Siena Market Line
1st week of April 2015

PDF Solutions, Inc.
NASDAQ:PDFS

Analyst: Jarret Reaume
Sector: Technology

BUY
Price Target: $22.40

Key Statistics as of 3/31/2015

Market Price:	$17.76
Industry:	Semiconductor Equipment
Market Cap:	$565.18 M
52-Week Range:	$11.62-$22.66
Beta:	1.33

Thesis Points:

- Zero-debt position
- Established customers will help growth
- Free cash flows will be greater than expected
- Industry growth will accelerate firm growth

Company Description:

PDF Solutions, Inc. is the leading provider of yield improvement technologies for the integrated circuit manufacturing process life cycle. PDF Solutions offers solutions that are designed to enable clients to lower costs of IC design and manufacture, enhance time to market, and improve profitability by addressing design and manufacturing interactions from product design to initial process ramps to mature manufacturing operations. The firm offers manufacturing process solutions, volume manufacturing solutions, and design-for-manufacturability (DFM) solutions. Also, PDF solutions provides Characterization Vehicle (CV) infrastructure which includes CV test chips, pdCV analysis software, and pfFasTest electrical wafer test system. The company sells its technologies and services through direct sales force, solution implementation teams, and strategic alliances to integrated device manufacturers, fabless semiconductor design companies, and others. PDF Solutions, Inc. was founded in 1992 and is headquartered in San Jose, California.

Thesis

PDF Solutions, Inc. is a growing company in the semiconductor equipment industry. The firm has experienced growing free cash flows in the last three years as a result of having zero debt and decreased operating expenses as well as cost of goods sold. In an industry that is expected to grow steadily for the foreseeable future, PDF Solutions, Inc. looks to outperform market expectations with increased revenues and further decreases in expenses. The market will not be able to ignore the cash flows created by this company and the value that comes with the continuously improving efficiency.

Zero Debt Position

PDF Solutions, Inc. has had zero debt for more than five years. A lack of long-term debt helps the firm with its profitability as well as its flexibility. It is a good indicator of how the company can generate cash flows. Since PDF Solutions has been so profitable in the recent past, it has not needed to seek debt financing to fund operations or capital projects. Having zero debt will help the firm in several aspects because it will have flexibility in what it does with cash that is generated. The firm will benefit more from capital projects funded by retained earnings rather than debt because interest payments will not be deducted from the returns of the project. Therefore, return on invested capital (ROIC) will be optimized and value will be created. The figure shown below describes the capital structure that PDF Solutions has held for the last four years. The most important items to note are the increase in cash and the consistent lack of debt.

In Millions of USD	FY 2011	FY 2012	FY 2013	FY 2014	Current/LTM
12 Months Ending	2011-12-31	2012-12-31	2013-12-31	2014-12-31	2014-12-31
Market Capitalization	197.3	402.7	779.8	462.4	565.2
- Cash & Equivalents	46.0	61.6	89.4	115.5	115.5
+ Preferred & Other	0.0	0.0	0.0	0.0	0.0
+ Total Debt	0.0	0.0	0.0	0.0	0.0
Enterprise Value	151.2	341.1	690.4	346.9	449.7

In fact, PDF Solutions, Inc. ROIC has been well above its weighted average cost of capital in recent years. This factor shows that the company utilizes its capital wisely and creates value from its retained earnings since no debt financing is required.

Established Customers Will Help Growth

The firm has business relationships with several large companies that will help maintain revenues in the future and also attract business from other companies. Some of the companies that are identified as PDF Solutions, Inc.'s customers are Samsung, International Business Machines (IBM), and Global Foundries. Each of these firms requires semiconductor equipment on a large scale because of the scope of their businesses. For example, Samsung needs semiconductors for smartphones, tablets, televisions, as well as the several other appliances it sells. This wide-ranging need makes the business relationship highly valuable. Whenever a company can provide equipment for all of a gigantic company's devices, there is a lucrative relationship. It is especially so considering Samsung's presence across different product genres.
As PDF Solutions Inc. grows, so will its customer base. Demand will rise greatly because of the industry growth that will happen in the next several years. Major companies, and also companies with room to grow, will look to PDF Solutions, Inc. to optimize manufacturing and assist in bringing new technologies to market. Since PDF Solutions, Inc. provides a wide array of solutions and services for companies in need, each business relationship will be extremely valuable.

