipate an order recovery about a quarter in advance, even if the environment is extremely low and if a robust order upturn is still several quarters away. Historical stock price performance at cyclical inflection points of two of the industry's bellwethers, ASM Lithography (ASML) and Applied Materials (AMAT), are two good case studies in this context.

Exhibit 15: Troughs in share prices tend to coincide with lows in the utilization rate of the global semiconductor industry
Global semiconductor capacity utilisation rates (lhs)



Source: Goldman Sachs, SEMI.

Exhibit 16: Global semiconductor bookings are 40% below previous troughs.
Global semiconductor WFE Orders (lhs)



Source: Goldman Sachs, SEMI.

Industry-wide equipment orders for the global semi cap equipment industry troughed at c.US$930 mn in the month of September 1998, coinciding with share price troughs for both ASML and AMAT. The stocks rallied c.300% and c.200% respectively off their lows in the 12 months following the trough in monthly orders. Similarly in the 2001 downturn, industry-wide equipment orders for the industry troughed at c.US$930 mn in the month of November 2001, while both ASML and AMAT troughed in September 2001. In this instance the stocks rallied strongly (by c.80% and c.50% respectively) off their lows in the six months following the trough in monthly orders. Although stocks did give up their gains to retest new lows in mid-2003, ASML and AMAT rallied by 100% and 50% respectively in the following 12 months as orders began to recover.

Coincidentally, troughs in order patterns (and therefore share prices) have tended to coincide with lows of industry-wide utilisation rates (as shown in Exhibit 15). In this context, and in conjunction with the "rule of three" (see page 35) already outlined, we would consider low capacity utilisation as a buy signal for the stocks as they tend to coincide with a low cross cycle multiples.

Order intake patterns for the solar equipment sector show a steep decline on previous years

We believe the order intake for the solar equipment sector is close to stabilizing, with orders approaching trough levels for Manz, Meyer Burger, Roth & Rau and Centrotherm. We expect to see the start of the order intake recovery through the 2H2009 or early 2010 and for share prices to rally ahead of order book announcements.

Exhibit 17: Both Roth & Rau and Centrotherm expect an increase in 2H2009 orders for their solar businesses versus 1H2009.

Quarterly solar equipment order back-log and order intake 2007-2009E

		2007				2008				2009		Notes:
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2 E	
Roth & Rau	Orders received	32	52	67	94	66	115	40	48	**50**	**15**	CFO expects c.€159m of new orders in 2H09
	- growth yoy	0%	27%	106%	295%	104%	123%	-39%	-49%	-24%	-87%	
	Order backlog	110	121	145	201	222	278	238	213	**231**	**161**	Sales guidance €245-270m for 2009
	- growth yoy	0%	65%	54%	96%	103%	130%	64%	6%	4%	-42%	
Centrotherm	Orders received			326	136	272	383	124	122	**390**	**15**	CEO expects orders of c.€250m in 2H09 and €1bn order back-log for FY09
	- growth yoy			0%	0%	0%	0%	-62%	-10%	43%	-96%	
	Order backlog			402	463	667	978	1005	990	**1314**	**1010**	Sales guidance of €500-550m in 2009
	- growth yoy			0%	0%	0%	0%	150%	114%	97%	3%	
Meyer Burger	Orders received	193	193	355	355	118	118	288	288	**40**	**na**	Company report 1H09 results in September 2009
	- growth yoy	0%	391%	0%	319%	0%	-39%	0%	-19%	-66%		
	Order backlog	0	470	0	658	0	732	0	830	**720**	**na**	No sales guidance for 2009
	- growth yoy	0%	459%	0%	365%	0%	56%	0%	26%	0%		
Manz Automation	Orders received	0	35	59	20	37	159	7	24	**2**	**6**	No significant new orders announced YTD. In JV with Roth & Rau on Turnkey
	- growth yoy	0%	0%	0%	0%	0%	350%	-87%	19%	-95%	-96%	
	Order backlog	60	80	120	116	114	210	160	107	**93**	**88**	Management guided for lower sales than 2008 of €236m
	- growth yoy	0%	0%	0%	0%	90%	163%	33%	-8%	-18%	-58%	

Source: Company data, Goldman Sachs Research estimates.

Market share, and a defensible revenue position are also key factors for survival

Although a sustainable cost structure is crucial to survive long term in the industry, near term a large market presence and a defensible brand can help to defend revenues. Overall, we prefer companies with a high market share on a global basis (the solar equipment makers and SMA screen well on this criteria), or a larger market share in the German downstream market as evidence indicates strong brands are able to maintain a premium (of €0.15-0.20/Wp) to the average import price from Asia (Aleo Solar & Solar World).

Furthermore, we are fairly bullish on the outlook for economic activity in the BRIC countries, and particularly China (our economists' 2009/2010 real GDP forecasts are 9.4% and 11.9%, materially above consensus). We therefore further screen to identify players with high revenue exposure to BRIC countries. ReneSola, a wafer manufacturer integrating vertically to cell and module making, has the highest exposure to China of the manufacturing companies we cover. Also, given that China has seen the largest amount of capacity additions for wafer/cell and module manufacturing, the solar equipment players show a very high revenue exposure to China. Given the advantages of scale and location for unitary costs, we would continue to expect China (or at least low cost Asian locations), to produce the bulk of orders for the equipment makers going forward.

Exhibit 18: ReneSola and the Solar equipment manufacturer have the highest exposure to BRICs. SMA and the equipment manufacturers have large global market shares, helping them protect margins in a downturn

Revenue exposure by market, market share analysis. Global market share is relative to the companies' main production segment

Company	Revenue exposure to BRICs (2008A)	Revenue exposure to Germany (2008A)	Downstream German Market share (2009E)	Global market share (2009E)
Aleo Solar	6%	65%	**5.1% ***	2.9%
Centrosolar	0%	46%	1.6% *	1.2%
Conergy	10% *	30%	1.6% *	1.9%
Phoenix Solar	4%	70%	2.2% *	1.2%
Solar Fabrik	5% *	55%	1.8% *	1.2%
Solaria Energia	0%	0%	0.0% *	1.2%
SOLON	5% *	30%	2.5% *	3.0%
Sunways	8%	85%	1.3% *	0.6%
PV Crystalox	11%	28%	0.0% *	4.2%
Q-Cells	10% *	52%	0.0% *	9.6%
Renesola	**61%**	6%	0.0% *	7.9%
REC	10% *	41%	2.4% *	10.8%
SolarWorld	20% *	50%	**4.6% ***	8.9%
SMA Solar (inverters)	12% *	61%	**67.1% ***	**40.0%**
Centrotherm	**80%**	12%	na	**20% ***
Manz Automation	**56%**	30%	na	**35% ***
Meyer Burger	**78%**	0%	na	**50% ***
Roth & Rau	**64%**	11%	na	**40% ***

* GS estimate

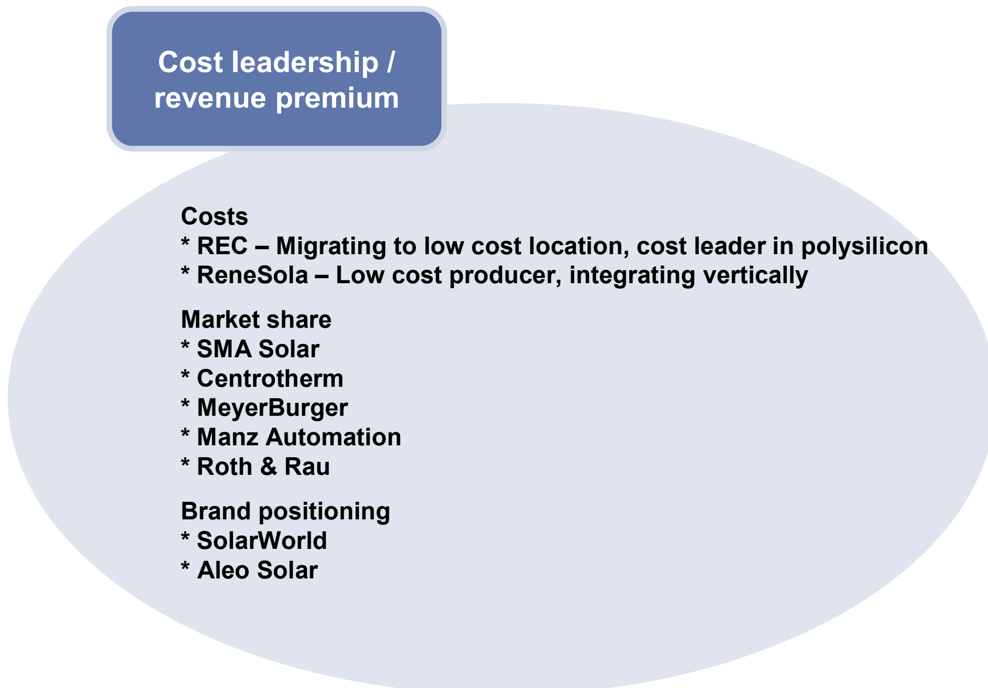
Source: Company data, Goldman Sachs Research estimates.

ReneSola and REC screen well on costs; equipment makers and SMA on market share

We identify European solar companies that screen well on cost leadership and revenue premium/market share (see Exhibit 19). Of the solar panel manufacturers, only ReneSola has a best in class cost structure, however, we consider REC to be a low cost manufacturer in polysilicon and its migration towards manufacturing in Singapore will reduce its cost base in wafer, cell and module manufacturing. We also believe Aleo Solar and SolarWorld benefit from their higher market share in Germany.

The Solar equipment manufacturers and SMA screen as leaders given their large market shares in the global equipment or inverter markets.

Exhibit 19: Leadership in cost and revenue positions for the European Solar industry



Source: Goldman Sachs Research.

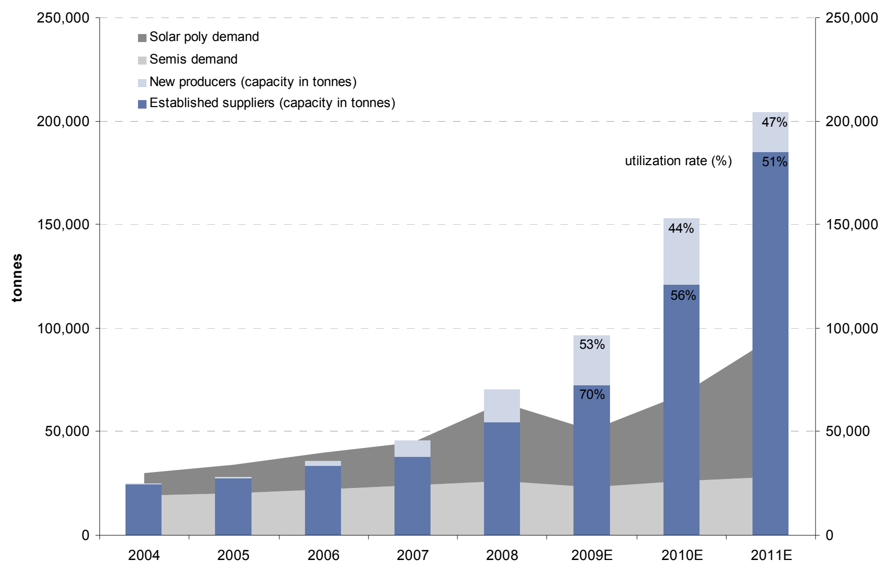
Our new demand and supply assumptions still reflect polysilicon oversupply, into 2011

In light of the current financial crisis, our supply and demand assumptions for the global polysilicon market now reflect a pullback in expected solar and semiconductor demand for 2009. We expect solar and semi demand to contract by c.12% in 2009. We previously expected flat demand for solar, but the slowdown in the project finance market and the change in solar regulation in Spain should make growth extremely difficult. This, together with material polysilicon supply additions in 2009, for which construction began in 2007/8, suggests we will exit 2009 with utilization rates of c.53%.

Exhibit 20 breaks down the supply assumptions into "established manufacturers" – which we define as producers supplying the market for more than two years – and "new producers". Our estimates indicate that even assuming no contribution from non-established poly producers, the market will remain oversupplied in 2009E, 2010E and 2011E with utilization at 70%, 56% and 51%.

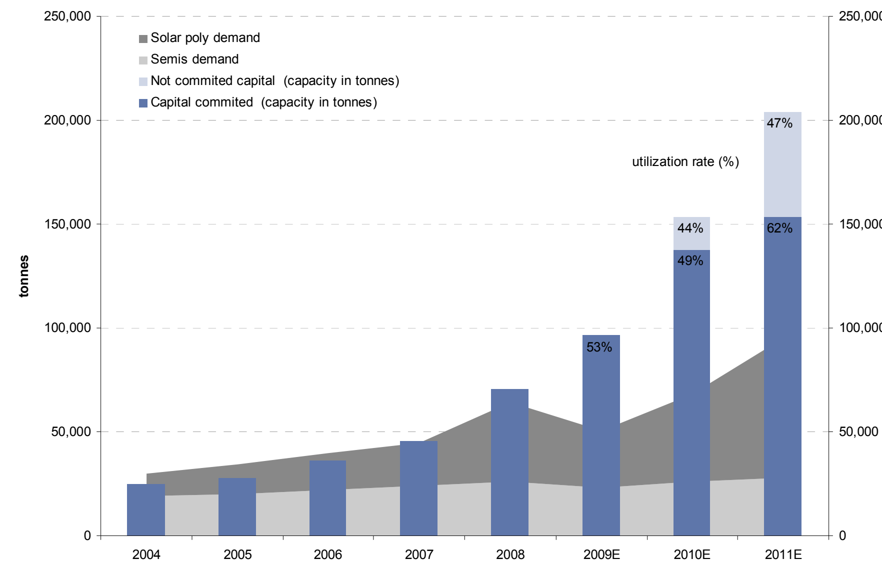
Exhibit 21 assumes that only capital that has been committed to expand poly production by end 2008 actually translated into capacity expansions. Our assumption is that starting year-end 2008, capital would be committed 1.5 years in advance, hence capacity increases stop in mid 2010. Under this scenario, utilization rates are 53%, 49% and 62% in 2009E, 2010E and 2011E, respectively.

Exhibit 20: We expect polysilicon supply to grow by 190% until 2011, giving utilization rates of 53% and 44% in 2009-10E. Stripping out additions from "new entrants" we still expect utilization rates of 70% and 56% in 2009-10E
Polysilicon supply and demand, "established manufacturers" & "new producers"



Source: Company data, Goldman Sachs Research estimates.

Exhibit 21: Assuming only committed capital by the end of 2008 translated into actual polysilicon capacity increases, utilization rates reach 62% in 2011, under our base case scenario
Polysilicon supply and demand, "committed capital" & "non committed capital"



Source: Company data, Goldman Sachs Research estimates.

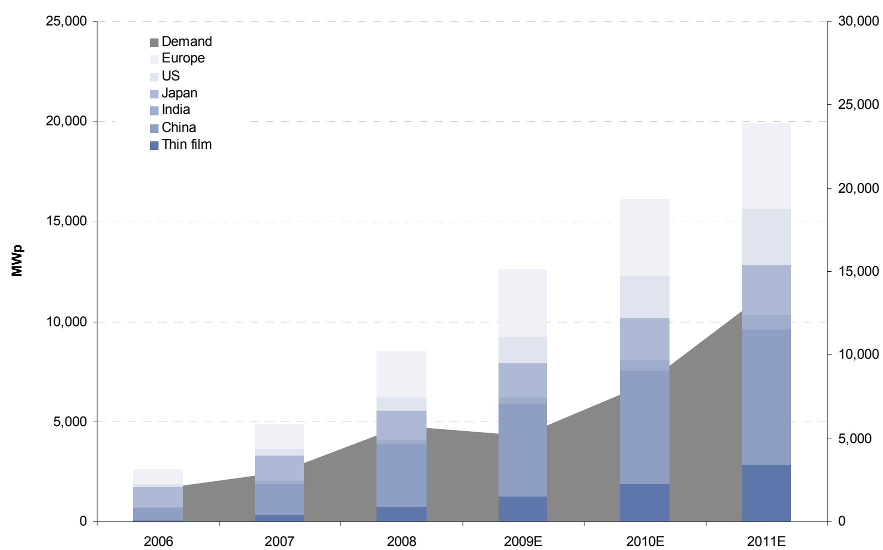
High cost production could start to be redundant in 2009/10, impairments a possibility

Exhibit 22 illustrates the cell and module production capacities for different regions versus our expectations for demand. On our estimates, most of the global demand for PV in 2009E and 2010E could be supplied through thin film, China (which includes Taiwan)-based production and Japan-based manufacturing. Although we do not believe that European capacity will become totally uncompetitive as there is certainly value in branding products as locally manufactured (the "made in Germany" label, in particular, seems to attract a pricing premium), the risk of a large portion of cell capacity moving to low cost locations is significant. At its 2Q results, REC took a Nkr48 mn impairment for an uncompetitive cell line in Norway, which could become more common as oversupply in the industry continues. Q-Cells has recently decided to shut down almost half of its high cost German capacity.

Exhibit 23 illustrates the total amount of non-depreciated assets in the cell and module part of the European value chain that could be at risk of impairments if pricing remains depressed. On our analysis, in 2009E-2011E the value of assets at risk of impairment relative to revenue is 13%-19% in any particular year.

Exhibit 22: On our estimates, much of the world cell/module demand for 2009/2011 could be supplied from thin-film and from Asia (China/Japan), which is mostly lower cost than Europe. This increases the risk of impairment charges and shutdowns of capacity in Europe.

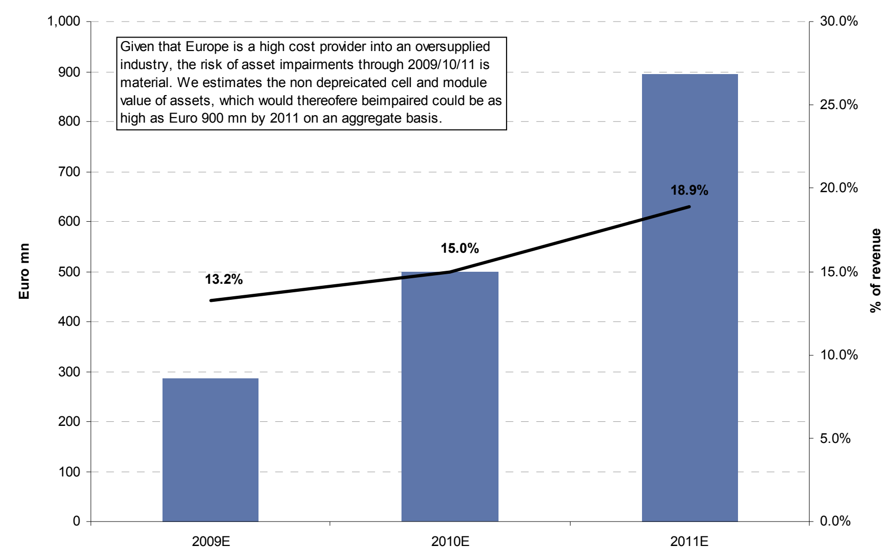
Cell and module capacity by region vs. expected demand for solar PV



Source: Company data, Goldman Sachs Research estimates.

Exhibit 23: We estimate the potential impairment charges for the European cell/module manufacturing base could be 13%-19% in a worst case scenario. We have seen the start of impairment charges, with REC and Q-Cells having written down some of their cell lines in Europe.

Estimated value of non-depreciated cell and module assets in Europe



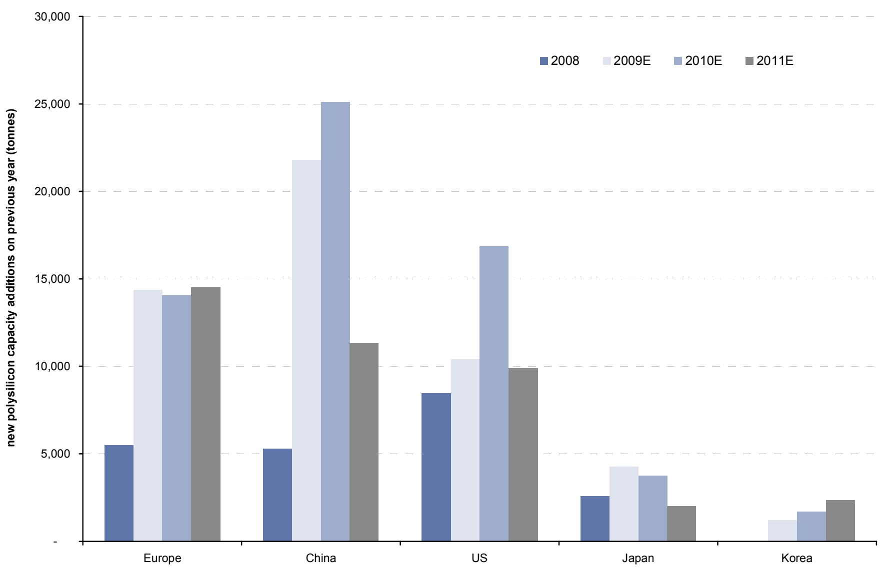
Source: Goldman Sachs Research estimates.

Most capacity additions occur in Asia, although the credit crisis has had an effect

Exhibit 24 illustrates where we expect the majority of capacity additions to happen. Under currently announced plans, we expect Chinese manufacturers to increase capacity by 235% and 81% in 2009 and 2010, materially above the global market averages of 74% and 50%. In terms of total volumes in 2009E and 2010E, however, additions in Europe are 14k and 14k tonnes vs. 22k and 25k tonnes in China and 10k and 17k tonnes in the US. Most of the European and US capacity additions are through established polysilicon players such as Hemlock, MEMC, Wacker and REC.

