

“The battlefield is a scene of constant chaos. The winner will be the one who controls that chaos, both his own and the enemies’.”

Napoléon Bonaparte (1769-1821)

LOOKING AT THE SUN WITH OPEN EYES

OUTLINE

This newsletter has four sections, a description of our analysis process, a discussion of the financial metrics that actually drive valuations in the solar and telecom world, an examination of “truisms” in the financial and technology industries, and glimpses of proprietary modeling of the valuations of these industries themselves.

APPROACH

The public solar companies we analyzed are makers of solar cells and solar cell modules. These companies are dispersed throughout the world: in Europe, North America and China. The companies include: Canadian Solar, China Sunergy, Evergreen Solar, First Solar, GT Solar International, JA Solar, LDK Solar, Q-cells, ReneSola, Solarfun Power, SolarWorld, Solon, SunPower, SunTech Power, Trina Solar, and Yingli Green Energy.

As before, we began the analysis by extracting, standardizing and then combining the financial statements of these companies, calling them the “Solar Group” (SG). This provided a picture of the overall health of the industry. We then compared the SG to the “Telecom Group” (TG) using a wide variety of metrics. The members of the TG are listed [here](#).

A previous newsletter compared the financial performance of these two sectors through a boom/bust cycle. That July 2009 newsletter may be found [here](#).

First, a series of tests are used to find the metrics that best correlated to the stock value of the companies. Next, common business beliefs and “rules of thumb” are tested for these two industries. Following this, proprietary time-dependent valuation models for the companies are demonstrated, showing which companies are over- or under-valued based upon how the stock market treats key metrics and how these valuation discrepancies resolve over time.

All figures are based upon Generally Accepted Accounting Principles (GAAP) numbers, or their international equivalents, with no pro-forma results considered. A full discussion of why pro-forma numbers are excluded may be found [here](#).

WHAT REALLY MATTERS

In business, people develop general ideas that guide their decision-making, including timing of business expansion, mergers, divestitures, and investments. These ideas are often based upon assumptions of how businesses function and how investors value companies. To begin, these assumptions are tested using numerical analysis that includes investor behavior, publically available financial information and additional external information. This process gives the correlation of financial metrics to company valuations.

A key point emerges through this work. Different sectors are valued by very different standards. To illustrate this, we compare the Telecom Group (TG) boom, Q1 1998 through Q4 2000, to the Solar Group (SG) ramp, Q1 2006 through Q3 2008. As you will see, the investment community responds completely differently in valuing these two industries.

In Figure 1, a Metric Chart is shown for the SG covering the time-period Q1 2006 through Q3 2008. Based on statistical analysis, metrics that had little impact upon the valuations of companies are shaded grey. Metrics that correlate well with corporate valuation are colored either red or green. When the cell is green, the investor is rewarding the company in a fashion that conforms to business intuition relative to long-term viability. As an example, if investors value companies with higher gross margins, the chart is green over that period of time. When cells are red, investors appear to be rewarding the “wrong” behavior. As an example, in Q1 2006, the investors briefly showed a tendency to give higher valuations to companies with lower revenue growth rates.

Solar Group

Metric	Q1 2006	Q2 2006	Q3 2006	Q4 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007	Q1 2008	Q2 2008	Q3 2008
Revenue	Grey	Grey	Grey	Grey	Green	Green	Green	Green	Green	Green	Green
Revenue Growth (q/q)	Red	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Gross Margin(%)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
OpEx (% of Revenue)	Green	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Other OpEx (% of Revenue)	Green	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Net Income	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Acid Test ^{A-1}	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Working Capital	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Retained Earnings	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Return on Investment (Net Income/Assets)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Return on Sales (Net Income/Sales)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Return on Equity (Net Income/Equity)	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Cash conversion cycle	Grey	Grey	Grey	Grey	Green	Green	Green	Green	Green	Green	Green
Financial Leverage (Assets/ShareholdersEquity)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Intangible/Total Assets	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red

Figure 1. The key drivers of valuation for the SG. Grey areas are of little interest to investors. For cells in green, valuations are increased as the metrics improve. Red cells indicate that companies that do worse on the metric are actually valued more by investors than companies that do well. In this case of SG, investors are rewarding larger, profitable companies.

In the SG, the correlation of key metrics to valuations is fairly consistent throughout time. In general, the investors reward companies in this space for improving metric performance in ways that are aligned with long-term company and industry health. The only exception to this is a slight bias towards companies that have higher intangible assets, effectively rewarding companies for being acquisitive.