Not only are large companies using PDF Solutions, Inc. to solve their semiconductor needs, they will need them more frequently. The life cycle of chips is decreasing due to the need to increase volumes and performance. This means that customers will be calling upon PDF Solutions more often in the future. This phenomenon creates a tailwind for the company because it will benefit from more customers who will need services more often. The market does not factor this into the stock price because it has not yet been seen. However, the increased competition from so many technology companies needing chips for their devices will feed directly into PDF's growth. Companies will need help optimizing chip manufacturing and PDF Solutions will be able to meet the demand due to its wide range of services.

Free Cash Flows Will be Greater Than Expected

One of the most important factors to look at for any company is its ability to generate free cash flows. For young companies, it may be acceptable to let negative cash flows slide for a few years before the company matures and optimizes its cost structure. For PDF Solutions, Inc., it has generated free cash flows of roughly 20% of its revenue for the last two years.

This measure shows the company is profitable and efficient in its operations. It is important to note that these cash flows have been generated in an industry that is nowhere near its potential. Semiconductor equipment will be in high demand for the foreseeable future which will increase the scale of PDF Solutions Inc.'s business. In addition, PDF's margins look to decrease as well. From the Q4 2014 earnings conference call, CFO Gregory Walker said that operating expenses decreased 1.4% from the previous quarter. This is an encouraging sign because when a business can increase revenues while decreasing expenses, value is created. Generally, a firm would be happy either keeping revenues steady and cutting costs or increasing revenues and having stagnant expenses. The fact that PDF has been able to do both is a great sign for the future.

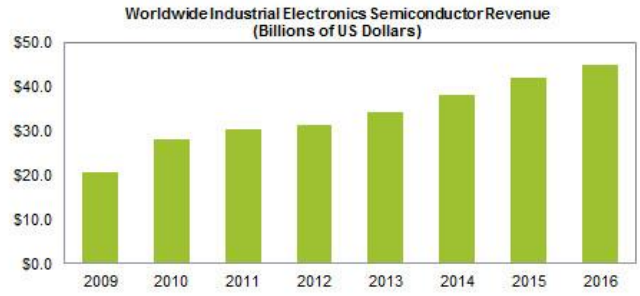
One reason growth can be expected in 2015 is the fact that PDF had delayed contracts that have just been agreed upon in the first quarter of 2015. CFO Gregory Walker cites this as the main reason revenues did not grow in the FY2014 compared to FY2013. As long as he is accurate in his statement, the aforementioned free cash flows will continue to be generated and the stock price will increase.

Since the firm has generated so much cash and is expected to continue to do so, many wonder what the company will do with it. Since there is no debt in the capital structure, it is an even bigger question. The earnings conference call for Q4 2014 shed some light on this area, but did not go into great detail. CFO Gregory Walker stated that the company will do whatever is best for future growth and shareholder value. Above all, Walker says that the main goal is to continue to bring out new technologies and solutions that will help the company grow.

Industry Growth Will Accelerate Firm Growth

When analyzing a company, it is important to understand its industry outlook. This aspect is important because a company's performance will often mirror that of its industry. It can be argued that the semiconductor equipment industry has one of the brightest outlooks of any industry worldwide. Technological advancements have made it so the demand for solutions to semiconductor issues is very high.

When a firm is an industry leader, growth is magnified. The leading company in an industry will reap most of the benefits from industry growth because the leader will take most of the new market share. PDF Solutions, Inc. is a leader in the semiconductor equipment industry based on how it provides a wide range of solutions to companies looking to manufacture semiconductors on a large scale. The chart below shows the growth of the semiconductor industry in the recent past as well as expected growth in the next couple of years. Steady growth is expected for the foreseeable future due to demand from the many companies that will need help with their semiconductors.



Source: IHS iSuppli Research, November 2012

It can be seen on the pro forma at the end of this report that PDF Solutions Inc. performs better than its peers. The only companies that can come close to its EBITDA margins are KLA-Tencor Corporation and Applied Materials, Inc. These companies both have to use debt financing to fund operations and projects. Therefore, interest cuts into net income for those companies whereas PDF Solutions pays no interest.

PDF Solutions also has higher return on assets than both KLA-Tencor and Applied Materials. This measure shows that PDF Solutions utilizes its assets more efficiently than competitors. While the other two companies are larger in market capitalization than PDF Solutions, they will be threatened by PDF's emergence as the industry grows.

Another way industry growth will help PDF Solutions is through long-term growth. The semiconductor equipment industry is much different from other industries. The demand in the near future will be so great that growth levels will not be normal. It can be argued that the growth for successful companies in this industry will experience higher growth rates than gross domestic product (GDP) in the long term. GDP tends to grow between 3% and 5% per year in the United States. It is not a stretch to believe that this rapidly growing industry can grow at a rate slightly higher than GDP's upper bound. A 7% per year growth rate is not out of the question considering how many companies will need PDF's services.