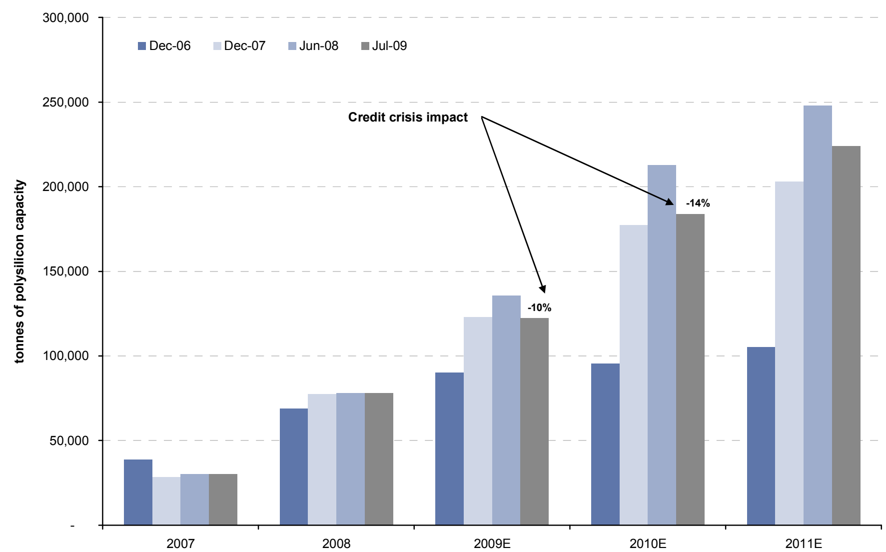
Exhibit 25 demonstrates the effect the credit crisis has had on announced polysilicon expansion plans. After three years of having to increase our forward looking capacity expectations, we now find that announced projects are 10% and 14% less in 2009E and 2010E, relative to our previous estimates. These have mostly been a result of European polysilicon projects being cancelled or the failure of metallurgical grade silicon manufacturers to ramp up capacity as expected. We believe that the risk remains that capacity additions will be lower than what has been publicly announced as difficult market conditions lead to revisions of capex plans by corporates or financing remains difficult to obtain. We have erred to delay projects for which we believe capacity ramp up time tables have been too aggressive.

Exhibit 24: Expected yoy capacity growth will be highest in China on a relative basis and by 25k tonnes on an absolute volume basis in 2010E
Forecast polysilicon additions, absolute ('000 tonnes) yoy



Source: Company data, Goldman Sachs Research estimates.

Exhibit 25: Our new supply estimates are 10% and 14% below our June 2008 figures, driven by project cancellations
Current polysilicon forecasts relative to our previous forecasts



Source: Company data, Goldman Sachs Research estimates.

We expect high cost manufacturers to remove capacity over the next two years

While the demand/supply balance currently looks unfavorable for equipment players, we expect capacity to be removed (or not be replaced) by high cost solar manufacturers near term. We estimate that global installations for solar cell manufacturing equipment for companies like Roth & Rau should be down c.50% in 2009 (vs. 2008) and we continue to expect an oversupplied market in 2010E. However, we expect significant European production capacity to be removed (or at least not be replaced) over the coming years as Asian manufacturers extend market share gains through low cost production and price pressure. This reduction in European production capacity is difficult to forecast and is not captured in the demand/supply summary shown in Exhibit 26 which reflects new additions to the market only. We expect a similar scenario to play out in the solar wafer segment. (

Exhibit 26: Global solar cell manufacturing capacity looks set for significant oversupply again in 2010E
Estimated global solar cell and wafer manufacturing capacities 2005-10E

Global solar cell capacity (MW)	**2005**	**2006**	**2007**	**2008**	**2009E**	**2010E**	
Roth & Rau cell machine (Sina) production (#)	19	27	64	115	46	58	
- MW equivalent	475	810	2,200	4,600	2,070	2,610	
Global cell capacity - year end	1,800						
- start of the year		1,800	2,988	5,013	10,513	22,013	
- Roth & Rau capacity added		475	810	2,200	4,600	2,070	
- other cell capacity added		713	1,215	3,300	6,900	3,105	
Total capacity added		1,188	2,025	5,500	11,500	5,175	
Year end global cell capacity	1,800	2,988	5,013	10,513	22,013	27,188	CAGR 08-10
- average year end capacity		***2,394***	***4,000***	***7,763***	***16,263***	***24,600***	78%
- Global demand scenario (MW)		1,982	2,931	5,500	5,196	8,259	23%
- utilisation rates		***83%***	***73%***	***71%***	***32%***	***34%***	

Global wafer capacity (MW)	**2006**	**2007**	**2008**	**2009E**	**2010E**	
Meyer Burger wire saw production (#)	135	195	325	260	325	
- MW equivalent	675	975	1,625	1,300	1,625	
Global wafer capacity - year end	3,134					
- start of the year (MW)		3,134	4,822	7,259	10,509	
- Meyer Burger capacity added		675	975	1,625	1,300	
- other wafer capacity added		1,013	1,463	1,625	1,300	
Total capacity added		1,688	2,438	3,250	2,600	
Year end global wafer capacity (MW)	3,134	4,822	7,259	10,509	13,109	CAGR 08-10
- average year end capacity		***3,978***	***6,040***	***8,884***	***11,809***	40%
- Global demand scenario (MW)		2,931	5,500	5,196	8,259	23%
- utilisation rates		***74%***	***91%***	***58%***	***70%***	

Source: Company data, Goldman Sachs Research estimates.

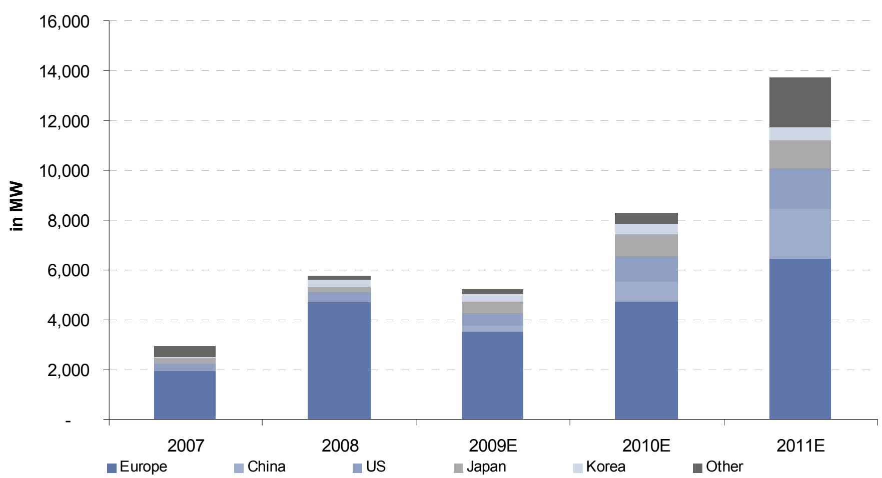
Demand growth will come from Asia, although large uncertainty remains

We have revised our solar demand assumptions to reflect our expectation of a fall in total installations in 2009 – by c.12% to 5.2 GW – but then assume robust growth in 2010E and beyond. 2009E will likely continue to be affected by the lack of available financing and also the rapid fall in panel prices, which has translated into many potential sources of demand taking a "wait and see" approach, with the expectations of further price falls in future.

However, in 2010E we do not expect prices to fall as quickly given that we will be materially closer to cash costs of production for a lot of the European industry. As a result of this, a higher IRR for equity investors (see Exhibit 29) and a gradual improvement in the availability of funding, we forecast 60% and 65% growth in new installations in 2010 and 2011, respectively (to 8.3 GW and 13.7 GW). We expect the US, Chinese and Japanese markets to be large contributors to new installations following more supportive regulatory frameworks, but Germany will remain the main market globally until at least 2012E.

Exhibit 27: New regions such as the US, China and Japan will drive new installation growth in 2010 and 2011 ...

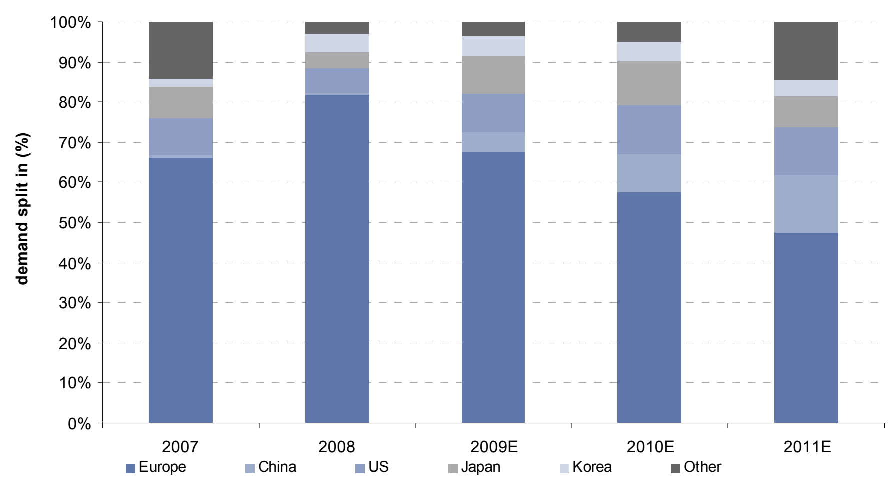
Demand for new solar PV installations by region, in MW



Source: Company data, Goldman Sachs Research estimates.

Exhibit 28: ... with Europe representing less than 50% of the global market for new solar installations by 2011

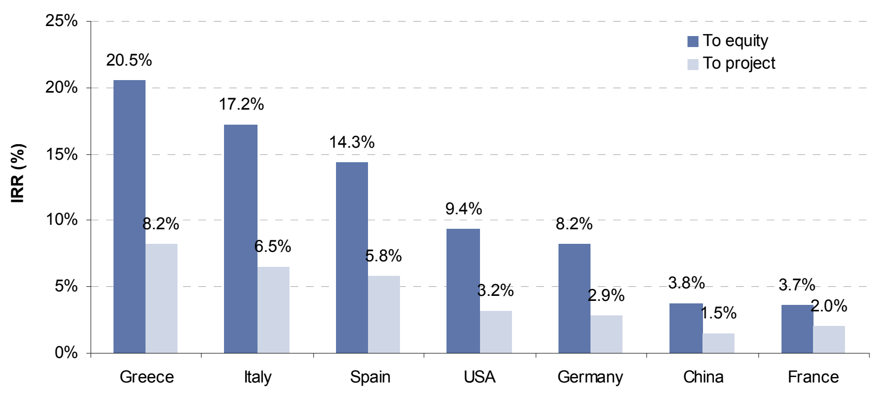
Demand for new solar PV installations by region, in % of total



Source: Company data, Goldman Sachs Research estimates.

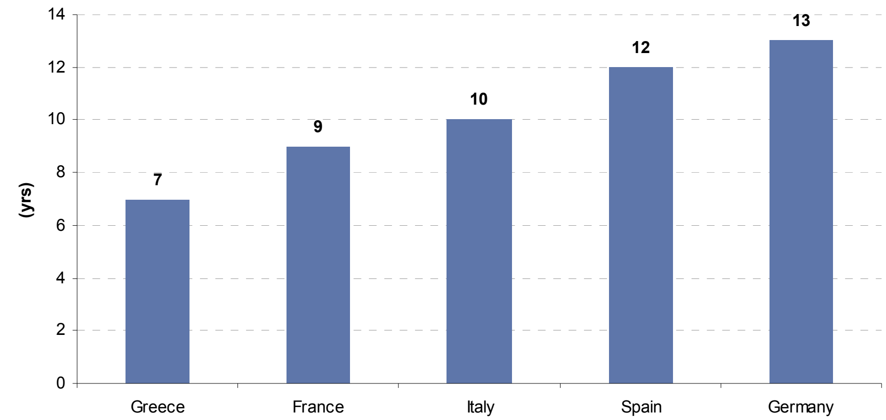
IRRs have improved with falling panel prices, as has the breakeven on solar...

Exhibit 29: Ground based IRRs in southern Europe are very attractive, given the reduction in panel prices, although bureaucratic hurdles are a bottleneck
IRR to equity and projects, based on €4/Wp for Greece, Italy, Spain & France; €3.3/Wp for Germany (thin film) and €2.6/Wp in China & the US



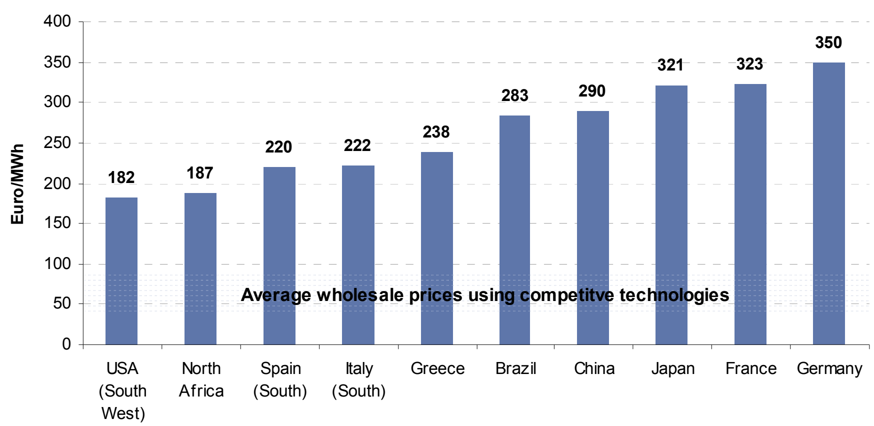
Source: Goldman Sachs Research estimates.

Exhibit 30: For residential systems we look at payback periods as a measure of attractiveness. No market is yet below the key 5-year payback period
Payback periods for different rooftop installations in Europe



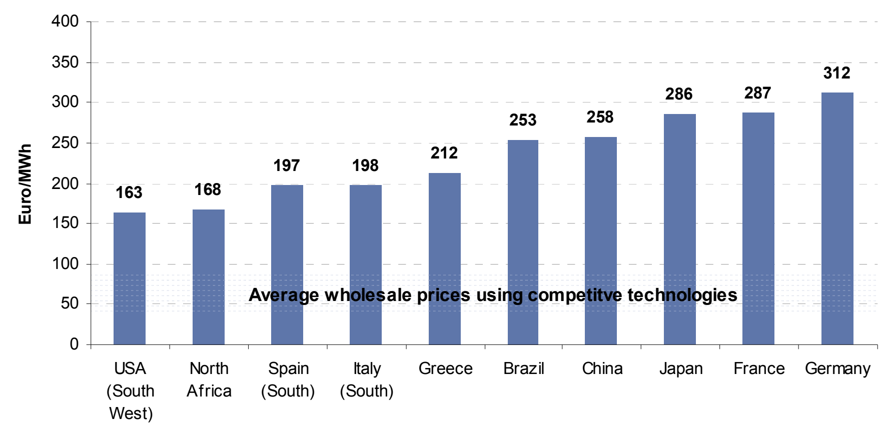
Source: Goldman Sachs Research estimates.

Exhibit 31: US South West and North Africa are c.€180/MWh breakeven using the current low cost crystalline prices, still materially above wholesale prices in most locations, and other renewables like wind (€70-80/MWh) ...
Revenue required to meet WACC on a €3/Wp crystalline solar farm



Source: Goldman Sachs Research estimates

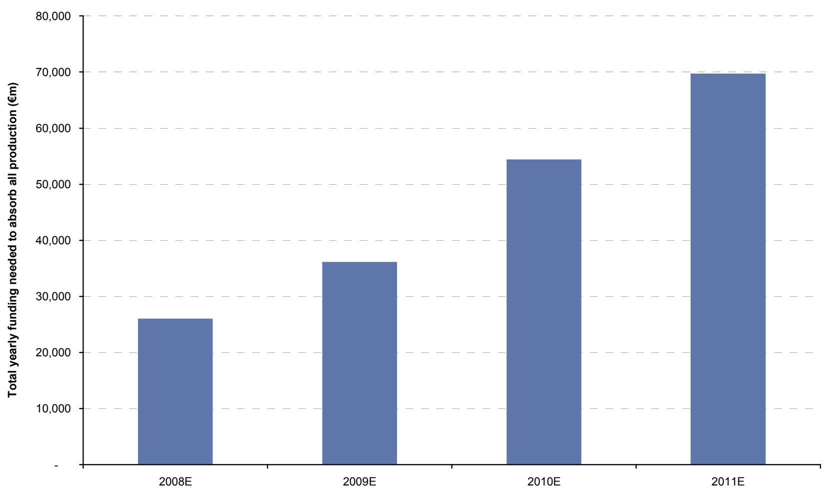
Exhibit 32: ... using thin film panels, breakeven economics improve to c. €160/MWh, but are still double that of wind, and materially above other wholesale technologies
Revenue required to meet WACC on a €2.6/Wp thin film solar farm



Source: Goldman Sachs Research estimates

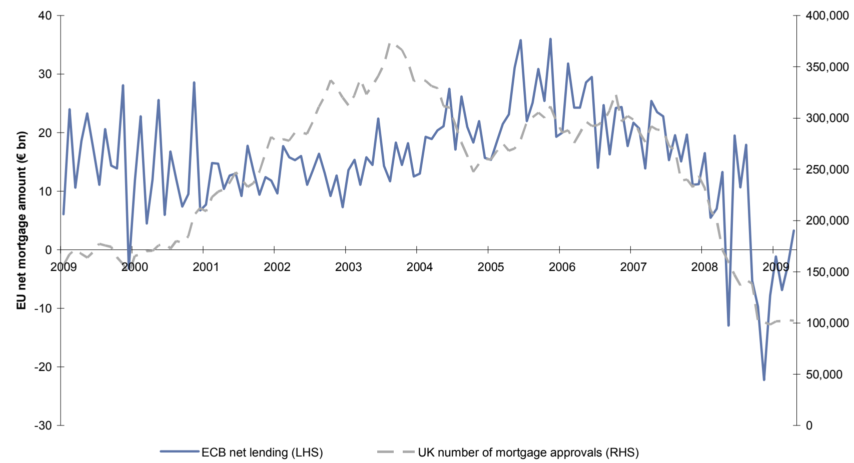
... but credit remains limited, despite large financing requirements to absorb supply

Exhibit 33: Capital required to fully utilize 2009 capacity is €36 bn ...
Capital required (in € mn) to absorb production of solar PV value chain



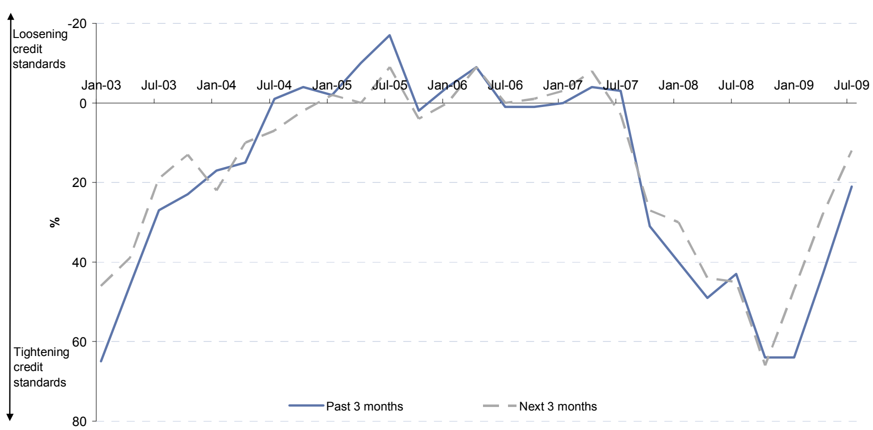
Source: Company data, Goldman Sachs Research estimates

Exhibit 34: ... despite credit continuing to contract ...
ECB net mortgage lending & UK number of mortgages approved



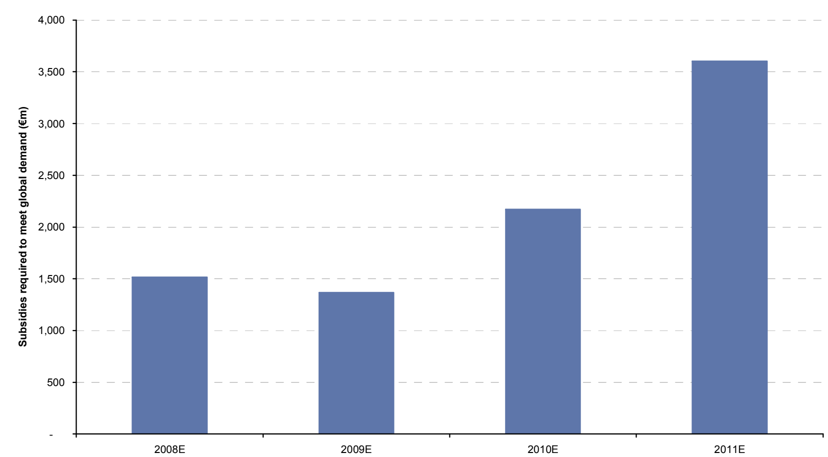
Source: ECB, Bank of England,

Exhibit 35: ... although rate of deterioration has slowed
Supply of credit for loans and credit lines to enterprises



Source Deutsche Bundesbank.

Exhibit 36: Global annual installations could require subsidies of €1.4 bn in 2009E, rising to €3.6 bn in 2011E
Global subsidies required for annual solar installations.

