

**Financial Analysis of First Solar, Inc.**

*2018 and 2022*

Chad Efaw

Department of Public Administration, West Virginia University

PUBA 620: Public Financial Management

October 8th, 2023

**Company Overview:**

First Solar, Inc. is a solar technology company based in the United States. Founded by Michael Ahern in 1999, the company designs, manufactures, and sells cadmium telluride (CdTe) solar modules (First Solar, 2023). First Solar is the largest solar panel manufacturer in the United States with over 2.4GW of manufacturing capacity (Zientara, 2019). This analysis uses First Solar's annual 10K reports submitted to the U.S. Securities and Exchange Commission (SEC) to provide insight into the company for years ending in 2018 and 2022 (First Solar, 2018; First Solar, 2022).

This analysis is structured as follows: first, an examination of the current solar panel manufacturing environment is presented to place First Solar's performance in context as well as insight into two distinct political actions – one in 2018, the other in 2022 – are juxtaposed to provide key insights into First Solar's financial history and trajectory; next, financial ratios are presented to provide an immediate and consistent understanding of First Solar's solvency and liquidity for the examined years; finally, this analysis concludes with an investment recommendation of First Solar, Inc.

**Solar Panel Manufacturer Environment**

The market for thin-film photovoltaic solar panels is booming. From Q2 2022 to Q2 2023, the market increased total installed capacity by 20% (Wood Mackenzie, 2023, p.4). While 2022 was a down year, Wood Mackenzie expects the solar industry to grow by 52% in 2023 (p. 4). In fact, both Wood Mackenzie and Grand View Research expect the industry to grow by an average of 15% per year until 2030 (Grand View Research, 2023). Between 2018 and 2022, solar panel installations increased on average 127% (SEIA, 2023)

The solar industry is divided into two categories: utility-scale and distributed. Distributed is further divided into three segments: residential, commercial, community. As a solar panel module manufacturer, First Solar sells to all categories and market segments. Utility-scale installed 3.3GW in Q2 2023 and increased 101% from 2018 to 2022. Residential solar is the largest segment in the distributed category with 1.8GW installed capacity in 2022 and increased 125% from 2018 to 2022; next, the commercial solar segment installed 345MW and increased 55.35% from 2018 to 2022; and, finally, the community solar segment installed 226MW in Q2 2023 and increased 250% from 2018 2022. Each of these categories and attendant segments experienced growth in the examined time frame.

### **Political Insights**

Between 2018 and 2022, there were two distinct political actions that affected First Solar's – and the solar industry as a whole – performance: President Trump's tariffs on imported solar panel modules and President Biden's signing of the Inflation Reduction Act.

#### *2018 Tariffs on Imported Solar Modules*

Under the direction of President Trump, the United States Trade Representative (USTR) launched an investigation into Chinese solar panel manufacturing policies (Congressional Research Service, 2021). This investigation – using authority granted to the USTR under section 201 of the Trade Act of 1974 – concluded that Chinese firms undermined U.S. state and corporate interests. A 30% tariff was imposed on solar modules from countries except “certain WTO members” and NAFTA countries. These “safeguard” protections were implemented to protect domestic solar panel manufacturers and decrease foreign imports – or, at least make foreign imports more expensive on the margin. First Solar's net sales increased 36.50% from 2018 to 2019.

### *Inflation Reduction Act*

President Biden signed H.R. 5374 (P.L. 117-169) into law on August 16, 2022. This law – also known as the Inflation Reduction Act – contains eight titles and multiple sections relating to the production, installation, and operation of electricity generation. In all, roughly 393.7 billion dollars will be invested in clean energy over the next decade (Kumar, et al., 2022). Of that 393 billion, roughly 70 billion will go directly to domestic clean electricity production. First Solar stands to gain immensely as the largest solar panel manufacturer in the United States.

### **Financial Ratios**

First Solar's fundamentals suggest that the company is liquid and not burdened by debt. This analysis assesses five key ratios to determine the solvency, liquidity, and leverage of First Solar between 2018 and 2022. Annual, audited corporate 10-K forms were used for this portion of the analysis. Additional data and context is also provided such as net income (or loss) over time. The five ratios analyzed are as follows: cash ratio; current ratio; quick ratio; debt ratio; and debt-to-capital ratio.