Key point: The primary drivers for valuation in the Solar Group are revenue, gross margin, net income, return on assets, and return on sales.

Key point: The investment community is only slightly concerned by liquidity and debt issues.

Key point: The investment community provides higher valuations to solar companies that are strengthening their overall company performance, encouraging healthy sector behavior.

Telecom Sector

Figure 2 graphically shows that investors treated the TG very differently during the optical communications boom. The most striking observation is that investors were very focused upon revenue, and this focus increased throughout the boom period. Further, investors appeared to “reward” companies that had the highest spending on operational expenses, lost the most money, and did the most expensive M&A. Although we are not implying that analysts liked telecom players to lose money, we remind the reader that there was a strong belief that with a sufficiently large revenue stream, companies could easily become very profitable, *sometime in the future*.

Metric	Q1 1998	Q2 1998	Q3 1998	Q4 1998	Q1 1999	Q2 1999	Q3 1999	Q4 1999	Q1 2000	Q2 2000	Q3 2000	Q4 2000
Revenue	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Revenue Growth (q/q)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Gross Margin(%)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
OpEx (% of Revenue)	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Other OpEx (% of Revenue)	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Net Income	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Acid Test ^{^1}	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Working Capital	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Retained Earnings	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Return on Investment (Net Income/Assets)	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Return on Sales (Net Income/Sales)	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Return on Equity (Net Income/Equity)	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Cash conversion cycle	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Financial Leverage (Assets/ShareholdersEquity)	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Intangible/Total Assets	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red

Figure 2. The key drivers of valuation for the optical component vendors in telecommunications. Investors were very focused upon revenue, and did not penalize companies with very poor performance on a wide variety of core metrics.

Figure 2 graphically shows that investors treated the TG very differently during the optical communications boom. The most striking observation is that investors were very focused upon revenue, and this focus increased throughout the boom period. Further, investors appeared to “reward” companies that had the highest spending on operational expenses, lost the most money, and did the most M&A. Although we are not implying that analysts liked telecom players to lose money, we remind the reader that there was a strong belief that with a sufficiently large revenue stream, companies could easily become very profitable sometime in the future.

This inappropriate focus upon revenue led management teams to take actions that damaged the long-term structure of the entire industry. Operational spending was, and is,

inappropriately high for the margin structure of the business. M&A activity occurred at a frenzied rate despite the fact that losses were rampant due to the inability to make acquisitions accretive. Despite almost epic demand, gross margins began sliding in the ramp as companies struggled to gain market share. The practice of extensively using pro-forma numbers, excluding M&A and inventory write-downs, restructuring, and similar financial charges became both common and aggressive.

To this day, it is not uncommon to see telecom companies with high fixed-cost manufacturing assets attempt to focus investors upon fairly esoteric metrics, like “pro-forma EBITDA” (earnings before interest and taxes less depreciation and amortization) or “contribution margin” of a telecom business unit. The former effectively excludes the cost of owning the high fixed cost assets, while the latter ignores a wide range of operational expenses. Both are strategies undertaken to make a business appear healthier than it actually is.

These behaviors led to a technologically sophisticated industry that would ultimately lose approximately \$70 billion, disrupting the lives of thousands of employees and countless investors. A small irony of the industry is that from 1999 through the to present, only three companies, Avanex, Oplink, and Optium were able to demonstrate four consecutive quarters of GAAP profitability. Of those companies, only Oplink still exists.

Key point: *During the telecom boom, investors were overwhelmingly focused upon revenue, allowing companies to achieve very high valuations while performing very poorly on many business metrics.*

Key point: *Investors, and employees, should view as very risky industries where businesses are rewarded for behaviors that in the long-term are destructive to companies and ultimately to the industry.*

Key point: *The investment community did not penalize companies for a lack of profitability, poor M&A performance, or unbridled growth of intangible assets. This inappropriate focus upon size incentivized companies to make decisions that harmed the long-term health of the sector.*

“TRUTH IS NEVER PURE AND RARELY SIMPLE” - O. WILDE

BUSTING THE CONVENTIONAL WISDOM

In operating businesses, many decisions must be made with limited data and under a fair amount of pressure. In those situations, executives and investors often fall back upon underlying beliefs about business. After seeing that the investor community valued the TG and SG totally differently, it seemed appropriate to test common business “rules of thumb” used in high-tech to see if these beliefs hold across sectors.