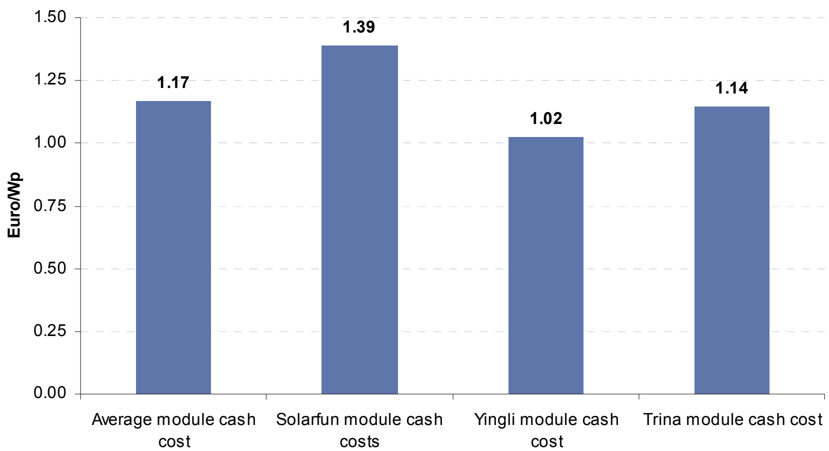


Source: Company data, Goldman Sachs Research estimates.

Lower price assumptions in estimates, reflecting oversupplied environment to 2011

We have adjusted our modeling assumptions for the European solar sector to reflect our expectation of continued weak prices into 2010 across the value chain. This is based on our expectation that low cost manufacturers could continue to drive the price points of the industry closer to cash cost of manufacturing (Exhibit 37 shows our assumption of manufacturing cash costs for key Asian manufacturers). Exhibit 38 shows our key modeling assumptions. We also assume a price premium for manufacturers who have long-term framework supply contracts. We assume that contracts will need to be renegotiated downwards given the large difference between contracted prices and spot prices (in some cases more than 30% below for spot), but that suppliers will retain some of the upside. Similarly, we also assume a premium if selling to the German residential market to allow for price premiums for branded products.

Exhibit 37: Cash costs of manufacturing for Asian producers remain materially below the current selling prices in Europe ...
Module manufacturing cash costs for selected Asian players (at US$60/kg polysilicon)



Source: Company data, Goldman Sachs Research estimates.

Exhibit 38: ... our new assumptions reflect prices that are consistent with a materially oversupplied market and competition from low cost locations

Segment		2009 YE	2010E avrg	2011E avrg
Polysilicon	US$/Kg	65	50	45
	- change (%)		-23%	-10%
Wafers	Euro/Wp	0.65	0.55	0.50
	- change (%)		-15%	-9%
Cells	Euro/Wp	1.1	1.00	0.95
	- change (%)		-9%	-5%
Modules	Euro/Wp	1.5	1.4	1.35
	- change (%)		-7%	-4%
Volumes	MW	-12%	60%	65%
Premium for contracts				5%
Premium for modules sales to Germany				15%

Source: Goldman Sachs Research estimates.

EBIT estimates cut 33%-38% in 2009-11, but equipment makers up 7%/36% in 2010/11

Exhibit 39: Changes in earnings estimates

All in mn, except EPS

	Currency	Revenues 2009E			Revenues 2010E			Revenues 2011E		
Solar Downstream		**Old**	**New**	**%**	**Old**	**New**	**%**	**Old**	**New**	**%**
Aleo Solar	Euro	330	283	-14%	383	319	-17%	444	382	-14%
Centrosolar	Euro	291	257	-11%	345	319	-7%	404	397	-2%
Conergy	Euro	725	662	-9%	899	907	1%	1123	1223	9%
Phoenix Solar	Euro	454	418	-8%	559	497	-11%	755	624	-17%
Solar Fabrik	Euro	139	124	-11%	152	141	-7%	231	178	-23%
Solaria Energia	Euro	204	171	-16%	224	190	-15%	445	227	-49%
SOLON	Euro	600	479	-20%	715	611	-15%	1015	802	-21%
Sunways	Euro	145	111	-23%	175	154	-12%	301	237	-21%
Solar downstream average				**-14%**			**-10%**			**-17%**
Solar Upstream		**Old**	**New**	**%**	**Old**	**New**	**%**	**Old**	**New**	**%**
PV Crystalox	Euro	205	208	1%	201	194	-4%	259	205	-21%
Q-Cells	Euro	862	859	0%	1,141	814	-29%	1,475	905	-39%
Renesola	$	466	467	0%	696	652	-6%	891	925	4%
REC	Nkr	7,688	7,507	-2%	11,635	9,670	-17%	16,716	13,791	-17%
SolarWorld	Euro	925	1,069	16%	1,026	1,415	38%	1,367	1,550	13%
SMA Solar	Euro	614	669	9%	819	937	14%	1092	1438	32%
Solar upstream average				**4%**			**-1%**			**-5%**
Solar Equipment		**Old**	**New**	**%**	**Old**	**New**	**%**	**Old**	**New**	**%**
Centrotherm	Euro	438	471	7%	474	552	16%	555	809	46%
Manz Automation	Euro	117	117	0%	171	171	0%	215	246	14%
Meyer Burger	SFr	357	377	5%	393	461	17%	464	664	43%
Roth & Rau	Euro	219	219	0%	238	267	12%	284	391	38%
Solar equipment average				**3%**			**12%**			**35%**

	EBIT 2009E			EBIT 2010E			EBIT 2011E		
Solar Downstream	**Old**	**New**	**%**	**Old**	**New**	**%**	**Old**	**New**	**%**
Aleo Solar	13	8	-41%	17	12	-27%	21	21	0%
Centrosolar	2	-5	-405%	14	3	-80%	21	13	-41%
Conergy	-22	-59	165%	23	-8	-135%	44	25	-42%
Phoenix Solar	10	10	-8%	40	30	-26%	48	40	-18%
Solar Fabrik	-5	-14	180%	-5	-6	15%	-3	2	-168%
Solaria Energia	25	19	-23%	34	19	-46%	60	22	-63%
SOLON	11	-30	-361%	26	8	-69%	50	42	-16%
Sunways	-1	0	-92%	4	-3	-198%	13	7	-42%
Solar downstream average			**-73%**			**-71%**			**-49%**
Solar Upstream	**Old**	**New**	**%**	**Old**	**New**	**%**	**Old**	**New**	**%**
PV Crystalox	51	56	10%	33	25	-24%	70	35	-49%
Q-Cells	11	11	-4%	98	6	-94%	199	46	-77%
Renesola	-4	-12	-197%	62	38	-38%	123	102	-17%
REC	1,175	1,069	-9%	2,393	1,423	-41%	3,907	2,858	-27%
SolarWorld	156	152	-2%	170	118	-31%	221	140	-37%
SMA Solar	121	129	7%	156	155	-1%	193	201	4%
Solar upstream average			**-33%**			**-38%**			**-34%**
Solar Equipment	**Old**	**New**	**%**	**Old**	**New**	**%**	**Old**	**New**	**%**
Centrotherm	44	45	1%	46	52	12%	52	75	45%
Manz Automation	-5	-5	0%	11	12	4%	18	21	17%
Meyer Burger	31	28	-8%	40	39	-1%	45	65	44%
Roth & Rau	14	14	0%	18	20	13%	24	33	38%
Solar equipment average			**-2%**			**7%**			**36%**

	EPS 2009E			EPS 2010E			EPS 2011E		
Solar Downstream	**Old**	**New**	**%**	**Old**	**New**	**%**	**Old**	**New**	**%**
Aleo Solar	0.5	0.2	-58%	0.7	0.5	-30%	0.9	1.0	4%
Centrosolar	-0.2	-0.6	164%	0.3	-0.3	-203%	0.6	0.1	-91%
Conergy	-0.1	-0.2	90%	0.0	-0.1	-1074%	0.0	0.0	-97%
Phoenix Solar	1.0	0.9	-8%	4.0	3.0	-26%	4.9	4.0	-17%
Solar Fabrik	-0.5	-1.3	135%	-0.6	-0.6	1%	-0.5	0.0	-90%
Solaria Energia	0.1	0.1	-26%	0.2	0.1	-48%	0.4	0.1	-65%
SOLON	-0.5	-2.7	403%	0.4	-0.6	-281%	2.0	1.3	-34%
Sunways	-0.2	-0.1	-37%	0.0	-0.4	3763%	0.5	0.2	-60%
Solar downstream average			**83%**			**263%**			**-56%**
Solar Upstream	**Old**	**New**	**%**	**Old**	**New**	**%**	**Old**	**New**	**%**
PV Crystalox	0.1	0.1	10%	0.1	0.0	-22%	0.1	0.1	-48%
Q-Cells	-5.7	-6.4	-13%	0.6	-0.1	-109%	1.2	0.2	-86%
Renesola	-0.2	-0.2	-39%	0.2	0.0	-82%	0.6	0.4	-27%
REC	1.3	0.9	-34%	2.3	1.3	-44%	3.7	2.6	-32%
SolarWorld	0.8	0.7	-9%	0.8	0.5	-40%	1.1	0.6	-42%
SMA Solar	2.5	2.6	7%	3.1	3.0	-1%	3.8	3.9	3%
Solar upstream average			**-13%**			**-50%**			**-39%**
Solar Equipment	**Old**	**New**	**%**	**Old**	**New**	**%**	**Old**	**New**	**%**
Centrotherm	1.5	1.6	0%	1.6	1.8	11%	1.8	2.6	43%
Manz Automation	-0.7	-0.7	0%	2.0	2.2	9%	2.9	3.5	21%
Meyer Burger	7.5	6.9	-9%	9.7	9.5	-2%	11.4	16.0	41%
Roth & Rau	0.9	0.9	0%	1.0	1.1	10%	1.4	1.8	32%
Solar equipment average			**-2%**			**7%**			**34%**

Source: Goldman Sachs Research estimates.

Our estimates versus consensus: Earnings for solar manufacturers significantly below

Our earnings estimates for the solar manufacturers are 26%/66% below consensus in 2009/10 owing to our more bearish assumptions on volume, pricing and costs. For the equipment manufacturers we are only 10% below in 2010 and 12% above in 2011.

Exhibit 40: Our estimates vs. I/B/E/S consensus
All in mn, except EPS

Revenues

	Currency	2009E			2010E			2011E		
Solar Downstream		**GS**	**Cons.**	**%**	**GS**	**Cons.**	**%**	**GS**	**Cons.**	**%**
Aleo Solar	Euro	283	356	-21%	319	425	-25%	382	480	-20%
Centrosolar	Euro	257	326	-21%	319	378	-16%	397	407	-2%
Conergy	Euro	662	765	-13%	907	979	-7%	1223	1048	17%
Phoenix Solar	Euro	418	494	-15%	497	632	-21%	624	774	-19%
Solar Fabrik	Euro	124	198	-38%	141	198	-29%	178	239	-26%
Solaria Energia	Euro	171	231	-26%	190	226	-16%	227	252	-10%
SOLON	Euro	479	653	-27%	611	817	-25%	802	943	-15%
Sunways	Euro	111	277	-60%	154	300	-49%	237	301	-21%
Solar downstream average				**-28%**			**-23%**			**-12%**
Solar Upstream		**GS**	**Cons.**	**%**	**GS**	**Cons.**	**%**	**GS**	**Cons.**	**%**
PV Crystalox	Euro	208	225	-8%	194	251	-23%	205	283	-27%
Q-Cells	Euro	877	1,044	-16%	869	1,424	-39%	905	1,761	-49%
Renesola	$	467	507	-8%	652	743	-12%	925	1,023	-10%
REC	Nkr	7,507	9,544	-21%	9,670	15,279	-37%	13,791	21,020	-34%
SolarWorld	Euro	1069	1,002	7%	1,415	1,297	9%	1,550	1,581	-2%
SMA Solar	Euro	669	650	3%	937	854	10%	1438	1066	35%
Solar upstream average				**-7%**			**-15%**			**-15%**
Solar Equipment		**GS**	**Cons.**	**%**	**GS**	**Cons.**	**%**	**GS**	**Cons.**	**%**
Centrotherm	Euro	471	527	-11%	552	586	-6%	809	646	25%
Manz Automation	Euro	117	126	-7%	171	154	11%	246	190	30%
Meyer Burger	SFr	377	383	-2%	461	396	16%	664	453	47%
Roth & Rau	Euro	219	241	-9%	267	257	4%	391	287	36%
Solar equipment average				**-7%**			**6%**			**34%**

EBIT

	2009E			2010E			2011E		
Solar Downstream	**GS**	**Cons.**	**%**	**GS**	**Cons.**	**%**			
Aleo Solar	8	12	-37%	12	20	-41%	21	22	-6%
Centrosolar	-5	15	-136%	3	16	-82%	13	16	-23%
Conergy	-59	-30	-95%	-8	35	-123%	25	45	-43%
Phoenix Solar	10	24	-60%	30	39	-24%	40	49	-19%
Solar Fabrik	-14	13	-208%	-6	9	-163%	2	11	-84%
Solaria Energia	19	41	-54%	19	22	-15%	22	9	149%
SOLON	-30	20	-246%	8	36	-78%	42	48	-13%
Sunways	0	6	-102%	-3	16	-121%	7	nm	nm
Solar downstream average			**-117%**			**-81%**			**-6%**
Solar Upstream	**GS**	**Cons.**	**%**	**GS**	**Cons.**	**%**	**GS**	**Cons.**	**%**
PV Crystalox	56	61	-8%	25	72	-65%	35	92	-62%
Q-Cells	9	4	127%	6	107	-94%	46	159	-71%
Renesola	-12	49	-125%	38	103	-63%	102	149	-32%
REC	1,069	1,599	-33%	1,423	4,229	-66%	2,858	5,935	-52%
SolarWorld	152	206	-26%	118	247	-52%	140	312	-55%
SMA Solar	129	122	6%	155	161	-3%	201	197	2%
Solar upstream average			**-10%**			**-57%**			**-45%**
Solar Equipment	**GS**	**Cons.**	**%**	**GS**	**Cons.**	**%**	**GS**	**Cons.**	**%**
Centrotherm	45	60	-25%	52	70	-26%	75	77	-2%
Manz Automation	-5	4	-241%	12	13	-9%	21	17	21%
Meyer Burger	28	32	-12%	39	35	13%	65	46	41%
Roth & Rau	14	24	-40%	20	27	-27%	33	31	7%
Solar equipment average			**-80%**			**-12%**			**17%**

EPS

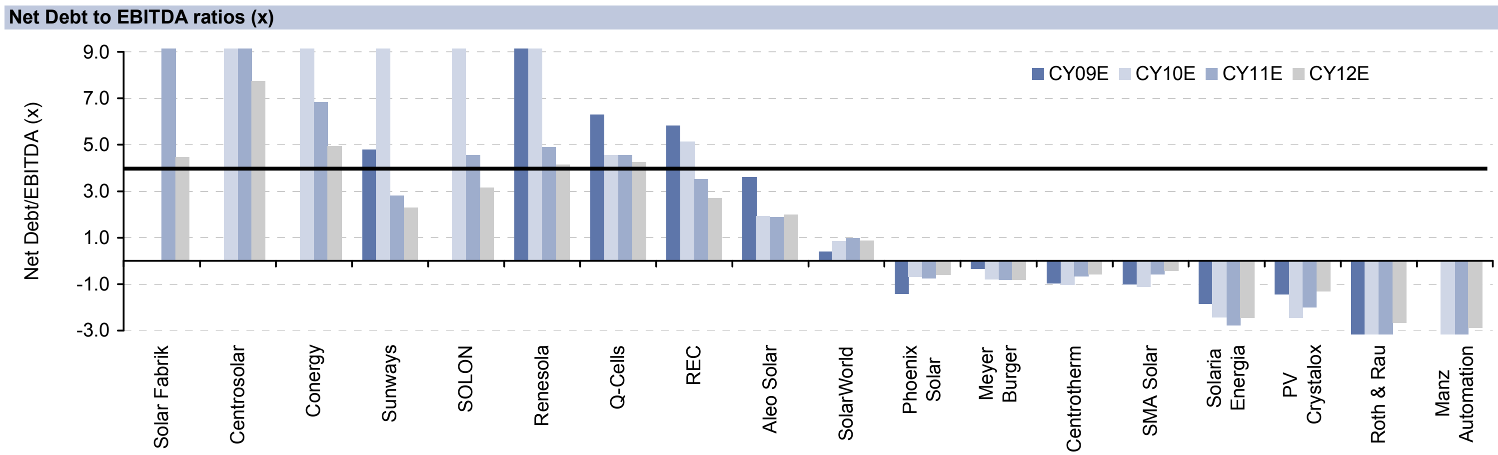
	2009E			2010E			2011E		
Solar Downstream	**GS**	**Cons.**	**%**	**GS**	**Cons.**	**%**	**GS**	**Cons.**	**%**
Aleo Solar	0.2	1	-70%	0.5	1	-44%	1.0	1	15%
Centrosolar	-0.6	-0.3	-129%	-0.3	0	-185%	0.1	0.5	-88%
Conergy	-0.2	-0.1	-49%	-0.1	0	nm	0.0	0.0	nm
Phoenix Solar	0.9	2.1	-56%	3.0	4	-24%	4.0	5.1	-21%
Solar Fabrik	-1.3	0.2	-890%	-0.6	0	-583%	0.0	0.4	-113%
Solaria Energia	0.1	0.2	-58%	0.1	0	-44%	0.1	0.1	-5%
SOLON	-2.7	-1.1	-156%	-0.6	1	-189%	1.3	1.1	17%
Sunways	-0.1	-0.1	-12%	-0.4	0	-254%	0.2	0.5	-60%
Solar downstream average			**-178%**			**-189%**			**-36%**
Solar Upstream	**GS**	**Cons.**	**%**	**GS**	**Cons.**	**%**	**GS**	**Cons.**	**%**
PV Crystalox	0.1	0.1	-2%	0.0	0	-62%	0.1	0.2	-62%
Q-Cells	-6.4	-5.4	-19%	-0.1	1	-111%	0.2	1.0	-83%
Renesola	-0.2	-0.2	-50%	0.0	0	-87%	0.4	0.6	-33%
REC	0.9	1.7	-48%	1.3	4	-67%	2.6	5.9	-56%
SolarWorld	0.7	1.1	-38%	0.5	1	-64%	0.6	1.8	-64%
SMA Solar	2.6	2.6	3%	3.0	3	-10%	3.9	4.2	-6%
Solar upstream average			**-26%**			**-67%**			**-51%**
Solar Equipment	**GS**	**Cons.**	**%**	**GS**	**Cons.**	**%**	**GS**	**Cons.**	**%**
Centrotherm	1.6	2.1	-26%	1.8	2	-29%	2.6	3.0	-13%
Manz Automation	-0.7	-1.2	-38%	2.2	2	7%	3.5	2.9	23%
Meyer Burger	6.9	8.1	-15%	9.5	9	7%	16.0	11.8	35%
Roth & Rau	0.9	1.3	-35%	1.1	2	-24%	1.8	1.7	5%
Solar equipment average			**-28%**			**-10%**			**12%**

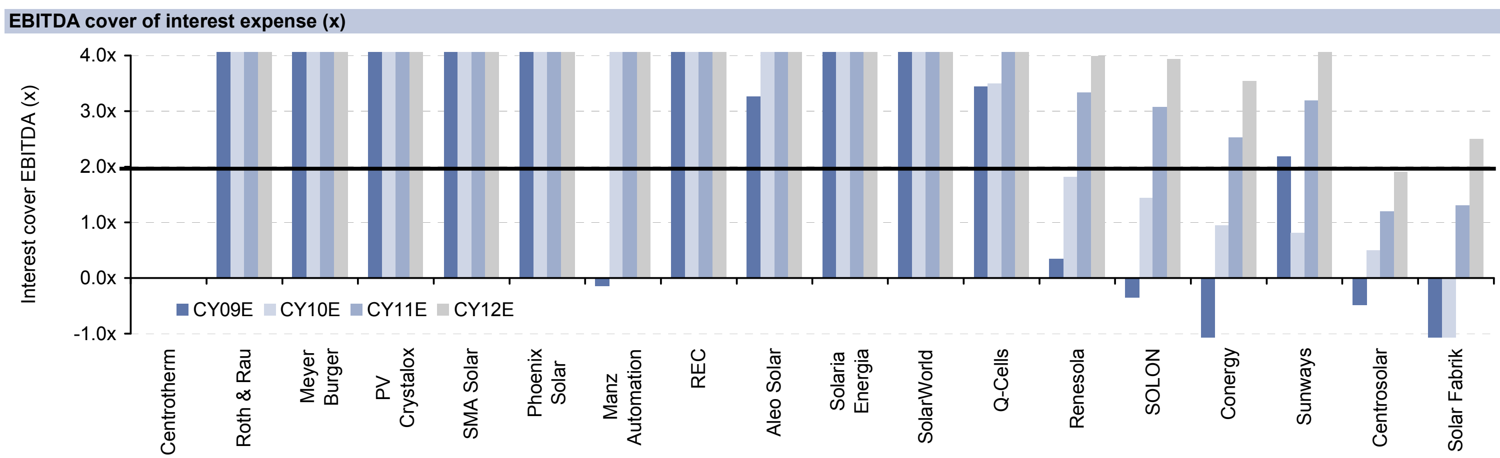
Source: I/B/E/S, Goldman Sachs Research estimates.

Balance sheet strength becomes critical in an over supplied environment

Under our assumption of sustained price deterioration in the solar manufacturing industry, we believe analyzing balance sheet strength is critical. Exhibit 41 illustrates net debt/EBITDA ratios for the European industry, where we expect many of the smaller module manufacturers (Solar Fabrik, Centrosolar, Conergy, Sunways, Solon) to be above 4x in 2010E. Also, we expect Q-Cells to be above 4x net debt/EBITDA throughout our forecast period. REC is above 4x in 2009E and 2010E. Furthermore, EBITDA interest cover is below 2x for the smaller European module makers (Centrosolar & Solar Fabrik) 2009E–2011E.

