

April 6, 2018

Sector: Healthcare
 Industry: Medical Device
 Current Price: \$119.95
 Target Price: \$142.95

Penumbra  (PEN)

Theodore Wind

Penumbra designs, develops, manufactures, and markets medical devices. The company specializes in peripheral vascular and neurovascular devices for stroke victims and those diagnosed with other neurovascular diseases. Penumbra products are sold in the United States, Europe, Canada, Australia and Japan.



BUY

Current Price: \$119.95
 Target Price: \$142.95
 Market Cap: 4.04B
 Beta: 1.24
 Cash ROC/WACC: 1.09
 WACC: 11.8%

Catalysts:

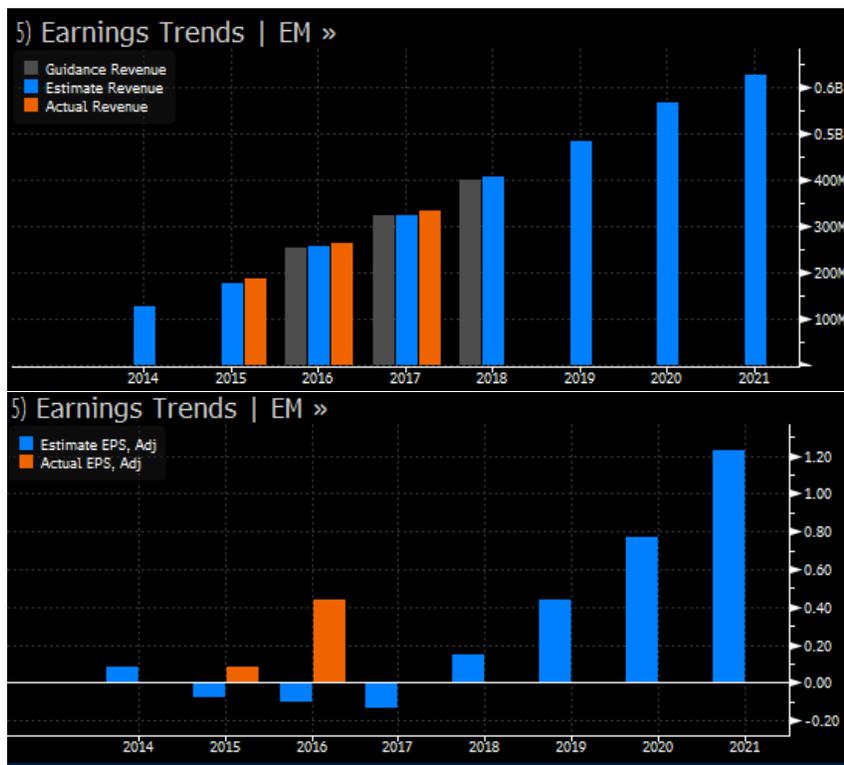
- Short Term(within the year): New aspiration system being released in 2018
- Mid Term(1-2 years): Continued R&D as well as more states continuing to adopt stroke legislation. Virtual Reality.
- Long Term(3+): Aging population as well as states continuing to pass legislation

Thesis: Penumbra is an innovative medical device company that is focused on improving the outcome of strokes by making the procedures faster and safer. They have had year over year revenue growth of 26.75% as well as growth into more markets such as Japan. Penumbra has also been able to improve their gross profit from 2016. Penumbra is on the cutting edge of stroke treatment and has continued to invest in R&D to stay ahead of the competition. They have a joint venture with MVI Health, a company using virtual reality to help clinical conditions. Penumbra also has a new aspiration system coming out in 2018 that investors are very excited about for this year. Penumbra is a buy because of the exciting growth prospects and ability to control costs as well as their proven success and reputation in the stroke treatment area.