Business Belief	Telecom	Solar
Bigger companies generate big profits	BUSTED!	True!
Bigger companies have better ROS	BUSTED!	Maybe
Companies that grow fastest are highly profitable	BUSTED!	BUSTED!
Investors recognize that one-time charges indicate big trouble	BUSTED!	True!
Investors like M&A as a growth strategy	True!	Neutral
High corporate debt troubles investors	Maybe	Slightly
Liquidity issues trouble investors	True!	Slightly
Investors like companies that are profitable	BUSTED!	True!
Investors like companies with a history of making money	BUSTED!	Maybe
Investor really like the big player	True!	Maybe

Figure 3. Common High-Tech Business Rules of Thumb.

The Solar Group holds no big surprises. Perhaps the most interesting points are that investors are fairly indifferent to liquidity and debt problems, despite analysts pointing out the potential dangers.

By contrast, many of these common beliefs simply don't apply at all for the Telecom Group. The larger companies have not been able to show that size can be leveraged into profitability. On the investor side, both private and public, the focus upon market share and revenue, coupled with a willingness to overlook poor performance in profitability, has drained value out of this sector.

Key point: Most common rules of thumb work for the Solar Group.

Key point: The fact that Telecom Group investors no longer correlate business metrics to common rules of thumb is an example of investors' influence driving dysfunctional company behavior. The overwhelming investor demand for increasing revenue, at the expense of both profitability and liquidity has resulted in intrinsic value being drained from the industry.

SOLAR AND TELECOM VALUATIONS

[There are many different ways to determine the value of a company.](#) Some are calculations of future profit streams, discounted for risk. Others look in general terms at current valuations of similar companies. Quite often these methods produce very different valuations.

Our analysis takes a different approach to the valuation of companies within a sector. It assumes that investors are rational about pricing, and those investors link corporate valuations to corporate performance. At a high level, the method is straightforward--sophisticated mathematical tools are used to determine the linkage between the performance of the sector and how investors process available financial data. Although the determination of valuation in this way is mathematically complex, it incorporates corporate performance and Market response in a fluid, dynamic way. As an example, the valuations of the Telecom Group are shown in Figure 2. The vertical axis is actual enterprise value (with scaling) with the horizontal axis being the predicted enterprise value (again scaled).

Understanding this chart is quite easy, if a company is below the solid line, it is undervalued, above the line, the company is overvalued. Recall that the TG was valued during this timeframe with an inordinate focus upon revenue scale, with other metrics being secondary. This produces a simple model that shows company values that are very efficiently priced.

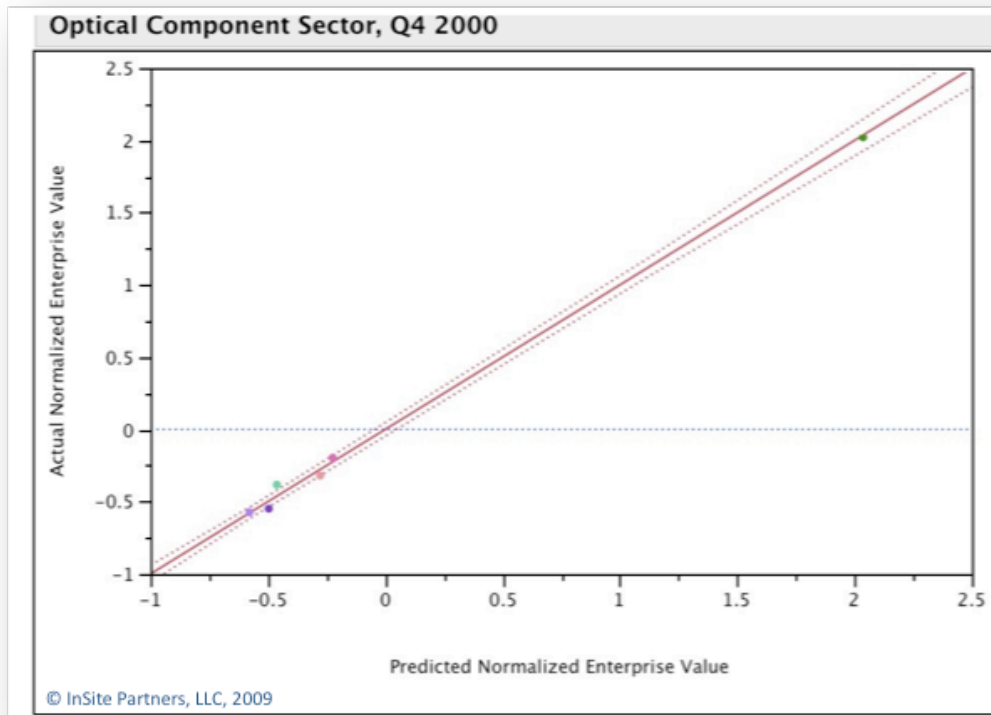


Figure 4. The valuations of the TG in Q4 2000. The Market is focused upon revenue as the primary valuation driver. No company appears mispriced.