Exhibit 41: Net debt/EBITDA looks strained for most small manufacturers given P&L deterioration, interest cover only a concern for CentroSolar, Sunways, Solar Fabrik and Conergy, on our estimates.
Net debt/EBITDA (x) and EBITDA interest cover (x) ratios





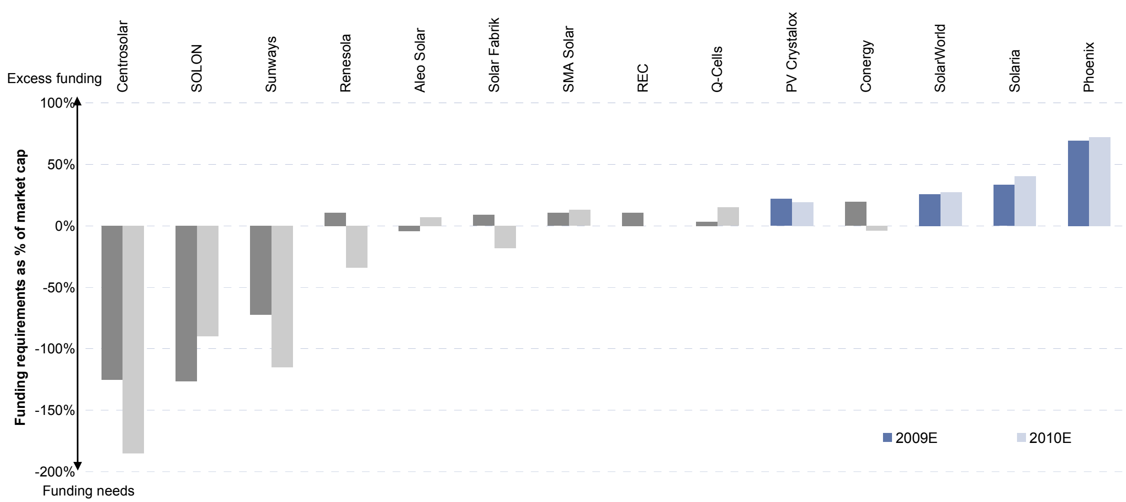
Source: Company data, Goldman Sachs Research estimates.

Need for capital will remain a risk, smaller panel makers at most risk

Funding/refinancing needs remain material for some companies. Smaller solar panel manufacturers are most at risk. Renesola requires refinancing of its short-term debt into a long-term liability. We believe the Chinese state banks could support it as we have already seen credit being extended to some Chinese companies.

Exhibit 42: Funding gap/refinancing needs for the European Solar manufacturing sector;
Grey represents companies with Net debt/EBITDA >4x

Funding/refinancing needs														
Cash end 2009	6.5	9.0	35.6	11.0	10.6	11.0	166.1	722.4	237.3	106.3	15.3	608.6	145.8	14.5
CFO	-18.1	53.6	-5.5	19.1	20.7	-11.0	145.4	154.1	190.7	29.6	-32.2	169.7	39.5	7.4
Change in WC	-15.2	42.4	-7.8	1.2	9.1	-5.1	19.8	-45.7	124.6	2.7	-38.6	14.6	19.0	-12.9
Divestitures	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cash inflow 2010E	-2.8	11.2	2.3	17.9	11.6	-6.0	125.6	199.8	66.2	26.9	6.4	155.1	20.5	20.3
Total debt	125.9	403.3	64.6	353.9	59.6	22.7	21.5	2203.3	689.3	15.7	334.2	699.5	95.0	0.1
Total credit facilities	110.0	420.0	17.5	437.5	80.0	22.5	52.5	1912.2	750.0	15.7	600.0	699.5	95.0	150.0
Remaning credit facility	-15.9	16.7	-47.1	83.6	20.4	-0.2	31.0	-291.1	60.7	0.0	265.8	0.0	0.0	149.9
Total cash	**-12.3**	**36.8**	**-9.3**	**112.5**	**42.6**	**4.7**	**322.7**	**631.1**	**364.1**	**133.2**	**287.5**	**763.6**	**166.2**	**184.7**
Debt repayment 2010E	-59.3	-185.8	-10.2	-134.9	-36.1	-6.7	-1.4	-166.7	-15.7	-15.7	-230.7	-24.1	-65.7	-0.1
Change in WC 2010E	-15.2	42.4	-7.8	1.2	9.1	-5.1	19.8	-45.7	124.6	2.7	-38.6	14.6	19.0	-12.9
Capex 2010E	-10.6	-3.1	-6.8	-68.7	-7.4	-1.4	-66.2	-414.9	-165.2	-21.3	-20.6	-250.0	-22.4	-0.3
Dividends	0.0	0.0	0.0	0.0	0.0	0.0	-27.5	0.0	0.0	-9.8	0.0	-11.6	0.0	-0.6
Acquisition	-0.5	-4.2	-0.7	0.0	0.0	0.0	-1.6	-4.8	-93.6	-8.1	-8.2	-1.4	0.0	-0.1
Share issue/purchase	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total expense	**-85.6**	**-150.6**	**-25.5**	**-202.4**	**-34.4**	**-13.1**	**-76.9**	**-632.0**	**-149.9**	**-52.3**	**-298.1**	**-272.6**	**-69.0**	**-14.0**
Funding GAP	**-97.9**	**-113.7**	**-34.8**	**-89.8**	**8.2**	**-8.4**	**245.8**	**-1.0**	**214.2**	**81.0**	**-10.5**	**491.0**	**97.2**	**170.7**
Market cap	52.9	126.6	30.1	262.7	117.1	46.7	1915.8	3514.8	1439.2	417.6	258.8	1795.3	240.2	236.6
% of market cap	**-185%**	**-90%**	**-115%**	**-34%**	**7%**	**-18%**	**13%**	**0%**	**15%**	**19%**	**-4%**	**27%**	**40%**	**72%**
% of capex	-924%	-3721%	-514%	-131%	111%	-595%	371%	0%	130%	380%	-51%	196%	435%	56047%



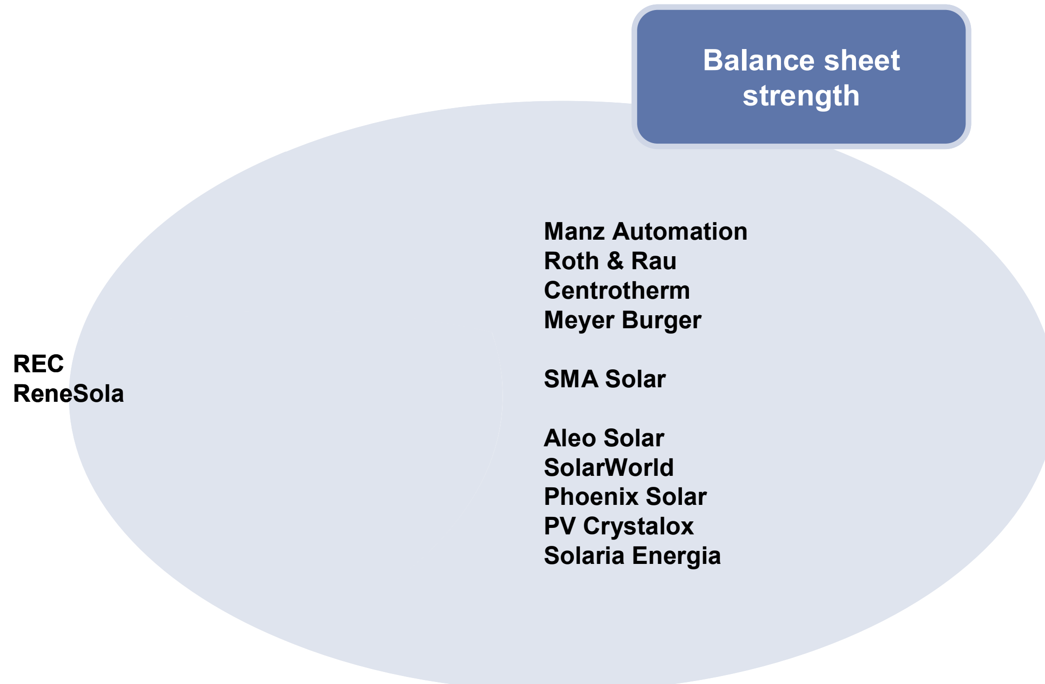
Source: Company data, Goldman Sachs Research estimates.

Balance sheet strength: SMA, Solar equipment, and selected manufacturers

Most of our solar equipment coverage is in a net cash position; therefore they maintain strong balance sheets able to sustain the current slowdown in the market. Similarly, SMA Solar's strong cash balance makes it well placed in the current environment. The remaining solar manufacturers also have net cash positions, except for Aleo Solar (which is in the process of being taken over by Bosch) where gearing ratios are low (net debt/EBITDA is below 4x for 2009/10).

REC and Renesola screen as having high net debt/EBITDA in 2009 and 2010, largely reflecting the slowdown in the market, but we believe neither of them will need material access to funds (above those already in place) for the next two years. Starting in 2010E, net debt/EBITDA ratios start coming down or towards 4x.

Exhibit 43: Leadership in balance sheet strength for the European solar industry



Source: Goldman Sachs Research.

Potential M&A in European solar; Roth & Rau, Meyer Burger most likely on our analysis

Over the past month M&A activity has returned to the European solar sector. On August 3, 2009, Bosch announced it had acquired almost 40% of Aleo Solar (at a 33% premium) with plans to submit a full public takeover. Although we do not make explicit forecasts, we acknowledge the impact of potential M&A by adjusting target prices for stocks under our coverage for which we see a higher probability of a takeout. Overall, we believe the probability of large scale M&A is moderate given the general cost synergies that come with scale, evolving technology and market access needs. We believe that the solar equipment companies are the most likely takeout candidates, based on their strong market share, intellectual property and differentiated technologies. Consolidation among smaller, privately held or financially distressed component suppliers in the solar sector will also continue, in our view.

Exhibit 44: European solar industry M&A scenario analysis

M&A scores range from 1 = most likely 30%-50% probability; 2 = medium 15%-30%; 3 = low 10-15% to 4 = least likely – 0%; IRR based on our standardised LBO model.

Company	Rating	Price	Freefloat	M&A score	Implied IRR LBO	EV/EBITDA Multiple Entry	Exit	Comment on M&A potential
Aleo Solar	Neutral	€8.97	61%	1	na	na	na	40% of shares acquired by Bosch on August 3rd at c.33% premium. Full takeover planne
Centrosolar	Sell	€ 3.39	55%	3	0%	-57.6x	9.5x	
Centrotherm Photovoltaics AG	Buy	€ 30	41%	2	14%	14.5x	9.5x	IP in solar equipment, market share. Blocking stake.
Conergy AG	Sell	€ 0.64	34%	2	14%	-19.7x	9.5x	Market access, distribution network
Phoenix Solar AG	Buy	€ 33.99	87%	2	17%	30.8x	9.5x	Market access
ReneSola	Buy*	£1.56	66%	2	25%	91.1x	13.0x	Market access
Solar Fabrik AG	Sell	€ 3.80	61%	4	11%	-6.4x	9.5x	
Solaria Energia	Neutral	€ 2.20	39%	4	12%	14.8x	9.5x	
SolarWorld AG	Sell	€ 15.30	61%	2	29%	9.7x	13.0x	
SOLON SE	Sell	€ 9.30	70%	2	19%	-66.8x	9.5x	Market access, distribution network
Sunways AG	Sell	€2.6	78%	4	46%	8.9x	9.5x	
PV Crystalox	Neutral	£0.83	82%	3	20%	7.7x	13.0x	
Q-Cells AG	Sell*	€ 11.90	42%	3	na	na	na	Technology, IP, market access
Renewable Energy Corporation	Neutral	Nkr43	46%	2	na	na	na	IP in FBR silicon technology
SMA Solar Technology AG	Buy	€ 53.90	26%	2	27%	16.2x	13.0x	Dominant market share (c.40%) in solar inverters. Strong IP. Blocking stake.
Roth & Rau	Buy	€ 20	93%	1	27%	16.9x	13.0x	Dominant market share (c.40%) in solar equipment. Strong IP
Manz Automation	Buy*	€ 41.30	49%	2	26%	na	13.0x	Dominant market share in solar equipment. Strong IP. Blocking stake.
Meyer Burger	Buy	Sfr177	94%	1	10%	28.0x	13.0x	Dominant market share (c.50%) in solar wafer systems. Strong IP

LBO Note: Our Tactical Research team has developed a model to analyze the attractiveness of stocks in our nonfinancial coverage to private equity. The model takes analysts' forecasts from the GS database and then uses entered exit multiples and bid premiums to calculate an IRR. Please see the Tactical Research Home page for more details: https://360.gs.com/gs/portal/research/teams/tacticalresearch/. * denotes stock is on our Conviction List

Source: Datastream, Quantum database, Goldman Sachs Research.

We assign rankings of 2 and 3 for most of our coverage to reflect our general view that M&A activity is likely to be moderate over the next 6-12 months. However, there are two companies in solar equipment for which we believe M&A is more probable – Roth & Rau and Meyer Burger. In our view, both companies: have strong IP, a strategic asset to a potential acquirer; could benefit from being acquired by a larger entity, helping to improve execution and/or reduce manufacturing/operating costs; and are small enough to make an acquisition possible or "digestible". We hold the same view for SMA Solar, Manz Automation and Centrotherm but these companies all have management/family blocking stakes which is why the M&A score is reduced to 2. Given the intense focus on LBO activity last year, we also screened our coverage based on a standardised departmental LBO model to examine the internal rate of return (IRR) potential of our covered solar companies. Our assumptions include a five-year holding period, a 35% bid-premium, and an exit EV/EBITDA multiple based on a solar subsector mid-cycle multiple estimate. We view IRR's above 25% as attractive and highlight Roth & Rau as screening well on our M&A score and LBO model IRR score.

We assess the attractiveness of the solar industry with a normalized valuation approach

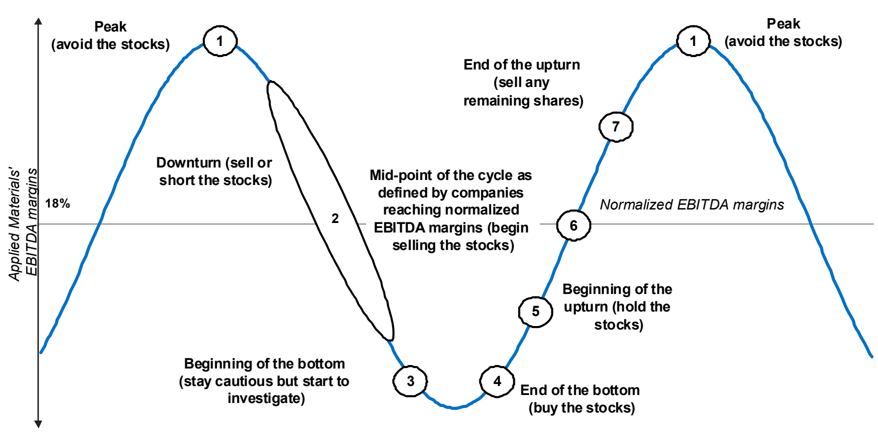
Given the large similarities between the semiconductor industry and the solar manufacturing industry, we use a similar valuation approach to look at highly cyclical industries. The solar industry is going through a cyclical downturn driven by a material increase in available manufacturing capacity (13 GW in 2009, on our estimates) versus a depressed demand environment due to the credit crisis (5 GW in 2009E). This has created a material deterioration in companies' earnings and reduced stock valuations. However, we believe looking only at near-term earnings (ie. 2009, or even 2010) is likely to lead to the wrong investment conclusion as the underlying value of a business is unlikely to change as much as implied by near-term earnings (or indeed valuations).

We have ascertained that there is also a structural angle affecting the earnings of Europe based manufacturers as they are exposed to low cost competition from Asia. We believe overlaying a cyclical valuation framework on our expectation of a structural downwards shift in companies' profitability (for the manufacturers) is the best way to look at valuation in the sector.

Exhibit 45 shows a stylized way to look at the margin cycle for cyclical stocks, highlighting the importance of looking for the bottom of the margin cycle to start buying into stocks – at least when we believe margins will recover towards normalized levels. Exhibit 46 shows data for the longest trading stock in our coverage, Solarworld, showing that we have entered the first large downturn in the sector since the start of the growth phase.

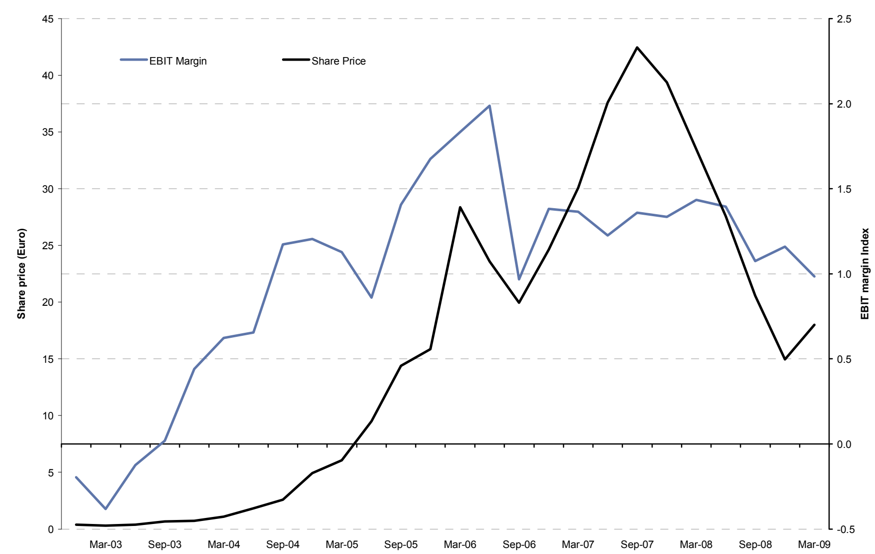
Exhibit 45: We apply a normalized valuation methodology to counter-cyclically pick stocks at the bottom of their margin cycle

The seven stages of a cyclical business:



Source: Goldman Sachs Research

Exhibit 46: SolarWorld, the European Solar company we have the most data for, margins have been a key driven for share price performance
Trading history for Solarword, vs. EBIT margin history



Source: DataStream, Company data

We base our target prices on 2011E EBIT, allowing for a return to normalized earnings

Exhibit 47 highlights our key recommendations and target price changes. We base our target prices on 2011E EBIT to account for a return to normalized earnings for the companies we believe have the cost structure to recover quickly from the current downturn. We crosscheck the resulting target prices with implied EV/GCI metrics. In the case that EBIT is low, and implied target prices are negative, or GCI valuations less than 0.5-06x EV/GCI, we use the latter figure to account for some value in the invested capital.

Our Conviction Buy List or Buy rated stocks reflect our thematic screening, we are generally cautious on the rest.

Manz Automation (Conviction Buy); Roth & Rau (Buy); Centrotherm (Buy); Meyer Burger (Buy): High exposure to BRICs (56% of revenues in 2008); exposure to upgrading and expansion cycle for European and Asian panel manufacturers; high market share; strong balance sheet (net cash position); and upside to normalized earnings valuation levels.

ReneSola (Conviction Buy): High exposure to low cost manufacturing locations, high exposure to BRICs (61% of revenues in 2008); investment plan of vertical integration; and upside to normalized earnings valuation levels.

SMA Solar (Buy); Phoenix Solar (Buy): Volume driven players; limited competition from Asia; and strong balance sheets.

Exhibit 47: Most potential upside in our coverage in the equipment space, given attractive thematic screening and valuation
Changes to investment recommendations and target prices for our European Solar coverage.

Current price	Current price	Old TP	New TP	change %	upside/ downside	TP period	Old rating	New rating	Valuation at TP EV/EBIT	EV/GCI	
Solar Downstream	**Local**	**Local**	**Local**						**2011E**	**2009E**	**Valuation methodology**
Aleo Solar	9.0	9.0	9.0	0%	0%	12 m	N	N	9.0	1.0	Bid price
Centrosolar	3.4	3.5	2.8	-20%	-17%	12 m	Sell	Sell	18.3	0.6	EV/EBIT multiples on 2011, cross checked with EV/GCI
Conergy	0.6	0.6	0.5	-17%	-22%	12 m	Sell	Sell	26.6	0.7	EV/EBIT multiples on 2011, cross checked with EV/GCI
Phoenix Solar	34.0	43.0	52.0	21%	53%	12 m	Buy	Buy	8.0	2.8	EV/EBIT multiples on 2011
Solar Fabrik	3.8	4.4	2.5	-43%	-34%	12 m	N	Sell	38.4	0.8	EV/EBIT multiples on 2011, cross checked with EV/GCI
Solaria Energia	2.2	2.7	2.2	-19%	0%	12 m	N	N	6.7	0.7	EV/EBIT multiples on 2011, cross checked with EV/GCI
SOLON	9.3	11.5	8.0	-30%	-14%	12 m	N	Sell	10.0	0.6	EV/EBIT multiples on 2011, cross checked with EV/GCI
Sunways	2.6	2.5	2.1	-16%	-20%	12 m	N	Sell	8.7	0.5	EV/EBIT multiples on 2011, cross checked with EV/GCI
Solar downstream average				**-15%**	**-7%**				**15.7**	**1.0**	
Solar Upstream	**Local**	**Local**	**Local**						**2011E**	**2009E**	
PV Crystalox	83.0	115.0	100.0	-13%	21%	12 m	Buy	N	11.2	1.5	EV/EBIT multiples on 2011, cross checked with EV/GCI
Q-Cells	11.9	14.0	8.5	-39%	-29%	12 m	N	Sell *	30.5	0.6	EV/EBIT multiples on 2011, cross checked with EV/GCI
Renesola	156.8	215.0	275.0	28%	75%	12 m	N	Buy *	13.4	1.2	EV/EBIT multiples on 2011, cross checked with EV/GCI
REC	43.0	61.0	40.0	-34%	-7%	12 m	Buy	N	14.9	0.9	EV/EBIT multiples on 2011, cross checked with EV/GCI
SolarWorld	15.3	25.0	12.0	-52%	-21%	12 m	N	Sell	11.6	0.9	EV/EBIT multiples on 2011, cross checked with EV/GCI
SMA Solar	53.9	65.0	80.0	23%	49%	12 m	N	Buy	13.3	6.1	EV/EBIT multiples on 2011
Solar upstream average				**-15%**	**15%**				**15.8**	**1.9**	
Solar Equipment	**Local**	**Local**	**Local**						**2011E**	**2009E**	
Centrotherm	30.0	39.0	50.0	28%	67%	2 yrs	N	Buy	13.2	2.4	EV/EBIT multiples on 2011
Manz Automation	41.3	66.0	80.0	21%	94%	2 yrs	Buy *	Buy *	12.8	1.7	EV/EBIT multiples on 2011
Meyer Burger	177.0	225.0	326	45%	84%	2 yrs	N	Buy	14.0	4.8	EV/EBIT multiples on 2011 with M&A premium
Roth & Rau	20.0	34.0	40	17%	100%	2 yrs	Buy	Buy	13.2	2.7	EV/EBIT multiples on 2011 with M&A premium
Solar equipment average				**28%**	**86%**				**13.3**	**2.9**	

* denotes inclusion in our Conviction List

Target price timeframes for Solar Equipment were 12 months previously.