**Table 1**

*First Solar's Cash, Current, Quick, Debt, and Debt-to-Capital Ratios*

| Ratio                 | 2018  | 2022  | Percent Change |
|-----------------------|-------|-------|----------------|
| Cash Ratio            | 1.66  | 1.43  | -20.13%        |
| Current Ratio         | 4.57  | 3.65  | -13.86%        |
| Quick Ratio           | 3.16  | 2.80  | -11.39         |
| Debt Ratio            | 6.55% | 2.22% | -66.41%        |
| Debt-to-Capital Ratio | 8.10% | 3.10% | -61.73%        |

### *Cash Ratio*

The first ratio considered is the cash ratio. This ratio is a simple and powerful measure of liquidity – can First Solar cover its short-term liabilities using only cash and cash equivalents.

Table 2 provides First Solar’s cash and cash equivalents and current liabilities for the examined years. First Solar’s Cash Ratio for 2018 was 1.66 while 2022 was slightly lower with 1.43. This ratio means that for every dollar in liabilities, First Solar has \$1.66 and \$1.43, respectively, exclusively in cash.

**Table 2**

*First Solar’s Cash and Cash Equivalents and Current Liabilities (in thousands), and Cash Ratio*

| Year | Cash and Cash Equivalents | Current Liabilities | Cash Ratio |
|------|---------------------------|---------------------|------------|
| 2018 | \$1,403,562.00            | \$845,457.00        | 1.66       |
| 2022 | \$1,481,269.00            | \$1,038,048.00      | 1.43       |

### *Current Ratio*

The second ratio for this analysis is the current ratio. Like the cash ratio, the current ratio is a measure of liquidity that assesses a company’s ability to cover current liabilities – that is, liabilities due within the year – using only current assets. This ratio strictly measures current assets divided by current liabilities. In 2018, for every \$1.00 of current liabilities, First Solar had \$4.57 in current assets. While this ratio decreased in 2022 – First Solar had a current ratio of 3.65 – the company still had \$3.65 of current assets for every dollar in current liabilities.

**Table 3**

*First Solar’s Current Assets and Current Liabilities (in thousands), and Current Ratio*

| Year | Current Assets | Current Liabilities | Current Ratio |
|------|----------------|---------------------|---------------|
| 2018 | \$3,859,523.00 | \$845,457.00        | 4.57          |
| 2022 | \$3,791,421.00 | \$1,038,048.00      | 3.65          |

### *Quick Ratio*

The next ratio considered is the quick ratio. Similar to both the cash and current ratios, the quick ratio is a measure of short-term liquidity. The quick ratio, also called the ‘acid test’, looks at “quick” assets such as cash, cash equivalents, marketable securities, and net accounts receivable. Table 4 provides a consolidation of quick assets into a single number. Quick assets are defined as cash and cash equivalents, marketable securities, and net accounts receivable. First Solar had a quick ratio of 3.16 in 2018 and 2.80 in 2022. While this drop is noticeable, the company still maintained at least \$2.80 in quick assets for every \$1.00 in current liabilities.

**Table 4**

*First Solar’s Quick Assets and Current Liabilities (in thousands), and Quick Ratio*

| Year | Quick Assets   | Current Liabilities | Quick Ratio |
|------|----------------|---------------------|-------------|
| 2018 | \$2,675,548.00 | \$845,457.00        | 3.16        |
| 2022 | \$2,902,318.00 | \$1,038,048.00      | 2.80        |

The next two ratios considered are leverage ratios: debt and debt-to-capital ratios. These ratios assess how burdened – or leveraged – the company is by debt. Debt can be risky. If interest rates change, a company may struggle to pay its debts. Fortunately, First Solar has little debt. Table 5 provides First Solar’s total debt, total asset and its debt ratio. This ratio is presented as a percentage – rather than a number – as the ratio provides the analyst the company’s leverage. In First Solar’s case, this is not an issue. First Solar borrows very little money.

In 2018, First Solar’s debt ratio was 6.50%. In 2022, the company’s debt ratio decreased to 2.23%.

**Table 5***First Solar's Total Debt and Total Assets (in thousands), and Debt Ratio*

| Year | Total Debt   | Total Assets   | Debt Ratio |
|------|--------------|----------------|------------|
| 2018 | \$461,221.00 | \$7,121,362.00 | 6.50%      |
| 2022 | \$184,349.00 | \$8,251,228.00 | 2.23%      |

*Debt-to-Capital Ratio*

The final leverage ratio for this analysis is the debt-to-capital ratio. This ratio, like the debt ratio, considers how leveraged a company is by debt; how the company is structured and finances activities; and how exposed to risk it is in the event of high interest rates.