Earnings Performance:

Penumbra is a company that is in its growth stage, and as a result, they are mostly concerned with revenue growth of the company. From 2015 to 2017 they have grown their revenue from \$186 million to \$333 million with 2018 guidance to increase their revenue to \$406 million. They have been very successful in the neuro and peripheral vascular segments. The neuro segment grew 25.3% from 2016 and the peripheral segment grew 30.3%. As you can see in the picture below, Penumbra has been able to outperform the market estimates as well as their own guidance in both full years since they went public in 2015. This shows that they are effectively able to market and sell their products as better than their competitors.

The second table shows the adjusted EPS estimates over the last 3 years since they went public. This graph is especially important for shareholders because of the positive EPS surprise. Estimates for the last two years and 2018 have them projecting negative earnings per share, however they have been able to return positive earnings to shareholders. In their conference call, they were asked if they plan to remain profitable for the foreseeable future, and management was adamant that they would be able to achieve profits while still increasing their R&D to continue producing the best and most effective products.

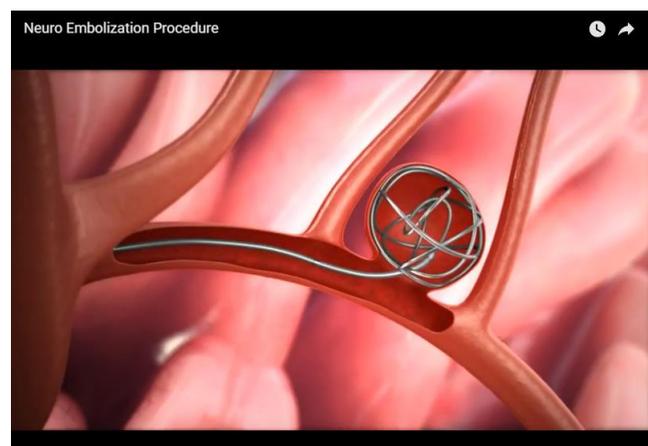
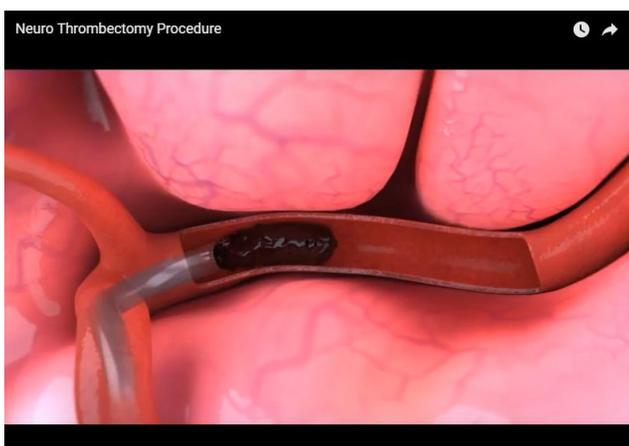


Products:

Penumbra operates in basically two segments of the medical field. The first is neurovascular devices. The Penumbra system has been FDA approved since December 2007 when they first received their 501(k). Their family of neuro products consists of many products. A few of the most popular include the ACE Family, 3D Revascularization Device, Max Family, and the Velocity products. The Max Family and Velocity products are simply catheters that deliver their aspiration devices to the neuro area. The 3D Revascularization Device is a technologically advanced structure designed to capture as much of the blood clot as possible to successfully treat large vessel occlusion. This is the removal of the blood clot from a large blood vessel near the brain. The ACE Family of products is the newest and most effective family of products by Penumbra. It is used for the revascularization of patients with acute ischemic stroke secondary to large vessel occlusion disease. This is Penumbra's most powerful and trackable. It is designed to navigate tortuous vessels to facilitate removal of a clot quickly and reliably. Penumbra specializes in removal of blood clots by aspiration. This is the total removal of the blood clot from the body as opposed to other techniques where a balloon is used to push the blood clot and break it, or using blood thinners. Studies have shown that the total removal is more effective and safer for the patients. The picture below on the left will help to visualize the products.