Source: Goldman Sachs Research estimates.

Exhibit 48 shows our assessment of normalized margins and multiples for our solar coverage. We observe that ReneSola and Manz Automation are well below our expected normalized margins currently, but we expect the companies to improve earnings materially as volume growth returns to the market. Conversely, although Q-Cells' current margins appear materially below their potential normalzied margins, we do not expect them to recover quickly given the structural challenges the company faces, hence our Conviction Sell on the stock.

We derive our estimates for normalized earnings based on a combination of historical margins, and the margin required to meet a cost of capital return in 2011E. For the European manufacturers, historical margins are somewhat less important given the structural downwards shift we expect in profitability as a result of Asian competition. We expect the equipment makers to fully return to normalized margins by 2011E.

Exhibit 48: The solar equipment makers screen as having current margins below normalized and normalized valuations below the historical average, two buy signals for cyclical stocks

Normalized margin and normalized multiple assumptions

	EBIT margins (%)				EV/EBIT (x)				
Solar Downstream	**Current margins**	**Normalized margins**	**Peak margins**	**Current % of norm**	**Current multiple**	**Normalized multiple**	**Mid cycle multiple**	**Historical multiple**	**Premium to mid cycle**
Aleo Solar	2.9%	7.0%	13.8%	**42%**	22.2x	9.2x	9.0x	10.1x	**2%**
Centrosolar	-1.7%	5.0%	3.6%	**-34%**	-34.2x	11.6x	9.0x	32.0x	**29%**
Conergy	-7.7%	5.0%	8.9%	**-153%**	-11.7x	18.0x	9.0x	nm	**100%**
Phoenix Solar	2.8%	6.0%	8.5%	**47%**	20.8x	9.7x	9.0x	8.0x	**7%**
Solar Fabrik	-10.2%	5.0%	5.4%	**-204%**	-4.4x	9.1x	9.0x	22.6x	**1%**
Solaria Energia	11.0%	7.0%	45.6%	**157%**	12.6x	19.8x	9.0x	34.0x	**120%**
SOLON	-5.1%	7.0%	7.2%	**-73%**	-20.7x	15.1x	9.0x	15.4x	**68%**
Sunways	-0.4%	5.0%	4.7%	**-8%**	-105.3x	8.8x	9.0x	33.0x	**-2%**
Solar downstream average	**-1.0%**	**5.9%**	**12.2%**	**-28%**		**12.7x**	**9.0x**	**22.2x**	**41%**
Solar Upstream									
PV Crystalox	25.4%	12.0%	38.8%	**212%**	6.0x	12.8x	9.0x	7.4x	**42%**
Q-Cells	1.2%	10.0%	24.0%	**12%**	139.5x	16.5x	12.5x	21.2x	**32%**
Renesola	-1.4%	12.0%	25.6%	**-12%**	-129.0x	15.1x	12.5x	16.2x	**21%**
REC	14.3%	28.0%	39.0%	**51%**	38.4x	19.6x	15.0x	27.6x	**31%**
SolarWorld	13.4%	12.0%	28.3%	**112%**	12.6x	14.1x	12.5x	14.6x	**13%**
SMA Solar	18.9%	14.0%	24.6%	**135%**	14.3x	19.3x	15.0x	9.0x	**29%**
Solar upstream average	**12.0%**	**14.7%**	**30.0%**	**85%**		**16.3x**	**12.8x**	**16.0x**	**28%**
Solar Equipment									
Centrotherm	9.5%	9.0%	12.7%	**105%**	14.7x	15.5x	15.0x	14.5x	**3%**
Manz Automation	-2.7%	9.0%	14.1%	**-30%**	-41.0x	12.4x	15.0x	18.8x	**-17%**
Meyer Burger	7.6%	9.0%	16.7%	**85%**	16.6x	14.1x	15.0x	12.6x	**-6%**
Roth & Rau	6.7%	9.0%	12.9%	**75%**	15.4x	11.5x	15.0x	11.9x	**-23%**
Solar equipment average	**5.3%**	**9.0%**	**14.1%**	**59%**		**13.4x**	**15.0x**	**14.4x**	**-11%**

Source: Goldman Sachs Research estimates.

We do not expect European manufacturers to reach normalized earnings levels, even by 2013 (see Exhibit 49).

When looking at cyclical stocks we also consider the flowing “rules” framework to define if we are close to the cycle bottom:

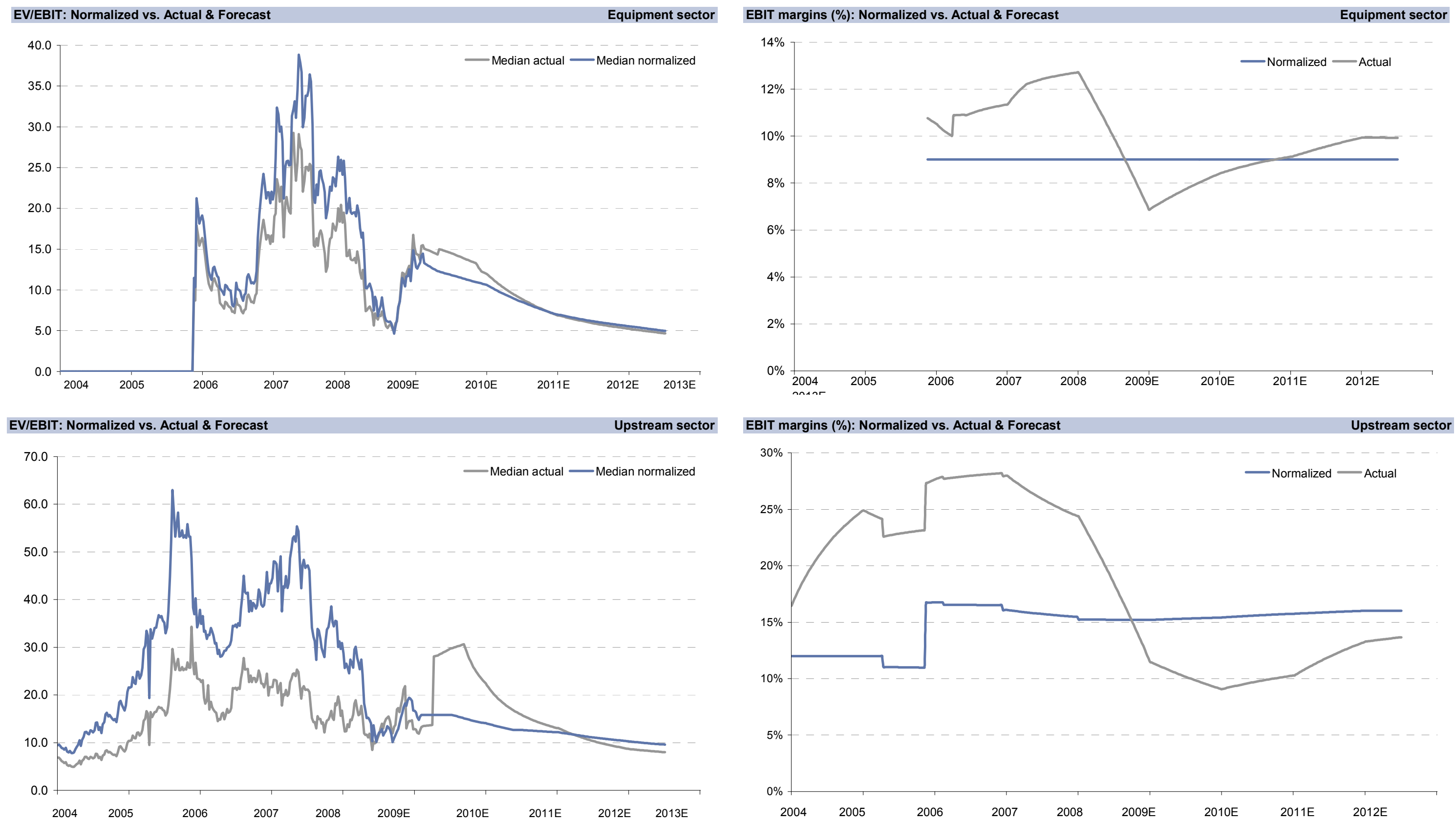
Rule 1: Are the majority of companies in the industry at or near breakeven EBITDA margins? Have the cash flows of the majority of the companies deteriorated to the point at which companies are no longer able to add any new capacity and/or have begun to take capacity off-line?

Rule 2: Have managements capitulated? Only after industry managements capitulate and acknowledge that visibility for an upturn is nonexistent are cost structures and investor sentiment likely to bottom.

Rule 3: Are there glimmers of hope for an upturn? Are there signs of improvement in the industry that signal a cyclical upturn may be imminent? This rule is only relevant if Rules 1 and 2 have already been satisfied.

Exhibit 49: Estimates reflect that European solar manufacturers unable to reach normalized earnings in next three years, but equipment manufacturers (larger global market share, lower exposure to Asian competition) bouncing back in 2011E

EV/EBIT, actual and normalized and EBIT margins, both estimated actual and estimated normalized; solar upstream sector (manufacturers) and solar equipment sector



Source: Reuters, Company data, Goldman Sachs Research estimates.

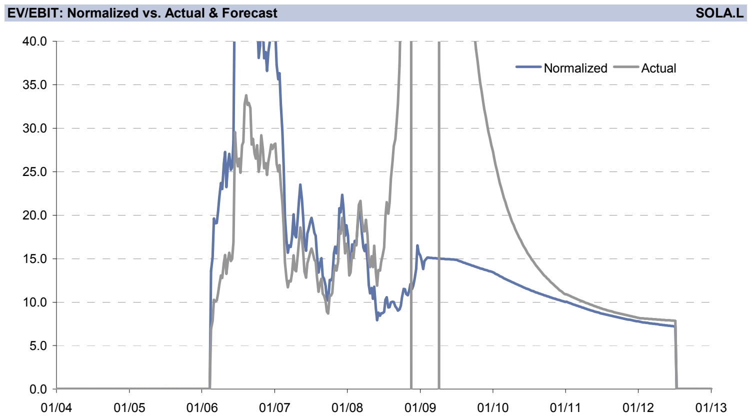
Based on this framework, we believe we are at the bottom of the cycle for solar manufacturing and equipment – however, as our industrial analysis implies, Europe-based manufacturers face a more challenging environment and will take time to improve margins towards normalized levels. For ReneSola and Manz Automation (Exhibits 50 and 51) we expect margins to have bottomed in 2009 and a strong recovery towards normalized EBIT margins by 2011E. We have seen the bottom of the order inflow for Manz as the inflow is now close to zero (€8 mn in 1H2009). Similarly, ReneSola's negative 1Q margin has in our view marked the bottom of the cycle for them, as we expect volumes to recover from the cyclical trough in 1Q2009.

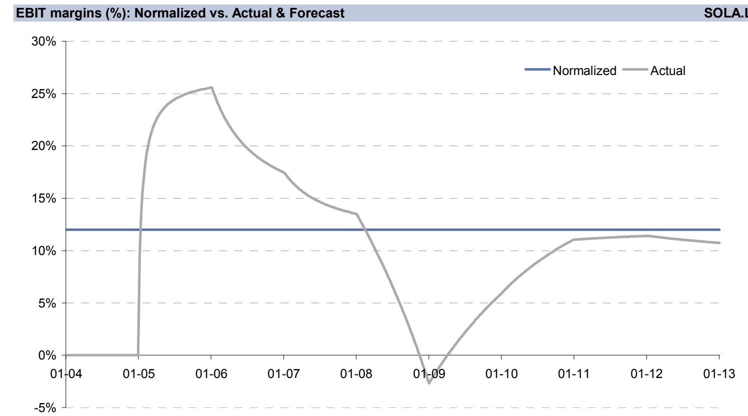
For Q-Cells (Exhibit 52), we are a lot more cautious about margin recovery, as we believe its structural positioning is weak relative to the rest of the industry (as suggested by the shutdown of c.50% of its German capacity) and our cost analysis, and it could therefore take a long time to return to normalized profitability (we do not believe normalized margins will be reached by 2013E).

Both ReneSola and Manz Automation screen well on a normalized margin analysis

Exhibit 50: On our estimates ReneSola quickly recovers from its trough earnings in 2009 to reach normalized levels by 2011, a result of its attractive cost positioning relative to the European manufacturers and its BRICs exposure

EV/EBIT multiples, actual and normalized and EBIT margins, both estimated actual and estimated normalized; ReneSola

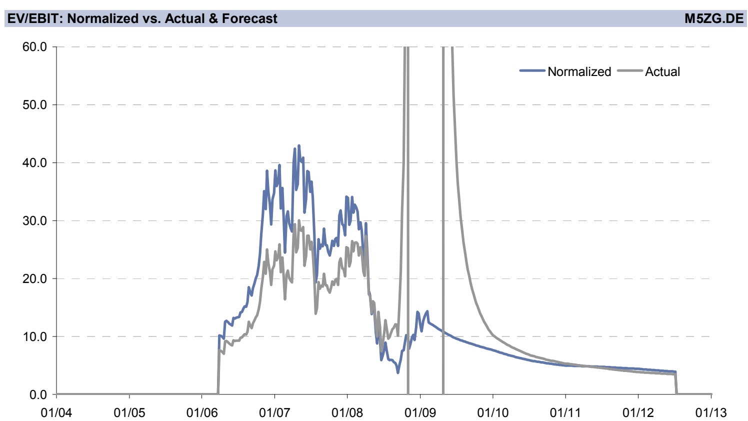


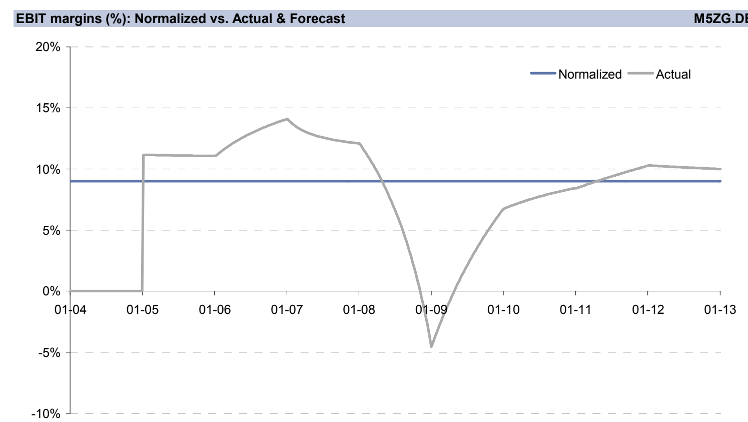


Source: Reuters, Company data, Goldman Sachs Research estimates

Exhibit 51: ... Manz Automation also shows a similar progression with margins recovering towards normalized levels by 2011. Its large global market share, exposure to equipment replacement cycles and for both Europe and BRICs leads to earnings recovery

EV/EBIT multiples, actual and normalized and EBIT margins, both estimated actual and estimated normalized; Manz Automation

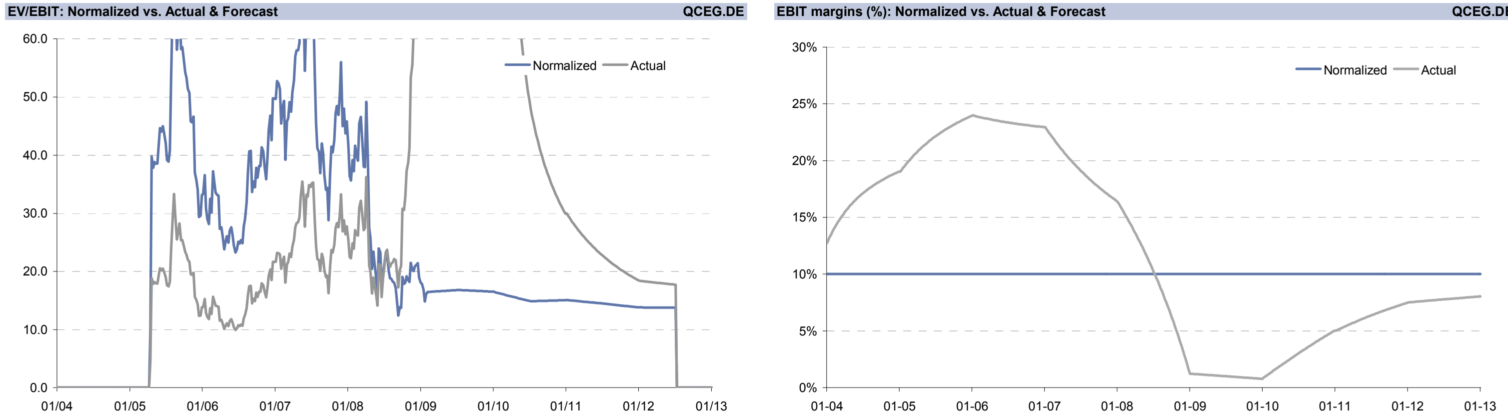




Source: Reuters, Company data, Goldman Sachs Research estimates.

Exhibit 52: On our estimates Q-Cells will not recover quickly from its trough earnings in 2009. It does not reach normalized margins of 10% until after 2013. Furthermore, its lack of exposure to BRICs and its reduced capacity make it structurally challenged, in our view

EV/EBIT multiples, actual and normalized and EBIT margins, both estimated actual and estimated normalized; Q-Cells



Source: Reuters, Company data, Goldman Sachs Research estimates

Exhibit 53: Valuation table

Priced as of close of August 18, 2009.

	Currency	Rating	Share price	Target price	Implied upside	Mkt cap US$ mn	2009 EV US$ mn	PE				EV/EBITDA				EV / Sales			
								2009E	2010E	2011E	2012E	2009E	2010E	2011E	2012E	2009E	2010E	2011E	2012E
European Solar																			
Solar Downstream																			
Aleo Solar	Euro	N	8.97	9	0%	165	255	48.6x	18.1x	9.4x	7.3x	13.9x	9.1x	6.6x	5.8x	0.6x	0.5x	0.5x	0.4x
Centrosolar	Euro	Sell	3.39	2.8	-17%	69	239			57.7x	5.6x		40.1x	15.7x	9.5x	0.7x	0.6x	0.6x	0.6x
Conergy	Euro	Sell	0.64	0.50	-22%	359	866				13.2x		32.6x	11.6x	8.0x	0.9x	0.7x	0.6x	0.5x
Phoenix Solar	Euro	Buy	33.99	52	53%	320	302	39.5x	11.4x	8.5x	6.8x	22.3x	6.9x	4.9x	3.9x	0.5x	0.4x	0.3x	0.3x
Solar Fabrik	Euro	Sell	3.8	2.5	-34%	63	80				14.2x			24.0x	9.4x	0.5x	0.5x	0.5x	0.4x
Solar Millennium	Euro	N	21.7	25.5	18%	383	451	8.5x	9.0x	6.0x	5.2x	6.7x	8.0x	7.2x	6.3x	1.4x	1.7x	2.1x	2.4x
Solaria Energia	Euro	N	2.19	2.2	0%	323	260	23.9x	20.4x	16.4x	13.8x	7.1x	6.0x	4.6x	4.2x	1.1x	0.9x	0.6x	0.5x
SOLON	Euro	Sell	9.25	8	-14%	163	722			7.2x	3.8x		14.2x	6.2x	4.5x	1.1x	0.8x	0.5x	0.4x
Sunways	Euro	Sell	2.62	2.1	-20%	43	84			12.4x	3.8x	10.3x	19.7x	4.9x	3.6x	0.5x	0.5x	0.3x	0.3x
Average					**-4%**	**1,889**	**3,258**	**30.1x**	**14.8x**	**16.8x**	**8.2x**	**12.0x**	**17.1x**	**9.5x**	**6.1x**	**0.8x**	**0.7x**	**0.7x**	**0.6x**
Solar Upstream																			
AMG	Euro	N	7.719	5	-35%	292	631	6.4x	4.6x	3.2x	2.9x	5.2x	4.3x	3.4x	3.4x	0.5x	0.5x	0.5x	0.4x
Ersol Solar	Euro	N	106	101	-5%	1,607	1,868	49.2x	60.6x	49.8x	60.0x	20.7x	17.5x	14.4x	14.2x	4.1x	3.7x	3.2x	3.3x
PV Crystalox	£	N	82.95	100	21%	571	444	10.4x	21.5x	16.0x	11.2x	5.3x	9.8x	6.8x	5.1x	1.5x	1.7x	1.5x	1.3x
Q-Cells	Euro	Sell *	11.93	8.5	-29%	1,910	2,429			71.2x	26.3x	25.7x	21.3x	14.5x	11.1x	2.0x	2.0x	2.0x	1.8x
Renesola	£	Buy *	156.75	275	75%	362	966		69.5x	6.4x	4.0x	109.2x	17.4x	8.7x	6.9x	1.9x	1.6x	1.2x	0.9x
REC	Nkr	N	43	40	-7%	4,655	6,087	52.5x	33.6x	16.8x	11.5x	17.9x	14.8x	9.6x	7.3x	5.0x	4.5x	3.2x	2.5x
SolarWorld	Euro	Sell	15.25	12	-21%	2,403	2,584	23.0x	31.4x	23.8x	12.2x	8.3x	8.9x	7.7x	5.6x	1.7x	1.4x	1.3x	1.1x
SMA Solar	Euro	Buy	53.85	80	49%	2,635	2,480	21.3x	17.7x	13.9x	10.1x	12.7x	9.7x	7.8x	5.7x	2.6x	1.8x	1.2x	1.0x
Average					**6%**	**14,434**	**17,489**	**27.1x**	**34.1x**	**25.1x**	**17.3x**	**25.6x**	**13.0x**	**9.1x**	**7.4x**	**2.4x**	**2.1x**	**1.8x**	**1.5x**
Solar Equipment manufacturers																			
Centrotherm	Euro	Buy	30	50	67%	895	813	20.2x	16.9x	11.7x	9.1x	10.0x	8.3x	6.0x	4.7x	1.2x	1.0x	0.7x	0.6x
Manz Automation	Euro	Buy *	41	80	94%	261	149		19.1x	11.8x	8.9x		5.3x	3.4x	2.4x	0.9x	0.5x	0.4x	0.3x
Meyer Burger	SFr	Buy	177	326	84%	497	485	26.8x	18.6x	11.1x	9.1x	14.0x	9.8x	6.1x	4.9x	1.4x	1.1x	0.7x	0.6x
Roth & Rau	Euro	Buy	19.99	40	100%	389	251	24.4x	17.6x	11.1x	8.6x	9.8x	7.2x	4.1x	3.1x	0.8x	0.7x	0.4x	0.3x
Average					**86%**	**2,043**	**1,698**	**23.8x**	**18.0x**	**11.4x**	**9.0x**	**11.3x**	**7.6x**	**4.9x**	**3.8x**	**1.1x**	**0.8x**	**0.5x**	**0.5x**
Solar average					**17%**	**18,366**	**22,445**	**27.3x**	**24.7x**	**19.2x**	**11.8x**	**18.7x**	**13.5x**	**8.5x**	**6.2x**	**1.5x**	**1.3x**	**1.1x**	**0.9x**

* denotes Conviction List membership. Price target timeframes are all 12 months, except solar equipment manufacturers (two years). For important disclosures, please go to http://www.gs.com/research/hedge.html. For methodology and risks associated with our price targets, please see our previously published research.