**Table 6***First Solar's Total Debt and Stockholder's Equity (in thousands), and Debt-to-Capital Ratio*

| Year | Total Debt   | Stockholder's Equity | Debt-to-Capital Ratio |
|------|--------------|----------------------|-----------------------|
| 2018 | \$461,221.00 | \$5,212,403.00       | 8.10%                 |
| 2022 | \$184,349.00 | \$5,836,066.00       | 3.10%                 |

**Other Financial Considerations:**

Ratios, leverage, and liquidity have the tendency to obscure company fundamentals. Analyzing just two years, too, has the ability to obscure rather than illuminate. Consider table 7. This table provides a simple comparison of net income (or loss) for First Solar in years ending in 2018 and then in 2022. First Solar experienced a significantly large net loss in 2022.

**Table 7***First Solar's Net Income (in thousands) for 2018 and 2022*

| Year | Net Income (Loss) |
|------|-------------------|
|------|-------------------|

|      |                   |
|------|-------------------|
| 2018 | \$144,326,000.00  |
| 2022 | (\$44,166,000.00) |

Table 8, however, provides a slightly different picture.. First Solar's net income for 2020 and 2021 was, respectively, 176% and 225% higher than 2018. In the longer run, 2022 was an anomaly. In fact, the entire solar industry contracted roughly 13% in 2022 (Wood Mackenzie, 2023).

**Table 8**

*First Solar's Net Income (in thousands): 2017 through 2022*

| Year | Net Income (Loss) |
|------|-------------------|
| 2017 | (\$166,615.00)    |
| 2018 | \$144,326.00      |
| 2019 | \$144,933.00      |
| 2020 | \$398,355.00      |
| 2021 | \$468,693.00      |
| 2022 | (\$44,166.00)     |

### **Investment Recommendation**

First Solar, Inc, is a worthwhile investment. This analysis shows that First Solar has ample short-term resources to cover current liabilities; a low debt-to-asset and long-term liability ratio; and increasing revenues between 2018 and 2022. While First Solar experienced a net loss of income in 2022, this seems to be an industry-wide trend and not forecasted into the future. Further, the Inflation Reduction Act is a major investment in domestic energy production, from which First Solar will benefit greatly.



## References

- Congressional Research Service. (2022). *Inflation Reduction Act of 2022 (IRA): Provisions Related to Climate Change*.
- Congressional Research Service. (2021). *Section 201 Safeguards on Solar Products and Washing Machines*.
- Congressional Research Service. (2018). *Safeguards: Section 201 of the Trade Act of 1974*.
- First Solar. (2023, October 7). *About Us and Overview*.  
<https://www.firstsolar.com/en/About-Us/Overview>
- First Solar, Inc. (2018). *Form 10-K 2018*. U.S. Securities and Exchange Commission. Retrieved from <http://www.sec.gov/edgar.shtml>.
- First Solar, Inc. (2022). *Form 10-K 2022*. U.S. Securities and Exchange Commission. Retrieved from <http://www.sec.gov/edgar.shtml>.
- Grand View Research. (n.d.). *Solar Energy Systems Market Size, share report, 2022 - 2030*.  
*Solar Energy Systems Market Size, Share Report, 2022 - 2030*.  
<https://www.grandviewresearch.com/industry-analysis/solar-energy-system-market-report>
- Kumar, A., O'Rourke, S., S., Mehta, N., Badlam, J., Silvis, J., & Cox, J. (2022, October 24). *The inflation reduction act: Here's what's in it*. McKinsey & Company.  
<https://www.mckinsey.com/industries/public-sector/our-insights/the-inflation-reduction-act-heres-whats-in-it>
- Solar Industry Research Data*. SEIA. (n.d.). <https://www.seia.org/solar-industry-research-data>

Wood Mackenzie. (2023). *US Solar Market Insight - Executive Summary, Q3 2023*.

Zientara, B. (2019, May 10). *Top 5 American solar panel manufacturers in 2023*. Solar Reviews.

<https://www.solarreviews.com/blog/best-american-solar-panel-manufacturers>