Conclusion

PDF Solutions, Inc. is a recommended buy because it has many desirable traits analysts should look for in a growth stock. One trait the firm has is zero debt. This position lets the company explore many options when it comes to capital budgeting. There are no mandatory interest payments so there are many things that can be done with the excess cash. PDF Solutions will make good use of its cash because its track record proves that it generates high returns from invested capital.

PDF Solutions' established customer base will allow the company to exceed market expectations. Large technology companies like Samsung will need a wide range of services and solutions for its chips. Also, these companies will need the services more because tech companies need to upgrade more often to keep up with the competition. This means great things for PDF Solutions are on the horizon.

Perhaps the most important trait PDF Solutions has is the ability to generate cash. Many growing companies, especially in the technology sector, have a hard time making money because of the competition and capital expenditures that need to happen when the company is young. However, PDF Solutions generates free cash flows and has done so for four years. The company will continue to generate cash and will likely grow its cash flows because of industry growth and improvement of margins.

The final trait is the industry PDF Solutions is in. Nobody wants to buy stock in a company who will go bankrupt in a few years because of product or service obsolescence. This will not be a problem for PDF Solutions because it is in an industry that will grow steadily for several years because of technology companies that will need its services.

At a market price of $17.76, PDF Solutions, Inc. is a good stock to buy because there is considerable upside and not nearly as much downside risk. The one-year target price is $22.40. Assumptions can be seen on the pro forma on the next page.

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1st week of April 2015

CENTER FOR GLOBAL FINANCIAL STUDIES

PDF Solutions Inc.	PDFS	Analyst	Current Price	Intrinsic Value	Target Value	Divident Yield	Target Return	NEUTRAL
		Jarret Reaume	$17.80	$20.03	$22.40	0%	25.87%	

General Info

Sector	Information Technology
Industry	ɔnductors and Semiconductor Equip
Last Guidance	Feb-05-2015
Next earnings date	NM

Market Data

Enterprise value	$445.95
Market Capitalization	$933.35
Daily volume	0.86
Shares outstanding	31.54
Diluted shares outstanding	31.94
% shares held by institutions	77.02%
% shares held by insiders	14.29%
Short interest	2.37%
Days to cover short interest	3.04
52 week high	$22.66
52-week low	$11.62
5y Beta	1.48
6-month volatility	52.95%

Peers	Market Cap.
Ultratech, Inc.	$490.44
Camtek Ltd.	$96.06
Rudolph Technologies Inc.	$361.13
Xcerra Corporation	$488.24
Mattson Technology Inc.	$286.64
Nanometrics Incorporated	$407.65
Applied Materials, Inc.	$27,977.43
KLA-Tencor Corporation	$9,663.11
Veeco Instruments Inc.	$1,229.43
Rorze Corporation	$7,102.75

Current Capital Structure

Total debt/market cap	0.00%
Cost of Borrowing	0.00%
Interest Coverage	
Altman Z	23.38
Debt Rating	AAA
Levered Beta	1.63
WACC (based on market value weights)	9.81%

Management

Professional	Title	Comp. FY2012	Comp. FY2013	Comp. FY2014
Kibarian, John	Co-Founder, Chief Executive Of	$ 348,549.00	$ 483,790.00	$ -
Michaels, Kimon	Co-Founder, Vice President of P	$ 325,549.00	$ 415,832.00	$ -
Walker, Gregory	Chief Financial Officer, Principal .	$ 480,731.00	$ 755,737.00	$ -
Hartgring, Cornelius	Vice President of Client Services ε	$ 584,603.00	$ 798,324.00	$ -
Cohn, Peter	Secretary	$ -	$ -	$ -
Kim, Kwang-Hyun	Vice President of Business Devel	$ -	$ -	$ -

Historical Performance

	PDFS	Peers	Industry	All U.S. firms
Growth	2.6%	1.6%	8.3%	6.0%
Retention Ratio	83.5%	11.1%	56.4%	61.6%
ROIC		185.1%	22.9%	11.8%
EBITA Margin	5.3%	24.5%	13.5%	13.7%
Revenues/Invested capital	56.9%	82.9%	92.3%	202.3%
Excess Cash/Revenue	69.4%	47.6%	54.7%	18.5%
Unlevered Beta	1.58	1.76	1.37	0.95
TEV/REV	2.9x	2.5x	1.9x	2.4x
TEV/EBITDA	27.8x	8.7x	12.2x	11.3x
TEV/EBITA	33.5x	9.5x	14.6x	15.4x
TEV/UFCF	22.5x	48.3x	24.0x	26.8x