Penumbra's second segment of products is their peripheral segment. This segment is their family of products that remove blood clots in other parts of the body. This is especially important because while the blood clot is still problematic in other areas of the body causing lack of blood flow it is much better than having the clot reach the brain causing a stroke. Therefore, these products need to remove the entire clot to ensure it does not remain in the body. For the peripheral division they have two products the Indigo System CAT and the Indigo System Separator. These are their two main products that remove clots from the other parts of the body. These products offer physicians the options to decide the size of the catheter they want to use depending on the size of the blood vessel impacted. This also is an aspiration system that works similar to the neuro systems however these products are designed to be able to reach more parts of the body with often smaller blood vessels.

They also offer products to help patients recover from aneurysms. However this a smaller segment of the business. These products look like a wire that they can use to fill in the cavity that caused the aneurysm. A picture below on the right is provided to get a better idea of what their product looks like in the body.



Growth:

Penumbra is constantly trying to push the boundaries of medical devices and this led them to a recent joint venture announcement. On January 4, 2018 Penumbra announced that they would be engaging in a joint venture with MVI Health for the purpose of bringing virtual reality technology, provided by Sixense Enterprises, to the healthcare field to explore potential applications. The CEO of Sixense, Amir Rubin, was very excited about the joint venture saying “We have long believed in the tremendous potential of immersive, full-presence virtual reality to help improve lives through better healthcare and Penumbra is the perfect partner for us to collaborate with in this vision, We believe that by combining our unique immersive computing platform with Penumbra’s innovative approach to development and commercialization of medical products, MVI Health can establish itself as a leading digital health platform.”

The second thing investors were excited about in the quarter four conference call was the expected release of a new complete aspiration system in 2018. This is something that investors were not necessarily expecting to be announced this early. This shows that Penumbra is still able to push out new products and their increased investment in R&D has paid off. This new aspiration system will be on the cutting edge and allow for faster and more effective clot removal.

As far as segment growth in the quarter four conference call the CFO, Sri Kosaraju, stated that he expects the same quantity of neuro patient growth over the next year as in 2017. They had a 5000 patient increase in 2017 which led to a little over a 20% growth, and that same 5000 patient growth would lead to a 2018 growth rate of a little under 20%. They do not believe this is a negative sign because a constant year over year 20% growth rate is unattainable in any business. On the peripheral side it is a similar story. From 2016 to 2017 they saw growth in the high twenties, approaching 30%. They reached revenues on this side of over \$100 million and the CEO still believes they are more market share that can be had however he doesn’t expect the same 30% growth rate.

State legislation on primary care stroke centers is also essential to the growth of Penumbra. As of right now according to the conference calls only about half of the states in the United States have fully equipped stroke primary care centers. This is extremely concerning because stroke victims need to be treated as fast as possible restore oxygen to the brain, so it is only a matter of time until state’s pass legislation on the matter. This will facilitate long-term growth for Penumbra because they will supply these states with their equipment.

Another long term potential for growth comes from the aging population as strokes are more likely in people over the age of sixty. With the baby boomers starting to reach that age the potential for an increase in stroke victims also increases.

Competitors:

Below shows the list of competitors in the medical device industry, however not all of these are direct competitors with Penumbra because they make different devices. I tried to look at the device companies with the most comparable market caps. Penumbra is very focused on revenue growth at this point in its life cycle therefore; I looked at year over year revenue growth for my first metric. Penumbra was right at the median however, I believe this is a little misleading due to the fact that one competitor had a 240% growth and another had 43%. I believe that Penumbra has been able to generate a revenue growth that can be nearly repeated in 2018 based on their own recent estimates.