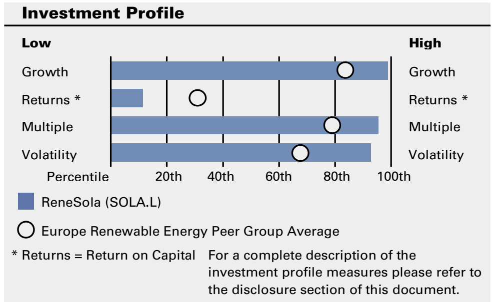
Source: Goldman Sachs Research estimates.

Exhibit 54: Risks to our target prices

Solar Downstream	
Aleo Solar	Upside: less severe price falls, faster cost declines and/or stronger demand than we expect. Downside: demand contracts faster, module prices fall faster and oversupply is more severe than we expect.
Centrosolar	Upside: Stronger demand than expected, with positive effects on pricing, margins and inventory.
Conergy	Upside: Financing is secured and production ramp-up and business restructuring prove successful, with potential for a third party to see value in Conergy's market position.
Phoenix Solar	Downside: continuing weak demand environment, leading to further price declines and inventory write-downs, and any further tightening in the credit markets, limiting project financing.
Solar Fabrik	Upside: A materially improved credit environment, increasing demand for solar panels.
Solar Millennium	Upside: new order inflow and takeover activity; Downside: project delays, regulatory obstacles, cost overrun, lack of financing availability
Solaria	Downside: Regulation in the Spanish market is more negative than expected leading to a major slow down in demand and a drop in price and margin expectations. Upside: Regulation is more positive than expected.
Solon	Upside: Stronger than expected demand affecting pricing, margins and inventory.
Sunways	Upside: Demand remains stronger than we anticipate, and improved pricing for cells and modules.
Solar Upstream	
AMG	Upside: Ramp up of solar silicon business occurs more successfully than expected; Downside: problems with ramp-up of silicon business
Ersol	Upside: Possible contested bid situation for remaining shares; Downside: transaction fails to close.
PV Crystalox	Upside: Stronger than expected demand and improved credit environment; Downside: prices fall faster and farther than expected, and that volumes are impacted by increased competition from lower cost Asian manufacturers
Q Cells	Upside: credit availability improves which, combined with improved solar project returns provided by component price falls, leads to an increase in demand for cells and hence price increases
ReneSola	Downside: Production delays and costs increases at the planned silicon facilities due to start in 2009E/2010E.
REC	Downside: continued problems with the ramp-up of FBR silicon projects. Upside: stronger demand and pricing than expected, and improved credit environment
Solarworld	Upside: stronger than expected demand affecting pricing, margin and inventory
SMA Solar	Downside: slowing demand and risks associated with SMA Solar's 3GW capacity expansion starting in 2009E
Solar Equipment	
Centrotherm	Downside: delays or cuts to orders in 2009/10.
Manz Automation	Downside: Further order intake deterioration through 2H2009E and early 2010E
Meyer Burger	Downside: equipment order cancellations and delays in 2009/10.
Roth & Rau	Downside: equipment order cancellations, increasing competition and internal business expansion and M&A execution risks

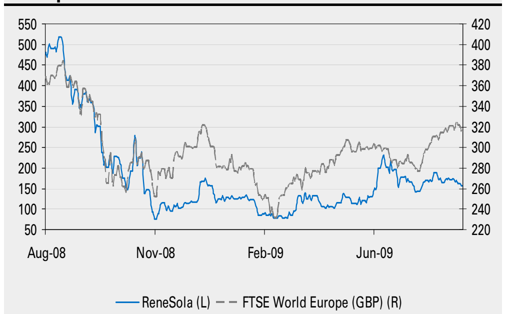
Source: Goldman Sachs Research estimates.

ReneSola (SOLA.L): Up to Buy and onto Conviction List on attractive thematic screening



Key data				Current
Price (p)				156.75
12 month price target (p)				275
Upside/(downside) (%)				75
Market cap (£ mn)				218.9
Enterprise value ($ mn)				966.3
	12/08	12/09E	12/10E	12/11E
Revenue ($ mn) New	**670.4**	**467.2**	**652.1**	**925.0**
Revenue revision (%)	0.0	0.3	(6.2)	3.8
EBIT ($ mn) New	**90.5**	**(12.5)**	**38.5**	**102.2**
EBIT revision (%)	0.0	(196.9)	(38.4)	(17.0)
EPS ($) New	**0.66**	**(0.23)**	**0.04**	**0.40**
EPS ($) Old	0.66	(0.16)	0.21	0.55
EV/EBITDA (X)	11.2	109.2	17.4	8.7
P/E (X)	9.9	NM	69.5	6.4
Dividend yield (%)	0.0	0.0	0.0	0.0
FCF yield (%)	(46.2)	(72.8)	(26.6)	(25.4)
CROCI (%)	25.1	1.2	5.2	9.7

Price performance chart



Share price performance (%)	3 month	6 month	12 month
Absolute	39.6	44.8	(67.4)
Rel. to FTSE World Europe (GBP)	32.2	20.5	(62.0)

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 8/18/2009 close.

Source of opportunity

We believe ReneSola is one of the solar industry leaders through the current downturn owing to its attractive cost structure, downstream production integration and China market exposure. It should be one of the lowest cost (US$/watt) manufacturers in the industry by 2010/11E, which could enable it to return to normalized EBIT margins (c.11%) on a two–year view. We believe the market is underestimating this potential EBIT margin recovery. Our 2011E sales and EBIT estimates are 10% and 32% below Reuters consensus. Our revised 12-month target price of 275p (from 215p) implies 75% potential upside and we upgrade ReneSola to Buy (from Neutral) and add it to the Conviction Buy List. While we remain cautious on the near-term prospects for solar manufacturers, longer term we believe the lowest cost producers that are well positioned in growth markets (like China) could outperform key European peers.

Catalyst

We see share price performance moving ahead of any EBIT margin improvement and forecast 2009E to be the trough in EBIT margins for ReneSola. We expect to see the company moving back towards ‘normalized’ EBIT margin levels in 2011E. Evidence of margin improvement at 3Q2009 results (November) is the key catalyst in our view. Aside from this, any project awards for solar development projects or major new orders for wafers would also be a positive catalyst.

Valuation

We value ReneSola using a mid-cycle EV/EBIT multiple of 12.5x based on 2011E earnings. Our 12-month target price of 275p (from 215p) implies 75% potential upside. ReneSola trades on a 2011E P/E multiple of 6.4x versus the European upstream solar average of 13.4x. ReneSola has historically traded at a c.20%-30% discount to European peers but we believe the current discount is too large and upgrade to Buy and add the shares to Conviction Buy List.

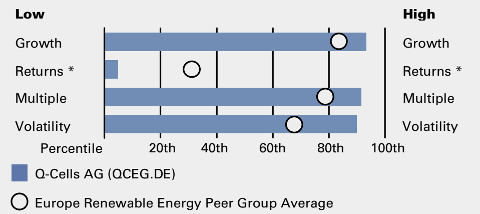
Key risks

The main downside risks to our view and target price are execution risks associated with ReneSola’s downstream solar integration and development plans. Further price pressures and contract order delays beyond what we already expect would also be negative for earnings.

Source: Company data, Goldman Sachs Research estimates, FactSet.

Q-Cells (QCEG.DE): Down to Sell/add to Conv List on fears of continuing margin pressure

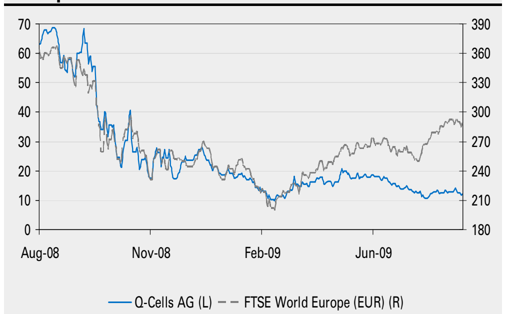
Investment Profile



* Returns = Return on Capital For a complete description of the investment profile measures please refer to the disclosure section of this document.

Key data				Current
Price (€)				11.93
12 month price target (€)				8.50
Upside/(downside) (%)				(29)
Market cap (€ mn)				1,354.0
Enterprise value (€ mn)				1,718.0
	12/08	12/09E	12/10E	12/11E
Revenue (€ mn) New	**1,251.3**	**859.2**	**814.0**	**905.2**
Revenue revision (%)	0.0	(0.4)	(28.6)	(38.6)
EBIT (€ mn) New	**205.1**	**10.6**	**6.3**	**45.6**
EBIT revision (%)	0.0	(3.9)	(93.5)	(77.1)
EPS (€) New	**1.68**	**(6.41)**	**(0.05)**	**0.17**
EPS (€) Old	1.68	(5.68)	0.60	1.18
EV/EBITDA (X)	26.8	24.5	21.3	14.5
P/E (X)	33.3	NM	NM	71.2
Dividend yield (%)	0.0	0.0	0.0	0.0
FCF yield (%)	(9.2)	(35.3)	8.3	(13.2)
CROCI (%)	6.6	2.3	3.6	5.1

Price performance chart



Share price performance (%)	3 month	6 month	12 month
Absolute	(32.0)	(25.7)	(81.1)
Rel. to FTSE World Europe (EUR)	(37.7)	(40.2)	(76.2)

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 8/18/2009 close.

Source of opportunity

Q-cells recently announced that it is to close nearly half of its German manufacturing facilities, and to delay the full expansion of the Malaysian facility, while scaling back investment plans into new technologies. This was a far reaching plan that incorporated significant cost reductions and working capital and capex savings, and is a solid response to very difficult market conditions. However, we fear that the structural cost disadvantage with which Q-Cells finds itself may take some time to clear, as we believe overcapacity in the industry may take 2-3 years to work through. During that period, the Asian players should continue to expand, utilizing their structurally lower cost bases to undercut on price and gain market share. Accordingly, margin recovery for Q-Cells may take some time to come through, and may only be modest when it does. The scaling back of capacity and expansion plans, while the right response, may ultimately leave Q-Cells with a two-centre model, with smaller operations in each, supporting cost structures of a historically larger business (e.g. Malaysia's originally intended 600MW). While Q-Cells' project business looks promising, we believe returns are being competed away, which creates further business risk by tying up capital when potential returns may fall. We downgrade the shares from Neutral to Sell and add them to the Conviction Sell List.

Catalyst

We believe that overcapacity and increasing competition from rapidly expanding Asian players leaves Q-Cells with an uncomfortable choice; to cut prices dramatically and try to retain market share but hurt margins, or to continue to lose market share while trying to protect margins (a losing battle in our view). Either is unattractive, and will lead, we believe, to continuing poor profitability, which will hold back stock performance.

Valuation

For upstream solar companies we use an EV/EBIT multiple of 12.5x in 2011E, which given the low EBIT and relatively high levels of debt produces a meaningless and highly sensitive valuation. Accordingly, we sense check this using EV/GCI, for which we use a multiple of 0.6x, half of the upstream peer average (as much of the capital was used to fund non-producing or now-closed assets). This produces a 12-month multiple-derived price target of €8.5, implying 29% potential downside, and hence we move to a Sell recommendation, adding the stock to our Conviction List. Even if we were to use normalized margins, the value would still be below our GCI approach. Accordingly, the risk of our forecasts being too negative has a limited impact on valuation, given that on a normalised basis the stock still screens as overvalued.

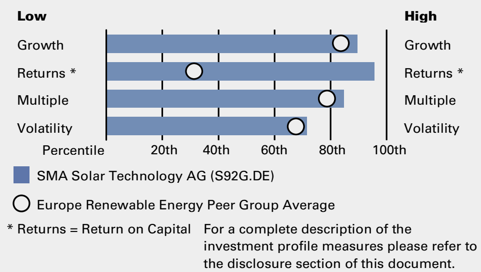
Key risks

Key positive risks to our view are that demand picks up more quickly than we expect leading to improved pricing, and that cost-cutting measures impact margins faster and to a greater extent than we currently forecast, allowing for more competitive pricing. Q-Cells may also prove an M&A target for consolidation/new entrants.

Source: Company data, Goldman Sachs Research estimates, FactSet.

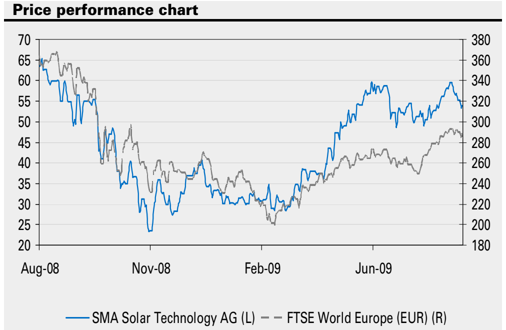
SMA Solar (S92G.DE): Up to Buy from Neutral

Investment Profile



Key data				Current
Price (€)				53.85
12 month price target (€)				80.00
Upside/(downside) (%)				49
Market cap (€ mn)				1,868.6
Enterprise value (€ mn)				1,759.9
	12/08	12/09E	12/10E	12/11E
Revenue (€ mn) New	**681.6**	**668.7**	**937.3**	**1,437.8**
Revenue revision (%)	0.0	9.0	14.5	31.7
EBIT (€ mn) New	**167.4**	**129.5**	**155.2**	**200.9**
EBIT revision (%)	0.0	7.1	(0.8)	4.0
EPS (€) New	**3.58**	**2.64**	**3.03**	**3.89**
EPS (€) Old	3.58	2.47	3.06	3.77
EV/EBITDA (X)	8.1	12.2	9.7	7.8
P/E (X)	12.9	20.4	17.7	13.9
Dividend yield (%)	2.2	1.5	1.4	1.4
FCF yield (%)	11.8	(2.0)	4.2	(1.9)
CROCI (%)	131.7	35.4	31.8	31.6

Price performance chart



Share price performance (%)	3 month	6 month	12 month
Absolute	6.8	68.3	(15.2)
Rel. to FTSE World Europe (EUR)	(2.1)	35.4	7.0

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 8/18/2009 close.

Source of opportunity

While we continue to be cautious on 2009E solar earnings across the sector we are more optimistic about volume growth in 2010/11E than previously. We now expect global solar module demand to be +59% in 2010E (vs. 35%) and +65% (vs. 40%) in 2011E as a result of falling solar prices, greater access to project finance (from next year) and profitable internal rate of returns (IRRs) on solar projects in selected regions driving high demand. We anticipate SMA Solar to be one of the main beneficiaries of this increased market growth and see it as a direct "volume play" within the sector. SMA holds an impressive c.40% global market share for solar inverters and is one of the industry's leaders on technology development and pricing.

In our view the market is too focused on what will likely be an uncertain and choppy 2H2009E for the solar sector to recognize the higher growth potential we expect in 2010/11E. Our 2010/11 sales forecasts are 10% and 35% above Reuters consensus respectively. We raise our 12-month target price to €80 (from €65) and upgrade to Buy (from Neutral).

Catalyst

SMA Solar is scheduled to report 3Q2009 results on November 13, 2009. While we do not expect financial guidance for 2010/11 at this time, we expect to see further evidence that falling solar prices and the improved availability of finance for solar projects through 2H2009 is improving demand. Any signals that SMA Solar has improved its market share would also be a positive catalyst.

Valuation

We value SMA Solar using a 15x EV/EBIT multiple on 2011E earnings. In our view, due to SMA's strong market share and patent protected IP, we believe it commands a premium multiple versus our solar upstream peers. Our 12-month target price of €80 (from €65) implies 49% potential upside. SMA Solar trades on a 2010/11E EV/EBITDA multiple of 9.7x and 7.8x vs. the European solar average of 13.0x and 9.1x.

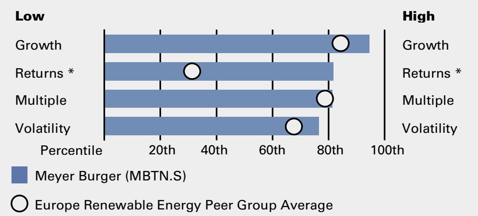
Key risks

The main downside risks are a continuation of weak solar demand leading to lower demand growth in 2010/11E than we forecast. There could also be margin pressure and market share erosion from increased competition within the inverter sector.

Source: Company data, Goldman Sachs Research estimates, FactSet.

Meyer Burger (MBTN.S): Upgrade to Buy from Neutral

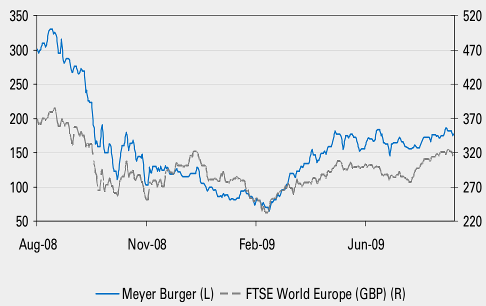
Investment Profile



* Returns = Return on Capital For a complete description of the investment profile measures please refer to the disclosure section of this document.

Key data				Current
Price (SFr)				177.00
2 year price target (SFr)				326.00
Upside/(downside) (%)				84
Market cap (SFr mn)				535.6
Enterprise value (SFr mn)				522.5
	12/08	12/09E	12/10E	12/11E
Revenue (SFr mn) New	**461.1**	**376.7**	**461.4**	**664.0**
Revenue revision (%)	0.0	5.5	17.4	43.0
EBIT (SFr mn) New	**77.1**	**28.2**	**39.2**	**65.3**
EBIT revision (%)	0.0	(8.4)	(1.2)	43.7
EPS (SFr) New	**12.60**	**6.85**	**9.53**	**16.02**
EPS (SFr) Old	12.60	7.51	9.74	11.40
EV/EBITDA (X)	7.4	13.5	9.8	6.1
P/E (X)	21.0	25.8	18.6	11.1
Dividend yield (%)	0.0	0.0	0.0	0.0
FCF yield (%)	0.3	(2.0)	6.7	6.1
CROCI (%)	87.4	18.2	19.7	26.3

Price performance chart



Share price performance (%)	3 month	6 month	12 month
Absolute	3.5	96.7	(41.1)
Rel. to FTSE World Europe (GBP)	(2.0)	63.7	(31.3)

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 8/18/2009 close.

Source of opportunity

In our view the market has not fully identified the cyclical inflection point (or trough in earnings and order intake) approaching for Meyer Burger. We have overlaid a semiconductor framework for analyzing cyclical semiconductor equipment stocks (see our May 13, 2009 report: *Bottoming of the solar equipment cycle*) to our solar equipment coverage and conclude that we are approaching a bottom for the current cycle and that this is a good time to build a position in Meyer Burger. We believe the order in-take levels will stabilize in 2H2009 or early part of 2010E and be a key catalyst for the share price. Our new 2-year (from 12-months) target price of SFr326 (from SFr225). Implies 84% potential upside and we upgrade from Neutral to Buy.

Catalyst

Stabilization in order inflow is the key catalyst. If semiconductor equipment stocks offer a useful guide then at the three previous inflection points the market has predicted the order inflow trough and the stocks have rallied strongly subsequently. We believe that this is approaching for Meyer Burger. Timing of the order inflow stabilization is difficult but we are comfortable with structural growth returning to the solar sector in 2H2009 or early 2010.