Past Earning Surprises

	Revenue	EBITDA	Norm. EPS
Last Quarter	4.0%	5.9%	20.8%
Last Quarter-1	1.9%	43.8%	33.3%
Last Quarter -2	-11.6%	-12.8%	-12.5%
Last Quarter -3	2.2%	6.4%	3.4%
Last Quarter -4	-1.5%	8.3%	9.7%

Non GAAP Adjustments

Operating Leases Capitalization	100%	Straightline	10 years
R&D Exp. Capitalization	60%	Straightline	10 years
Expl./Drilling Exp. Capitalization	0%	N/A	N/A
SG&A Capitalization	20%	Straightline	10 years

Proforma Assumptions

Operating. Cash/Cash	5.0%
Unlevered Beta	1.60
Rev/Invested Capital	70.0%
Continuing Period Revenue Growth	7.3%
Long Term ROIC	18.0%
Invested Capital Growth	Equals to Maintenance
Justified TEV/REV	2.8x
Justified TEV/EBITDA	15.0x
Justified TEV/EBITA	20.0x
Justified TEV/UFCF	25.0x

Forecasted Profitability

Period	Rev. Growth	Adj. Op. Cost/Rev	Revenue	NOPLAT	Invested capital	UFCF
LTM	-1%	50%	$100.16	$31.53	$108.26	$71.23
LTM+1Y	15%	54%	$115.19	$29.70	$159.41	$18.26
LTM+2Y	11%	56%	$128.00	$31.02	$165.31	$25.11
LTM+3Y	9%	56%	$139.76	$32.89	$172.48	$25.72
LTM+4Y	8%	57%	$151.25	$35.09	$181.94	$25.62
LTM+5Y	8%	57%	$162.95	$37.52	$193.72	$25.74
LTM+6Y	7%	57%	$175.16	$40.04	$211.45	$22.31
LTM+7Y	7%	57%	$188.07	$42.95	$225.06	$29.34
LTM+8Y	7%	57%	$201.81	$46.09	$239.14	$32.01
LTM+9Y	7%	57%	$216.51	$49.51	$253.64	$35.01

Valuation

	ROIC	WACC	EVA	Enterprise Value	Total Debt	Other claims	Equity	Adjusted Price
LTM	21.3%	9.8%	$12.45	$557.47	$0.00	-$72.90	$630.37	$20.69
LTM+1Y	27.4%	9.9%	$27.94	$633.25	$0.00	-$86.97	$720.22	$23.15
LTM+2Y	19.5%	10.0%	$15.71	$653.69	$0.00	-$99.36	$753.04	$24.27
LTM+3Y	19.9%	10.0%	$17.11	$691.03	$0.00	-$112.52	$803.55	$25.91
LTM+4Y	20.3%	10.0%	$18.84	$732.20	$0.00	-$127.05	$859.24	$27.71
LTM+5Y	20.6%	10.0%	$20.58	$776.93	$0.00	-$142.89	$919.81	$29.74
LTM+6Y	20.7%	10.0%	$22.56	$829.14	$0.00	-$155.54	$984.68	$31.74
LTM+7Y	20.3%	10.0%	$23.21	$878.12	$0.00	-$175.02	$1,053.14	$33.96
LTM+8Y	20.5%	10.0%	$25.06	$930.30	$0.00	-$196.80	$1,127.11	$36.34
LTM+9Y	20.7%	10.0%	$27.15	$984.55	$0.00	-$221.01	$1,205.56	$38.22

Monte Carlo Simulation Assumptions

	Base	Stdev	Min	Max	Distribution
Revenue Variation	**0**	**10%**	**N/A**	**N/A**	**Normal**
Op. Costs Variation	**0**	**10%**	**N/A**	**N/A**	**Normal**
Market Risk Premium	**5%**	**N/A**	**5%**	**7%**	**Triangular**
Long term Growth	**7%**	**N/A**	**2%**	**8%**	**Triangular**
Terminal Value	**0**	**0.1**	**N/A**	**N/A**	**Normal**

Monte Carlo Simulation Results

	Intrinsic Value	1y-Target
Mean est.	$20.69	$23.15
σ(ε)	$0.22	$0.25
3 σ(ε) adjusted price	$20.03	$22.40
Current Price	$17.80	
Analysts' median est.		$22.80