

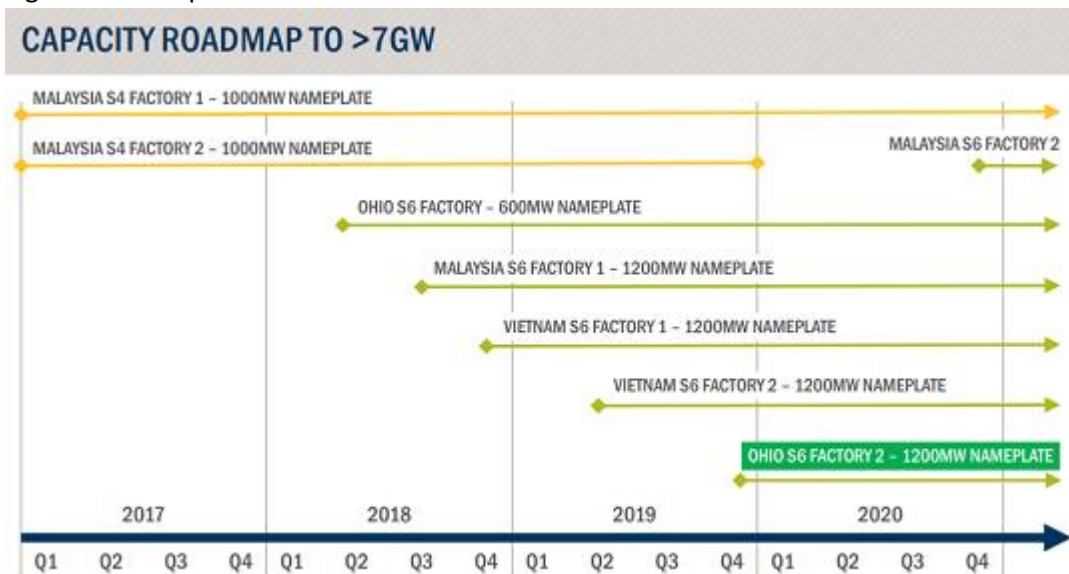
First solar (FSLR) analysis and intrinsic value

I'll first describe the key factors for the company and then focus on what we know and what we don't know to determine the investment's risk reward.

Key points:

- 1) Growth from current 2,000 MW yearly production to 7,600 MW at the end of 2020 as new factories are built in Malaysia, Vietnam and the U.S.

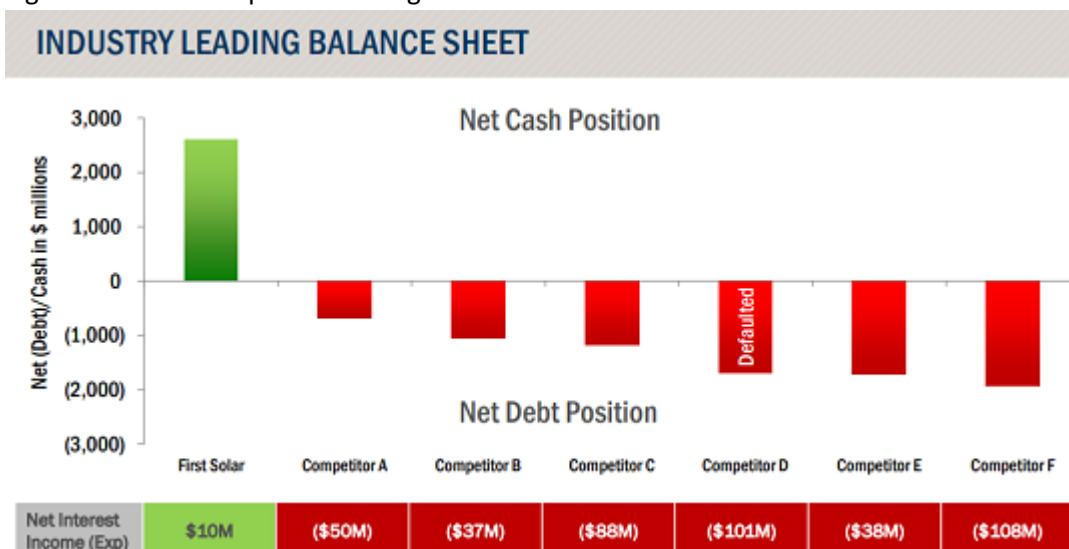
Figure 1 FSLR's plans



Source: [FSLR](#)

- 2) FSLR has a net cash position of \$2.4 billion which is huge

Figure 2 FSLR's cash position is huge



Source: [FSLR](#)

The cash makes about one third of the market cap which means that FSLR's net price is closer to \$50 rather than \$75.