Valuation

Our 2-year (from 12-month) price target is based on a mid-cycle EV/EBIT multiple of 15x 2011E earnings. Meyer Burger currently trades on a 2010/11E EV/EBITDA of 9.8x and 6.1x vs. the European solar equipment average of 7.6x and 4.9x. On EV/sales, Meyer Burger trades on 1.4x 2009E while the semiconductor equipment stocks troughed above 2.0x. Our 2011E sales and EBIT estimates for Meyer Burger are 46% and 11% above Reuters consensus.

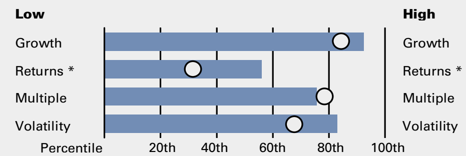
Key risks

The downside risk is that a 2H2009 recovery is delayed: with no stabilization in order in-take in 2H2009 or pick-up in new orders for early 2010 there would be downside risk for Meyer Burger, in our view.

Source: Company data, Goldman Sachs Research estimates, FactSet.

Centrotherm (CTNG.DE): Up to Buy from Neutral

Investment Profile



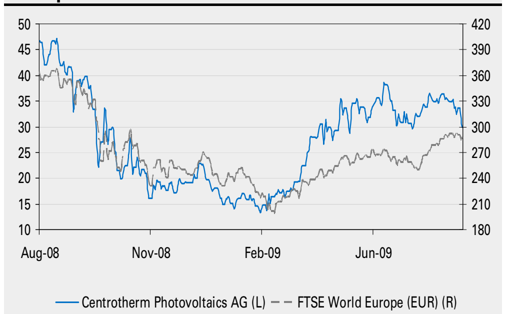
Centrotherm Photovoltaics AG (CTNG.DE)

Europe Renewable Energy Peer Group Average

* Returns = Return on Capital For a complete description of the investment profile measures please refer to the disclosure section of this document.

Key data				Current
Price (€)				30.00
2 year price target (€)				50.00
Upside/(downside) (%)				67
Market cap (€ mn)				634.9
Enterprise value (€ mn)				576.4
	12/08	12/09E	12/10E	12/11E
Revenue (€ mn) New	**374.7**	**470.8**	**552.0**	**808.8**
Revenue revision (%)	0.0	7.5	16.5	45.7
EBIT (€ mn) New	**43.5**	**44.7**	**51.6**	**75.3**
EBIT revision (%)	0.0	0.6	11.8	45.4
EPS (€) New	**2.06**	**1.55**	**1.77**	**2.56**
EPS (€) Old	2.06	1.54	1.60	1.79
EV/EBITDA (X)	11.4	9.6	8.3	6.0
P/E (X)	21.4	19.3	16.9	11.7
Dividend yield (%)	0.0	0.0	0.0	0.0
FCF yield (%)	9.1	(2.5)	3.8	0.7
CROCI (%)	23.2	14.0	13.5	16.0

Price performance chart



Share price performance (%)	3 month	6 month	12 month
Absolute	(13.0)	87.7	(35.9)
Rel. to FTSE World Europe (EUR)	(20.3)	51.0	(19.0)

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 8/18/2009 close.

Source of opportunity

Much like Meyer Burger, we believe the order inflow for Centrotherm is nearing a trough level (Centrotherm reported a 2Q2009 order intake of €14.5 mn, down 96% yoy). In our view this order intake level should stabilize in 2H2009 or early 2010E. We believe the market is too focused on weak 1H2009 results to recognize the structural growth that we expect will return to the sector in 2010. While we remain cautious on Centrotherm's 2009E earnings (2009E sales is c.10% below Reuters consensus and EBIT c.27% below), we are more optimistic about 2010/11E. Our 2011E sales forecast is 25% above Reuters consensus. Our new 2-year (from 12-months) target price of €50 (from €39) implies 67% potential upside.

Catalyst

Stabilization in order inflow is the key catalyst. If semiconductor equipment stocks offer a useful guide then at the three previous inflection points the market has predicted the order inflow trough and the stocks have rallied strongly subsequently. We believe this is approaching for Centrotherm. Timing of the order inflow stabilization is difficult but we are comfortable with structural growth returning to the solar sector in 2H2009 or early 2010.

Valuation

Our 2-year (from 12-months) price target is based on a mid-cycle EV/EBIT multiple of 15x 2011E earnings. Centrotherm currently trades on a 2010/11E EV/EBITDA of 8.3x and 6.0x vs. the European solar equipment averages of 7.6x and 4.9x. On EV/sales Centrotherm trades on 1.2x 2009E while the semiconductor equipment stocks troughed above 2.0x.

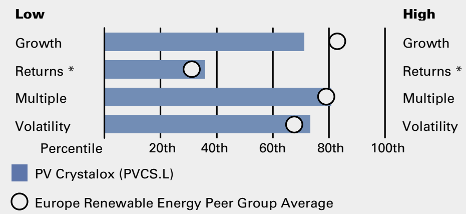
Key risks

We view project execution risks as the major downside risk for Centrotherm. Should any of the solar silicon or turnkey solar projects it is involved with be delayed, cancelled or incur significant cost overruns, we could need to downgrade our earnings expectations for 2009-11E.

Source: Company data, Goldman Sachs Research estimates, FactSet.

PV Crystalox (PVCS.L): Downgrade to Neutral from Buy

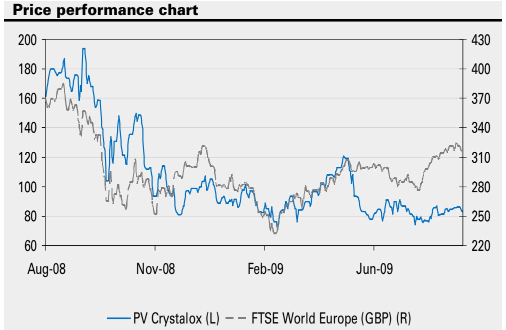
Investment Profile



* Returns = Return on Capital For a complete description of the investment profile measures please refer to the disclosure section of this document.

Key data				Current
Price (p)				82.95
12 month price target (p)				100
Upside/(downside) (%)				21
Market cap (£ mn)				345.7
Enterprise value (€ mn)				314.8
	12/08	12/09E	12/10E	12/11E
Revenue (€ mn) New	**274.1**	**208.1**	**193.8**	**205.1**
Revenue revision (%)	0.0	1.3	(3.7)	(20.9)
EBIT (€ mn) New	**106.5**	**56.1**	**24.9**	**35.2**
EBIT revision (%)	0.0	10.1	(23.9)	(49.5)
EPS (€) New	**0.16**	**0.10**	**0.05**	**0.06**
EPS (€) Old	0.16	0.09	0.06	0.12
EV/EBITDA (X)	6.3	5.1	9.8	6.8
P/E (X)	11.7	10.0	21.5	16.0
Dividend yield (%)	3.2	2.4	1.1	1.5
FCF yield (%)	1.5	10.4	2.4	6.9
CROCI (%)	34.8	20.2	10.4	13.0

Price performance chart



Share price performance (%)	3 month	6 month	12 month
Absolute	(10.8)	(5.2)	(48.6)
Rel. to FTSE World Europe (GBP)	(15.6)	(21.1)	(40.0)

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 8/18/2009 close.

What happened

We are removing PV Crystalox from the Buy List on faster falling spot prices in solar owing to increased competition from lower cost Asian manufacturing volumes. We see a risk of contract renegotiations, order delays and price pressure through 2009-2011E. Since being added to the List on June 4, 2009, the shares are down 0.1% against the coverage peer group's gain of -1.5%, and a gain in the FTSE World Europe index of 5.5% (over 12-months -48.6% vs. index -14.2 %).

Current view

PV Crystalox has a high quality customer base, with longer term contracts at attractive prices. However, reduced demand owing to a lack of financing for highly geared solar projects, combined with new capacity coming on stream, has led to a significant oversupply situation. Competition for these reduced volumes has intensified, with lower cost Asian manufacturers undercutting European competitors. This is leading to more significant price falls, happening more quickly than we had previously expected, and is demonstrated in the widespread guidance downgrades and weak figures being announced by European players, contrasted with guidance upgrades from certain Asian manufacturers.

While PV Crystalox's contracts should give it some insulation from these effects, we believe contract renegotiations downwards are now more likely, and hence reduce our pricing estimates for wafers further and downgrade our expectations for 2010/11E. This reduces our 12-month EV/EBIT multiple-derived price target to 100p (from 115p), implying 21% potential upside.

Key upside risks include stronger than expected demand, an improved credit environment and more resilient wafer pricing that we expect. Downside risks include pricing falling faster and further than expected, and that volumes are impacted by increased competition from Asian manufacturers.

Source: Company data, Goldman Sachs Research estimates, FactSet.

Exhibit 55: Share price performance of PV Crystalox versus peer group
Prices as of the close on August 18, 2009

Company	Ticker	Primary analyst	Price currency	Price as of Aug 18, 2009	Price performance since Jun 4, 2009	3 month price performance	6 month price performance	12 month price performance
Europe Renewable Energy Peer Group								
PV Crystalox	**PVCS.L**	**Stephen Benson**	**p**	**82.95**	**-0.1%**	**-10.8%**	**-5.2%**	**-48.6%**
Abengoa	ABG.MC	Mariano Alarco	€	15.53	-11.6%	22.3%	30.6%	-29.6%
Actelios	AA4.MI	Jason Channell	€	4.10	6.8%	30.2%	22.0%	-44.6%
Advanced Metallurgical Group	AMG.AS	Jason Channell	€	4.87	11.8%	-30.7%	-61.6%	-90.3%
Aleo Solar	AS1Gn.DE	Mariano Alarco	€	5.90	-9.0%	10.1%	6.5%	-55.1%
Centrosolar	C3OG.DE	Jason Channell	€	3.48	-13.9%	31.8%	-17.7%	-61.3%
Centrotherm Photovoltaics AG	CTNG.DE	Jason Channell	€	30.30	-13.4%	87.6%	44.8%	-46.7%
Ceramic Fuel Cells	CFU.L	Mariano Alarco	p	4.63	-38.3%	141.6%	-37.0%	-75.0%
Ceres Power	CWR.L	Mariano Alarco	p	137.00	-24.5%	17.6%	48.9%	-1.8%
Conergy AG	CGYG.DE	Mariano Alarco	€	0.78	4.0%	1.3%	-59.7%	-80.8%
CropEnergies	CE2G.DE	Mariano Alarco	€	2.79	-6.4%	-18.4%	11.6%	-1.8%
ERG Renew	ENRT.MI	Jason Channell	€	1.01	9.8%	17.4%	17.6%	-63.9%
Ersol Solar Energy AG	ES6G.DE	Jason Channell	€	105.90	0.8%	2.9%	-1.0%	59.5%
Fersa Energias	FRS.MC	Mariano Alarco	€	2.35	0.0%	9.8%	-5.2%	-51.4%
Gamesa Corp Tecnologica SA	GAM.MC	Mariano Alarco	€	14.78	1.4%	15.6%	14.2%	-53.3%
Greentech Energy Systems	G3E.CO	Jason Channell	Dkr	22.90	14.5%	13.9%	-5.0%	-72.4%
Gurit	GUR.S	Mariano Alarco	SFr	505.00	-14.7%	40.3%	-0.6%	-46.2%
Hansen Transmission	HSNT.L	Mariano Alarco	p	146.50	-1.7%	44.3%	40.5%	-34.9%
Manz Automation	M5ZG.DE	Jason Channell	€	33.27	-20.6%	13.5%	-37.3%	-78.9%
Martifer	MARTI.LS	Mariano Alarco	€	3.36	0.0%	2.4%	-7.2%	-62.4%
Meyer Burger	MBTN.S	Jason Channell	SFr	168.00	-1.7%	81.9%	15.1%	-41.9%
Nordex	NDXGk.DE	Jason Channell	€	14.26	8.0%	53.8%	31.9%	-50.4%
Novera Energy	NOEN.L	Jason Channell	p	44.75	-3.2%	17.0%	-8.7%	-51.6%
Phoenix Solar AG	PS4G.DE	Mariano Alarco	€	36.00	-3.4%	20.2%	62.7%	-8.0%
Plambeck Neue Energien	PNEGnk.DE	Jason Channell	€	2.68	41.2%	34.0%	117.9%	-10.4%
Protonex	PTX.L	Mariano Alarco	p	32.50	0.0%	-13.3%	-9.7%	-49.2%
Q-Cells AG	QCEG.DE	Jason Channell	€	19.25	7.1%	10.1%	-6.2%	-73.1%
ReneSola	SOLA.L	Jason Channell	p	125.75	-19.0%	4.6%	-9.2%	-73.9%
Renewable Energy Corporation	REC.OL	Mariano Alarco	Nkr	60.50	5.5%	-14.2%	15.2%	-64.2%
Renewable Energy Generation	RERWE.L	Jason Channell	p	56.00	50.3%	7.2%	-29.1%	-50.1%
REpower Systems	RPWGn.DE	Mariano Alarco	€	93.05	-18.9%	-8.2%	-14.0%	-55.5%
Roth & Rau	R8RG.DE	Jason Channell	€	19.04	-12.9%	39.3%	35.9%	-47.0%
Schmack Biogas	SB1Gn.DE	Mariano Alarco	€	5.33	-20.0%	3.1%	48.5%	-65.5%
Sechilienne-Sidec	SECH.PA	Jason Channell	€	25.07	2.9%	-12.6%	-7.8%	-51.8%
SFC Smart Fuel Cell	F3CG.DE	Mariano Alarco	€	5.86	4.6%	-9.1%	2.1%	-56.6%
SMA Solar Technology AG	S92G.DE	Jason Channell	€	52.76	-7.3%	76.5%	88.4%	NA
Solar Fabrik AG	SFXG.DE	Mariano Alarco	€	4.30	-3.8%	17.8%	-30.0%	-57.4%
Solar Millennium	S2MG.DE	Jason Channell	€	15.99	-3.7%	64.8%	41.0%	-47.5%
Solaria Energia	SLRS.MC	Mariano Alarco	€	2.22	-3.1%	6.2%	-8.3%	-80.1%
SolarWorld AG	SWVG.DE	Jason Channell	€	21.88	0.1%	31.4%	43.1%	-34.5%
SOLON SE	SOOG.DE	Mariano Alarco	€	11.99	18.2%	7.0%	-39.3%	-74.5%
Sunways AG	SWWG.DE	Jason Channell	€	2.76	15.5%	34.0%	-22.3%	-59.5%
Thenergo	THEB.BR	Jason Channell	€	2.02	-32.7%	-25.5%	-52.5%	NA
Theolia	TEO.PA	Jason Channell	€	3.58	10.2%	46.7%	-34.1%	-85.1%
Vestas Wind Systems	VWS.CO	Jason Channell	Dkr	390.00	3.2%	41.6%	57.7%	-31.7%
FTSE World Europe (GBP)				**316.75**	**5.5%**	**5.7%**	**20.1%**	**-14.2%**

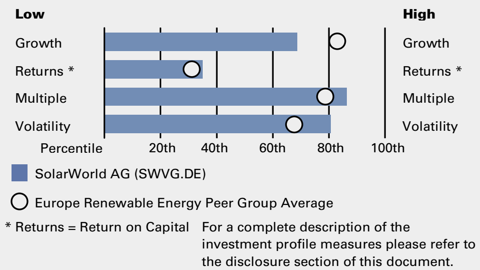
Note: Prices as of most recent available close, which could vary from the price date indicated above
This table shows movement in absolute share price and not total shareholder return. Results presented should not and cannot be viewed as an indicator of future performance.

Source: FactSet, Quantum database.

Goldman Sachs & Co., and/or one of its affiliates is acting as Corporate Broker to Hansen Transmission and as such is an associate of Hansen Transmission for the purpose of the Takeover Code.

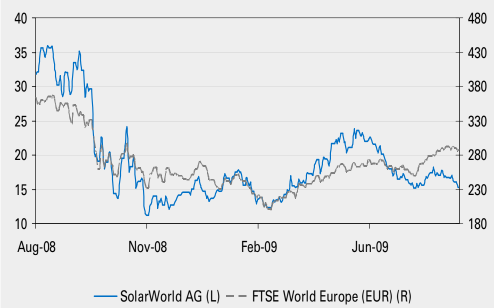
SolarWorld (SWVG.DE): Downgrade to Sell from Neutral

Investment Profile



Key data				Current
Price (€)				15.25
12 month price target (€)				12.00
Upside/(downside) (%)				(21)
Market cap (€ mn)				1,703.7
Enterprise value (€ mn)				1,834.1
	12/08	**12/09E**	**12/10E**	**12/11E**
Revenue (€ mn) New	**900.3**	**1,068.8**	**1,414.6**	**1,550.2**
Revenue revision (%)	0.0	15.6	37.9	13.4
EBIT (€ mn) New	**254.4**	**152.5**	**117.6**	**140.3**
EBIT revision (%)	0.0	(2.4)	(30.7)	(36.7)
EPS (€) New	**1.65**	**0.69**	**0.49**	**0.64**
EPS (€) Old	1.65	0.77	0.82	1.11
EV/EBITDA (X)	9.4	8.0	8.9	7.7
P/E (X)	16.9	22.0	31.4	23.8
Dividend yield (%)	0.7	0.7	0.5	0.6
FCF yield (%)	(0.3)	(13.2)	(6.1)	(4.9)
CROCI (%)	38.1	16.3	12.6	12.9

Price performance chart



Share price performance (%)	3 month	6 month	12 month
Absolute	(27.7)	(1.5)	(52.1)
Rel. to FTSE World Europe (EUR)	(33.7)	(20.8)	(39.5)

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 8/18/2009 close.

Source of opportunity

SolarWorld has been one the best performing renewable energy stocks in our coverage over the previous 12-months of the credit crisis (c.-40% vs. upstream solar peers c-.60%). Sales and EBIT margins have held up well through late 2008 and 1H2009 but we believe that downwards pressure on solar prices and weak demand will start to weigh on the company's performance. We expect a decline in group EBIT margins from the 2008 peaks of c.30% down to c.9%-10% in 2011E. Like most other predominantly Europe-based solar manufacturers we do not see SolarWorld as a long-term winner within the sector. Our cost structure analysis (based on 2008 actual data) highlighted SolarWorld as one of the industry's highest cost manufacturers.

We believe the market is giving too much credit to SolarWorld for its recent solid performance and we expect it to underperform our coverage over the next 12 months. We downgrade to Sell (from Neutral) with a 12-month target price of €12 (from €25) implying 21% potential downside.

Catalyst

SolarWorld will host an investor day on October 23 at its US Hillsboro solar wafer and cell manufacturing facility. We expect this to highlight continued price and EBIT margin pressure. Customer order deferrals and/or contract renegotiations would be a further negative catalyst. 3Q2009 results are expected on November 12, 2009.

Valuation

We value SolarWorld using a mid-cycle 12.5x EV/EBIT multiple on 2011E earnings. Our 12-month target price of €12 (from €25) implies 21% potential downside. SolarWorld trades on a 2010/11E EV/EBITDA multiple of 8.9x and 7.7x vs. the European solar averages of 13.0x and 9.1x.

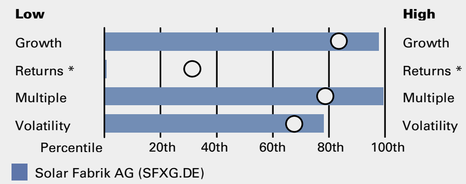
Key risks

Upside risks: if SolarWorld is able to maintain higher ASP's for its product vs. the industry average or cut production costs faster than we currently forecast. Major contract awards for solar materials or project development projects would be further upside risks.

Source: Company data, Goldman Sachs Research estimates, FactSet.

Solar Fabrik (SFXG.DE): Downgrade to Sell from Neutral

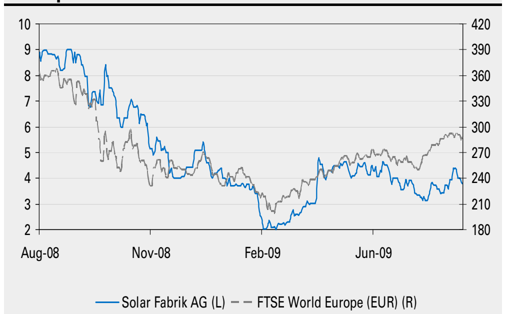
Investment Profile



* Returns = Return on Capital. For a complete description of the investment profile measures please refer to the disclosure section of this document.

Key data				Current
Price (€)				3.80
12 month price target (€)				2.50
Upside/(downside) (%)				(34)
Market cap (€ mn)				44.4
Enterprise value (€ mn)				57.1
	12/08	12/09E	12/10E	12/11E
Revenue (€ mn) New	**217.3**	**123.6**	**141.4**	**178.4**
Revenue revision (%)	0.0	(11.4)	(7.1)	(23.0)
EBIT (€ mn) New	**(5.6)**	**(13.7)**	**(5.8)**	**1.8**
EBIT revision (%)	0.0	(180.4)	(14.7)	NM
EPS (€) New	**(0.74)**	**(1.26)**	**(0.63)**	**(0.05)**
EPS (€) Old	(0.74)	(0.54)	(0.62)	(0.47)
EV/EBITDA (X)	NM	NM	NM	24.0
P/E (X)	NM	NM	NM	NM
Dividend yield (%)	0.0	0.0	0.0	0.0
FCF yield (%)	(28.5)	(5.5)	(31.0)	(34.2)
CROCI (%)	(29.7)	(22.3)	(9.7)	5.5

Price performance chart



Share price performance (%)	3 month	6 month	12 month
Absolute	(9.1)	2.7	(57.2)
Rel. to FTSE World Europe (EUR)	(16.7)	(17.4)	(46.0)

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 8/18/2009 close.