Key point: *In a sector where investors are focused on very few metrics, pricing of the companies is very efficient.*

The investors in the Solar Group are sensitive to more metrics, producing the valuation model shown in Figure 5. This figure shows that in Q3, 2007 three companies were substantially overvalued. Since that time, the Market has corrected this pricing discrepancy for two of these companies. To see a short video that shows how solar valuation inefficiencies resolve over time, please click [here](#).

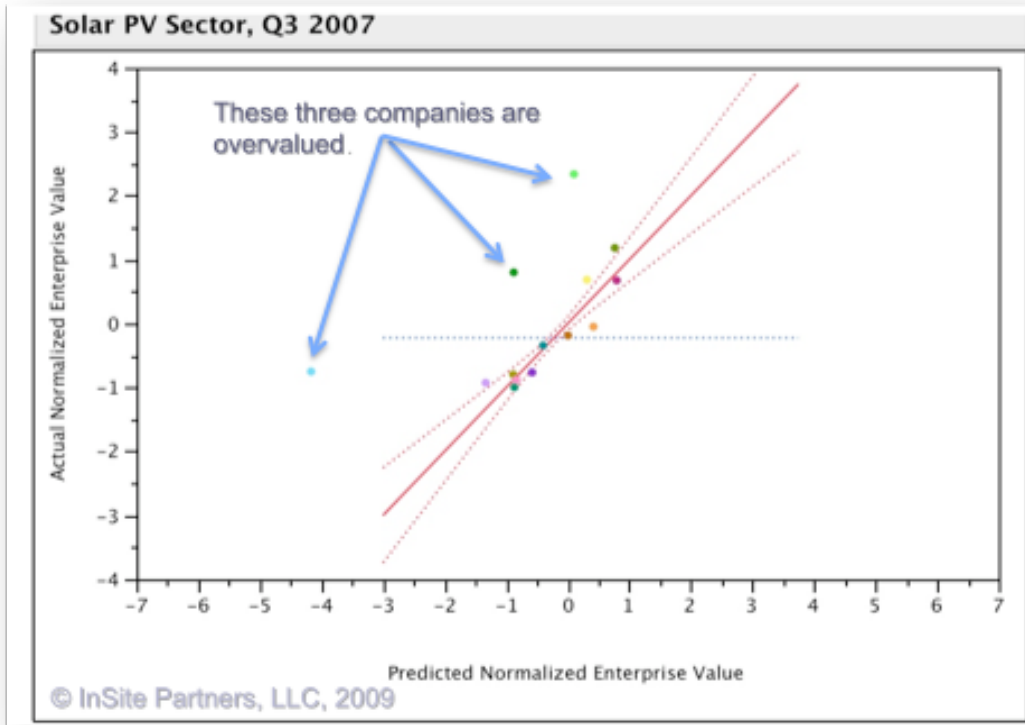


Figure 5. The valuations of the SG in Q3 2009. Investors value several metrics. In this quarter, three companies (above the diagonal red line) are overvalued.

Key point: Corporate valuations in developing industries do exhibit pricing discrepancies.

Key point: These pricing inefficiencies can persist for extended periods of time prior to correction.

CONCLUSIONS

By using numerical analysis to build models of company valuations relative to each other within an industry sector, it is possible to show what metrics are most influential in determining whether a company is over- or under-valued relative to its competitors. This information can be used by different groups of people to help make crucial decisions that maximize the return to their respective constituents.

- ✓ Management teams can understand and drive performance against metrics that improve their companies' market valuations.
- ✓ Both Management and Boards can better understand decisions relative to the timing of large financial consequences.
- ✓ Public companies can guide compensation programs to focus variable pay on metrics that enhance corporate value.
- ✓ External investors can understand when, and why, companies are over- or under-valued. This provides excellent intra- and inter-sector arbitrage opportunities.
- ✓ All parties can avoid speculative mistakes if they see an industry segment is inappropriately incentivized to deliver detrimental long-term results.

For the current details of companies within the Telecom and Solar Groups, or to understand the full analytic capabilities of InSite, please contact us [here](#).

Cheers,

The InSite Newsletter Staff

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