3) Transition from phase 4 to phase 6 module

The company is transitioning from a smaller phase 4 module to a bigger phase 6 module. However, there are challenges in ramping up and series 6 2018 is expected to be at the lower end of guidance.

4) 8.3 GW bookings as of last quarter (distributed to 2020 and beyond)

Total cumulative production for FSLR will be 15GW over 2018, 2019 and 2020 where the company as of the last conference call in April 2018 had 11.8GW practically sold they still need to book 3.2GW over the next two and a half years. The management is confident this could be easily done.

5) Fixed OPEX to drive margin expansion and EPS

Further, series 6 is already 40% cheaper than series 4 and further improvements are expected in efficiency and cost. OPEX is expected to be down to \$0.05 per watt in 2020.

What do we know?

We know that FSLR will probably deliver and sell what it has planned in the next 3 years which should lead to earnings per share of \$1.75, \$3 and \$5 in the next three years respectively. In 2020 we could see much lower costs thanks to scale while the fixed prices booked in 2018 and 2019 would give FSLR improving margins and at least \$5 billion in revenue. This could result in net earnings between \$500 and \$700 million that translates in \$5 or \$7 EPS. There is a high probability that FSLR achieves these levels in the next 3 years, the key is what we and the market don't know.

What we don't know?

What all would like to know is what will happen after 2020, how will margins perform and what will be the general demand for solar panels. However, we can try and estimate to see what might happen. We have to look at the technology FSLR uses, what is expected in the future, demand and issues that might arise with solar in this specific case. FSLR is investing significant money to be ready and reap a nice return if things stay as they are but the industry is extremely cyclical and there are no moats.

Technology

FSLR uses cadmium telluride (CdTe) solar cells which is different from the crystalline silicon used commonly. Crystalline silicon PV costs more to make but is a bit more efficient.

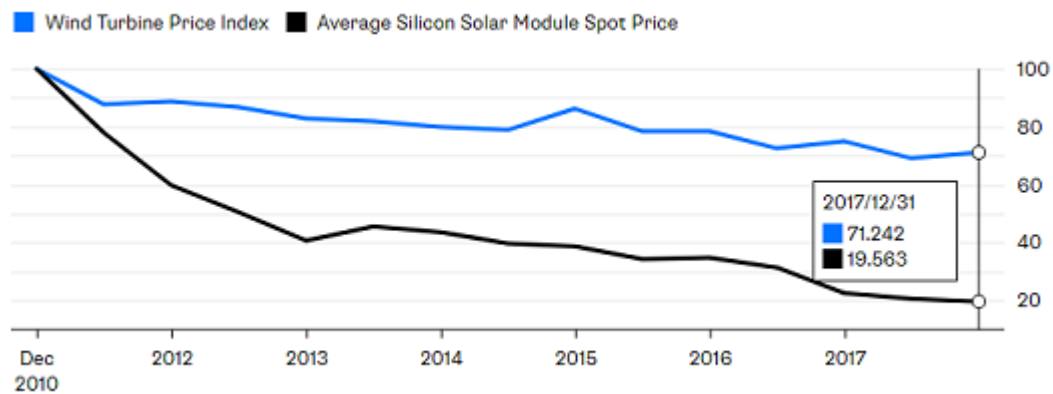
Cyclical

The solar industry is notorious for its cyclical. For example, if there is a new improved technology coming up, many will not make deals in order to wait for the improvements which could lower plant utilization with those that have older systems.

The constant improvement in technology further forces manufacturers to constantly invest in new technologies and new, improved manufacturing plans.