Source of opportunity

We believe the market is underestimating the downside risks to earnings for Solar Fabrik, a solar module and system producer. Notwithstanding the fact that Asian solar companies can produce solar products at a c.30% discount to European peers, we believe Solar Fabrik is negatively positioned within its European peer group based on our framework of balance sheet strength, cost structure and valuation. In terms of cost structure, it has one of the highest processing costs per Watt in 2008, with all its current module capacity in Germany (but some in-house cell capacity in Singapore). As industry capacity continues to move towards lower-cost Asian regions, there is the possibility that Solar Fabrik faces impairment charges for uncompetitive existing module lines. Within Europe, we believe a large market presence, a defensible brand or high sales exposure to China can help to defend revenue, but again, we do not see Solar Fabrik as attractively positioned on these measures. It recently sold its wafer preparation business, whereas we expect increasing levels of integration and the ability to expand and reinvest in new equipment and new regions to be key drivers of outperformance. We believe Solar Fabrik's balance sheet may not have the strength to do this, and we forecast negative EBITDA in both 2009E and 2010E, leading to distorted net debt/EBITDA ratios. The company had €22.5 mn credit facilities as of 2Q2009, which it believes is sufficient liquidity to last until at least April 30, 2010.

Based on these concerns, we downgrade Solar Fabrik to Sell with a new 12-month target price of €2.5 (from €4.4) implying 34% potential downside.

Catalyst

We expect industry-wide news of weak European demand and strong competition from Asia driving further price pressure to be a catalyst for share price underperformance. The 3Q2009 results on November 6, 2009, may give updates on the financing situation for Solar Fabrik, and we expect further losses at the EBIT and NI level. Other catalysts may be news of impairments in other solar companies as existing European capacity becomes uncompetitive.

Valuation

Our new 12-month target price of €2.5 (from €4.4) is derived from an EV/EBIT multiple of 9x in 2011E with EV/GCI as a sense-check. This implies 34% potential downside. We expect the company to be loss-making in 2009E-2010E, making earnings-based multiples in these years meaningless.

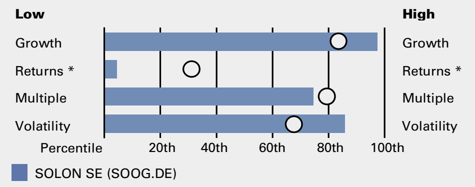
Key risks

The main upside risks to our view and price target are a significant overhaul of its cost structure, and a successful defense of or improvement of its market share within the German and international markets.

Source: Company data, Goldman Sachs Research estimates, FactSet.

Solon (SOOG.DE): Downgrade to Sell from Neutral

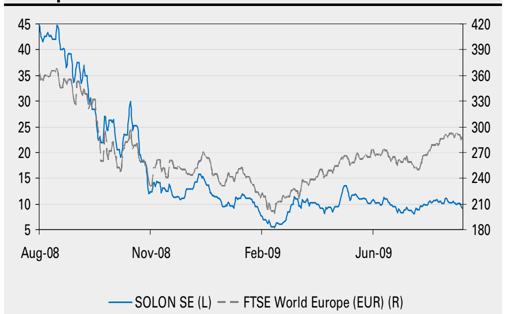
Investment Profile



* Returns = Return on Capital. For a complete description of the investment profile measures please refer to the disclosure section of this document.

Key data				Current
Price (€)				9.25
12 month price target (€)				8.00
Upside/(downside) (%)				(14)
Market cap (€ mn)				115.9
Enterprise value (€ mn)				511.9
	12/08	12/09E	12/10E	12/11E
Revenue (€ mn) New	**815.1**	**479.3**	**611.3**	**802.2**
Revenue revision (%)	0.0	(20.1)	(14.5)	(20.9)
EBIT (€ mn) New	**57.7**	**(29.6)**	**8.0**	**41.9**
EBIT revision (%)	0.0	NM	(69.4)	(15.6)
EPS (€) New	**1.74**	**(2.74)**	**(0.64)**	**1.29**
EPS (€) Old	1.74	(0.54)	0.35	1.95
EV/EBITDA (X)	12.4	NM	14.2	6.2
P/E (X)	23.5	NM	NM	7.2
Dividend yield (%)	0.0	0.0	0.0	0.0
FCF yield (%)	(38.2)	(22.3)	31.8	16.1
CROCI (%)	12.0	(2.0)	3.5	7.9

Price performance chart



Share price performance (%)	3 month	6 month	12 month
Absolute	(22.5)	(10.2)	(79.2)
Rel. to FTSE World Europe (EUR)	(29.0)	(27.8)	(73.8)

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 8/18/2009 close.

Source of opportunity

We believe the market is underestimating the downside risks to earnings for Solon as a European-based solar module manufacturer and power plant developer. Notwithstanding the fact that Asian solar companies offer a distinct cost advantage relative to European players, we believe Solon is negatively positioned within its European peer group based on our framework of balance sheet strength, cost structure and valuation. Its power plant business has been hit by lack of credit for large-scale projects that are typically 80% debt financed, and while credit conditions are starting to improve, Solon may suffer from its high exposure to Spain which has seen demand capped by government legislation. Solon currently has module capacity in Europe and the US but as industry capacity moves towards lower-cost Asian regions, there is a possibility that the company will face impairment charges for uncompetitive existing module lines. Solon has already announced a €52 mn impairment loss in 2Q2009 due to the insolvency of its French silicon-making subsidiary, SilPro. We are also concerned about balance sheet weakness with €240 mn of short-term debt at the 1Q2009 results that needs to be re-financed in the following 12 months, compared to a €45 mn unused credit facility. We forecast negative EBITDA in 2009E, but a return to profitability in 2010E. We do not believe these concerns are yet reflected in the current valuation, and as such we downgrade Solon to Sell, with a new 12-month target price of €8 (from €11.5) implying 14% potential downside.

Catalyst

We expect industry-wide news of weak European demand, tight credit conditions and strong competition from Asia driving further price pressure to be a catalyst for share price underperformance. We expect the 3Q2009 results on November 11, 2009 to be a catalyst with news of further project delays due to lack of financing, pricing and margin pressure and additional losses at the EBIT and NI levels. News of impairments in other solar companies as existing European capacity becomes uncompetitive may also act as a negative catalyst for the stock.

Valuation

Our new 12-month target price of €8 (from €11.5) is derived from an EV/EBIT multiple of 9x in 2011E with EV/GCI as a sense-check. This implies 14% potential upside.

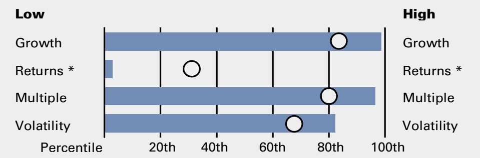
Key risks

The main upside risks to our view and price target are a significant easing of the credit markets leading to a pick-up in demand for large-scale projects, an overhaul of Solon’s cost structure, and a successful move away from Spain and into new markets.

Source: Company data, Goldman Sachs Research estimates, FactSet.

Sunways (SWWG.DE): Downgrade to Sell from Neutral

Investment Profile



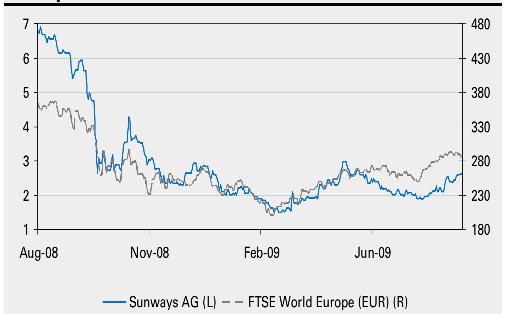
■ Sunways AG (SWWG.DE)

○ Europe Renewable Energy Peer Group Average

* Returns = Return on Capital For a complete description of the investment profile measures please refer to the disclosure section of this document.

Key data				Current
Price (€)				2.62
12 month price target (€)				2.10
Upside/(downside) (%)				(20)
Market cap (€ mn)				30.4
Enterprise value (€ mn)				59.4
	12/08	12/09E	12/10E	12/11E
Revenue (€ mn) New	**262.3**	**111.2**	**153.5**	**237.5**
Revenue revision (%)	0.0	(23.3)	(12.0)	(21.0)
EBIT (€ mn) New	**(1.5)**	**(0.1)**	**(3.4)**	**7.4**
EBIT revision (%)	0.0	91.7	NM	(42.0)
EPS (€) New	**(0.17)**	**(0.13)**	**(0.42)**	**0.21**
EPS (€) Old	(0.17)	(0.21)	(0.01)	0.53
EV/EBITDA (X)	27.8	9.8	19.7	4.9
P/E (X)	NM	NM	NM	12.4
Dividend yield (%)	0.0	0.0	0.0	0.0
FCF yield (%)	(22.7)	(61.9)	(48.5)	(1.5)
CROCI (%)	5.5	7.3	4.7	10.6

Price performance chart



Share price performance (%)	3 month	6 month	12 month
Absolute	0.8	27.8	(61.3)
Rel. to FTSE World Europe (EUR)	(7.7)	2.8	(51.1)

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 8/18/2009 close.

Source of opportunity

We believe the market is underestimating the downside risks to earnings for Sunways, a European solar cell and module manufacturer. With production sites solely in Europe, and Asian solar companies being able to offer products c.30% cheaper than in Europe, we do not believe Sunways is a long-term structural winner. Within its European peer group, it screens unattractively on our framework of balance sheet strength, cost structure and valuation. On the cost side, it has the highest processing and overhead costs of its cell manufacturing peers. As industry capacity moves towards lower-cost Asian regions, there is the possibility that Sunways faces impairment charges for uncompetitive existing module lines. We are also concerned about balance sheet weakness with net debt/EBITDA ratios already greater than 4x in both 2009E and 2010E; we believe that European companies will need to invest heavily in new equipment, locations and capacity to compete effectively. In our view the Sunways product is not a highly differentiated offering and lacks a dominant market share, and as such in this time of oversupply, we fear there could be significant competition from cheaper Asian imports.

We do not believe valuation looks attractive on a normalized earnings level, and as such we downgrade Sunways to Sell with a new 12-month target price of €2.1 (from €2.5) implying 20% potential downside.

Catalyst

We expect industry-wide news of weak European demand, tight credit conditions and strong competition from Asia driving further price pressure to be a catalyst for share price underperformance. We expect the 3Q2009 results on November 13, 2009, to be a catalyst with news of further pricing and margin pressure and potential losses at the NI level. News of impairments in other solar companies as existing European capacity becomes uncompetitive may also act as a negative catalyst for the stock.

Valuation

Our new 12-month target price of €2.1 (from €2.5) is derived from an EV/EBIT multiple of 9x in 2011E with EV/GCI as a sense-check. This implies 20% potential upside.

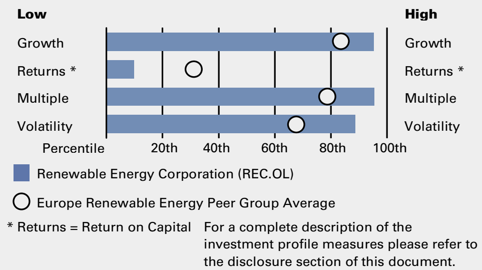
Key risks

The main upside risks to our view and price target are a significant easing of the credit markets leading to a pick-up in demand for large-scale projects, an overhaul of Solon's cost structure, and a successful move away from Spain and into new markets.

Source: Company data, Goldman Sachs Research estimates, FactSet.

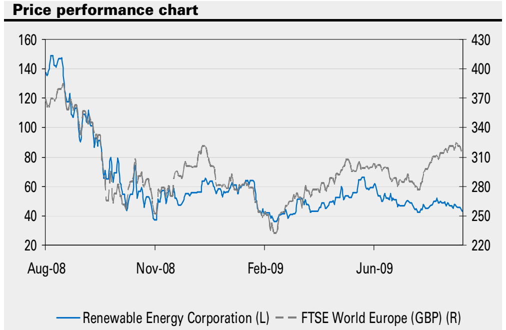
Renewable Energy Corporation (REC.OL): Downgrade to Neutral from Buy

Investment Profile



Key data				Current
Price (Nkr)				43.00
12 month price target (Nkr)				40.00
Upside/(downside) (%)				(7)
Market cap (Nkr mn)				28,571.5
Enterprise value (Nkr mn)				37,336.4
	12/08	12/09E	12/10E	12/11E
Revenue (Nkr mn) New	**8,191.0**	**7,506.7**	**9,669.6**	**13,791.0**
Revenue revision (%)	0.0	(2.4)	(16.9)	(17.5)
EBIT (Nkr mn) New	**2,604.9**	**1,069.5**	**1,422.6**	**2,857.5**
EBIT revision (%)	0.0	(9.0)	(40.6)	(26.9)
EPS (Nkr) New	**3.37**	**0.88**	**1.28**	**2.56**
EPS (Nkr) Old	3.37	1.33	2.30	3.75
EV/EBITDA (X)	20.9	16.6	14.8	9.6
P/E (X)	33.6	48.8	33.6	16.8
Dividend yield (%)	0.0	0.0	0.0	0.0
FCF yield (%)	(12.1)	(43.3)	(8.3)	(4.9)
CROCI (%)	13.7	4.5	4.6	7.4

Price performance chart



Share price performance (%)	3 month	6 month	12 month
Absolute	(23.5)	(17.8)	(68.7)
Rel. to FTSE World Europe (GBP)	(27.6)	(31.6)	(63.6)

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 8/18/2009 close.

What happened

We are removing REC from the Buy List on the back of our industry analysis and earnings revisions and downgrade it to Neutral. Since being added to the List on May 13, 2009, the stock is down 18.2% vs. the FTSE World Europe up 10.4% (in Nkr) and our Alternative Energy coverage up 8.6%. In that same period, our large-cap Alternative energy names are down 13.6%. Over a 12-month period, the stock is down 68.7% vs the FTSE World Europe down 13.8% (in Nkr) and our sector down 44.6%. REC remains on our GS SUSTAIN focus list.

Current view

We believe the European solar manufacturing industry has entered a period of structural decline, driven by aggressive competition from new entrants in China, aiming for market share growth on a global basis. Our analysis indicates that Asian companies can produce solar products at a c. 30% discount to European peers. This means our only favoured areas within European solar are the solar equipment manufacturers (with significant intellectual property, large global market shares, and high exposure to the fast growing BRICs regions), and the volume-driven companies such as installers and developers. While REC is doing the right thing, we believe, in expanding and investing in lower-cost regions, it does not screen as attractively on the other two aspects of our framework: balance sheet strength and valuation on a normalized earnings level.

The stock currently trades on 15.6x EV/EBIT in 2011E in line with the European solar upstream average of 15.5x . Our revised 12-month target price of Nkr40 (from Nkr61) is derived from an EV/EBIT multiple of 15x on 2011E, cross-checked with EV/GCI. In line with the rest of our sector, we lower our EPS estimates by between 32% and 44% 2009-2011E. With 7% potential downside to our revised target price, we downgrade the stock to Neutral.

Key downside risks to our view and price target are continued price pressure across the value chain and operational problems at REC's new facilities. Key upside risks are a faster than expected recovery in solar demand reducing pricing pressure, and a rapid ramp-up of the new FBR facility leading to high earnings growth in 2010 and beyond.

Source: Company data, Goldman Sachs Research estimates, FactSet.

Exhibit 56: Share price performance of REC versus peer group
Prices as of the close on August 18, 2009

Company	Ticker	Primary analyst	Price currency	Price as of Aug 18, 2009	Price performance since May 13, 2009	3 month price performance	6 month price performance	12 month price performance
Europe Renewable Energy Peer Group								
Renewable Energy Corporation	**REC.OL**	**Mariano Alarco**	**Nkr**	**43.00**	**-18.2%**	**-23.5%**	**-17.8%**	**-68.7%**
Abengoa	ABG.MC	Mariano Alarco	€	18.75	23.1%	8.5%	55.2%	11.5%
Actelios	AA4.MI	Jason Channell	€	3.87	-3.7%	-4.7%	23.7%	-43.2%
Advanced Metallurgical Group	AMG.AS	Stephen Benson	€	7.72	82.2%	70.5%	16.3%	-81.2%
Aleo Solar	AS1Gn.DE	Mariano Alarco	€	8.97	53.9%	66.7%	83.1%	-7.1%
Centrosolar	C3OG.DE	Jason Channell	€	3.39	0.3%	9.4%	42.4%	-60.8%
Centrotherm Photovoltaics AG	CTNG.DE	Stephen Benson	€	30.00	4.3%	-13.0%	87.7%	-35.9%
Ceramic Fuel Cells	CFU.L	Mariano Alarco	p	8.38	61.1%	59.5%	363.2%	-45.3%
Ceres Power	CWR.L	Mariano Alarco	p	210.00	50.3%	22.8%	89.2%	-4.1%
Conergy AG	CGYG.DE	Mariano Alarco	€	0.64	-11.1%	-15.8%	-9.9%	-80.3%
CropEnergies	CE2G.DE	Mariano Alarco	€	2.89	6.6%	-2.0%	-6.2%	-9.1%
ERG Renew	ENRT.MI	Jason Channell	€	0.85	-12.8%	-12.1%	-5.5%	-59.1%
Ersol Solar Energy AG	ES6G.DE	Jason Channell	€	106.00	1.2%	1.0%	3.1%	4.4%
Fersa Energias	FRS.MC	Mariano Alarco	€	2.07	-8.8%	-7.2%	-4.6%	-44.8%
Gamesa Corp Tecnologica SA	GAM.MC	Mariano Alarco	€	15.10	8.9%	-0.6%	24.4%	-48.8%
Greentech Energy Systems	G3E.CO	Jason Channell	Dkr	24.50	11.4%	-2.0%	25.6%	-60.2%
Gurit	GUR.S	Mariano Alarco	SFr	540.00	8.4%	6.5%	48.1%	-43.8%
Hansen Transmission	HSNT.L	Mariano Alarco	p	137.50	3.8%	2.0%	41.8%	-51.4%
Manz Automation	M5ZG.DE	Stephen Benson	€	41.32	19.9%	4.6%	43.8%	-71.4%
Martifer	MARTI.LS	Mariano Alarco	€	3.38	5.6%	3.0%	8.3%	-46.6%
Meyer Burger	MBTN.S	Stephen Benson	SFr	177.00	14.9%	3.5%	96.7%	-41.1%
Nordex	NDXGk.DE	Stephen Benson	€	12.65	-0.5%	-10.8%	44.9%	-44.0%
Novera Energy	NOEN.L	Jason Channell	p	46.50	7.5%	0.5%	21.6%	-41.1%
Phoenix Solar AG	PS4G.DE	Mariano Alarco	€	33.99	-0.4%	-7.8%	8.2%	-30.4%
Plambeck Neue Energien	PNEGnk.DE	Jason Channell	€	2.20	-14.1%	-18.2%	22.3%	-23.5%
Protonex	PTX.L	Mariano Alarco	p	32.50	0.0%	0.0%	-13.3%	-45.8%
PV Crystalox	PVCS.L	Stephen Benson	p	82.95	-19.1%	-10.8%	-5.2%	-48.6%
Q-Cells AG	QCEG.DE	Jason Channell	€	11.93	-32.9%	-32.0%	-25.7%	-81.1%
ReneSola	SOLA.L	Stephen Benson	p	156.75	36.9%	39.6%	44.8%	-67.4%
Renewable Energy Generation	RERWE.L	Jason Channell	p	37.50	-33.9%	-29.2%	-29.2%	-70.1%
REpower Systems	RPWGn.DE	Mariano Alarco	€	106.00	18.0%	18.7%	8.6%	-48.1%
Roth & Rau	R8RG.DE	Stephen Benson	€	19.99	11.1%	-2.8%	57.4%	-31.9%
Schmack Biogas	SB1Gn.DE	Mariano Alarco	€	4.85	-4.2%	-6.0%	7.8%	-56.4%
Sechilienne-Sidec	SECH.PA	Jason Channell	€	27.80	13.5%	13.1%	10.4%	-44.6%
SFC Smart Fuel Cell	F3CG.DE	Mariano Alarco	€	5.90	1.7%	1.7%	-7.1%	-6.1%
SMA Solar Technology AG	S92G.DE	Stephen Benson	€	53.85	7.7%	6.8%	68.3%	-15.2%
Solar Fabrik AG	SFXG.DE	Mariano Alarco	€	3.80	-8.4%	-9.1%	2.7%	-57.2%
Solar Millennium	S2MG.DE	Jason Channell	€	21.70	49.1%	40.5%	148.0%	-6.1%
Solaria Energia	SLRS.MC	Mariano Alarco	€	2.19	2.3%	1.9%	5.8%	-57.2%
SolarWorld AG	SWVG.DE	Stephen Benson	€	15.25	-24.9%	-27.7%	-1.5%	-52.1%
SOLON SE	SOOG.DE	Mariano Alarco	€	9.25	-13.4%	-22.5%	-10.2%	-79.2%
Sunways AG	SWWG.DE	Stephen Benson	€	2.62	-3.0%	0.8%	27.8%	-61.3%
Thenergo	THEB.BR	Jason Channell	€	2.90	45.0%	45.0%	26.6%	NA
Theolia	TEO.PA	Jason Channell	€	4.77	46.8%	35.5%	149.7%	-69.2%
Vestas Wind Systems	VWS.CO	Jason Channell	Dkr	377.50	-0.8%	-7.9%	26.9%	-39.3%
FTSE World Europe (GBP)				**316.75**	**7.4%**	**5.7%**	**20.1%**	**-14.2%**
Index performance in stock price currency				**32.13**	**10.4%**	**7.6%**	**22.0%**	**-13.8%**

Note: Prices as of most recent available close, which could vary from the price date indicated above
This table shows movement in absolute share price and not total shareholder return. Results presented should not and cannot be viewed as an indicator of future performance.

Source: FactSet, Quantum database.

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