The cost of solar panels is constantly declining and consequently margins depend on efficiency improvements. Solar panels are now priced at just 20% of their 2012 cost.

Figure 3 Solar panel and wind turbine price index (start 100)

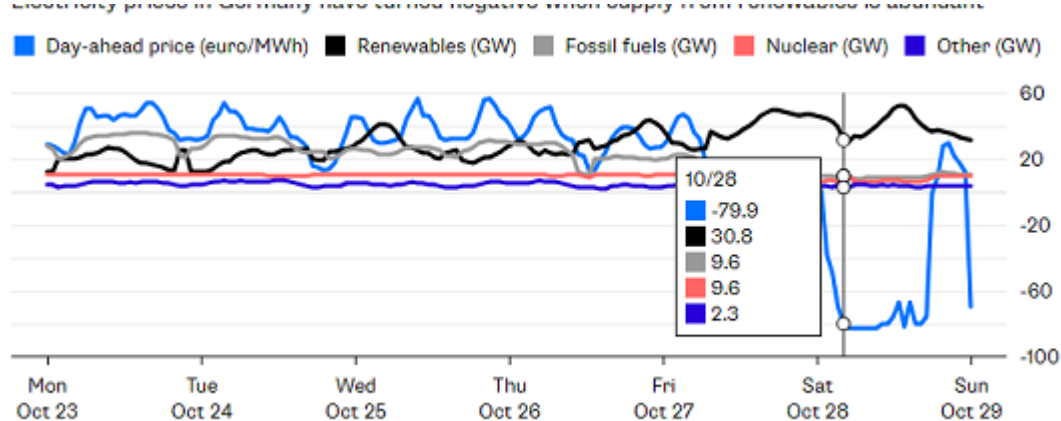


Source: [Bloomberg](#)

Another interesting thing to see is that FSLR is ramping up a manufacturing plant of 1GW in about a year which means others can do that too.

Plus, there is something very interesting with solar. As there is not that much energy demand when solar produces the most energy, energy prices drop significantly during the strongest renewable production which isn't a positive for solar farms. The thing that could really give a push to solar is storage but we are still far from that so we have to expect volatility in the sector.

Figure 4 Energy prices turn negative during peak renewable production times



Source: [Bloomberg](#)

Earnings model

I do not estimate linearity with FSLR but a maximum EPS of \$7 in 2021 that declines to \$3 over the long term as margins compress and others take part of the profits which is something normal in the industry.

Figure 5 Earnings model based on optimistic expectations

2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
\$1.75	\$3.00	\$5.00	\$7.00	\$5.00	\$3.00	\$5.00	\$7.00	\$3.00	\$5.00	\$7.00

Source: Author's estimations

If I add the \$25 dollars of cash the company has we can say that the company is fairly priced based on the management's expectations. If they don't reach \$7 in earnings per share in 2012 but \$3 and stabilize around that, the fair price is much lower. However, if they reach \$5 in 2019 and expect to reach \$7 in 2020 with good demand going forward we might see a price of \$140 at a valuation of 20 but that is a bit too risky for my taste.

Conclusion

Given the narrow moat, practically no moat except for scale, the fast changing environment and the high capex necessary to chase profits quickly FSLR is a bit too risky over the long term. If their margins remain and margin contraction is postponed the stock will go up. So, highish potential reward but the risk is also high. Let's continue analyzing the most interesting solar stocks to see whether we can take advantage of the trend with low risk and high potential reward.

To finish with the most interesting question asked in the last conference call where Benjamin Joseph Kallo from Robert W. Baird & Co., Inc. first discussed how it seems there is nothing left to do for FSLR and what will the management do to counter this situation? The management's answer for the short term was focused on taxes, upside potential from project sales, higher aluminum and steel prices due to tariffs while on the long term the management will try to add growth from EPC (engineering, procurement and construction) projects, managing OPEX at scale.

So, very prudent management without taking too much risk which perfectly describes FSLR. The company is unlikely to go bust so it is a company to keep on a watch list for better risk reward opportunities during the next decade but the risk reward is not that attractive at this point in time.