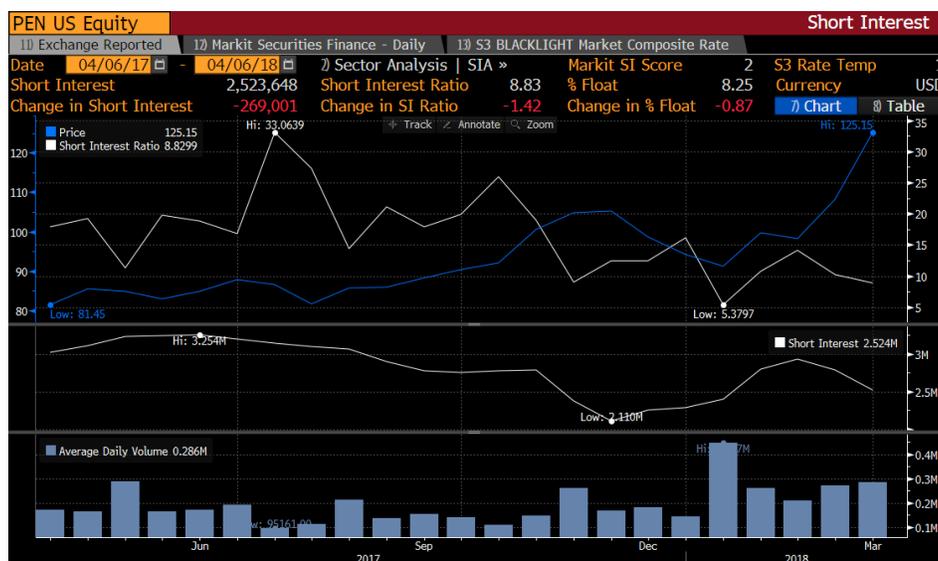
The second metric I looked at was the gross margins. Penumbra was once again about at the median, at 65% as compared to the median at 67%. I believe this is a good sign for Penumbra because even though they are not focused on improving their margins right now, they will need to in the future, and being around the median to start is a positive sign for the company.

Name	Ticker	Mkt Cap	Rev - 1 Yr Gr:Y	GM:Y
Median		4.15B	26.75%	67.05%
100) PENUMBRA INC	PEN US	4.15B	26.75%	65.06%
101) MASIMO CORP	MASI US	4.39B	14.90%	67.05%
102) GLOBUS MEDICAL INC - A	GMED US	4.83B	12.76%	76.62%
103) ICU MEDICAL INC	ICUI US	5.15B	240.72%	38.09%
104) NUVASIVE INC	NUVA US	2.80B	7.01%	73.87%
105) FOUNDATION MEDICINE I...	FMI US	2.66B	30.84%	44.23%
106) NEVRO CORP	NVRO US	2.61B	42.96%	69.70%

Short Interest/Ownership:

The ownership type is interesting for Penumbra, but I believe it can be explained with the help of the short interest graph. The first thing I notice is the fact that hedge fund managers are decreasing their position in the company. However, we do not know if this is a short or long position. When looking at the short interest graph below, however I would guess that the hedge fund managers are getting out of short positions because the short interest peaked about a year ago and is now currently decreasing again. The other thing that I notice is the fact that investment advisors are increasing their positions a great deal in Penumbra. This is very positive because it is an over 13% increase and they can only invest long for their portfolios. Therefore, this proves that investors believe that Penumbra is a buy right now for a long term play. I believe this ownership table proves investors like Penumbra's prospects as a buy.

Top Ownership Type (%)				
54) Ownership Type	03/26/17	Curr	Change	
41) Investment Advisor	69.87	83.20	+13.33	↗
42) Individual	21.19	9.44	-11.75	↘
43) Hedge Fund Manager	7.69	5.41	-2.28	↘
44) Sovereign Wealth Fund		0.57		↔
45) Pension Fund	0.64	0.54	-0.10	↘
46) Insurance Company	0.17	0.34	+0.17	↗
47) Government	0.17	0.21	+0.04	↗
48) Bank	0.10	0.19	+0.09	↗
49) Brokerage	0.16	0.07	-0.09	↘



The above graph shows the short interest in Penumbra over the past 12 months. When we look at this graph we can see that Penumbra had a short interest of 33 in July of last year. This is very high and would be very concerning if they were still around those high figures. Currently they are down to around 8, and for the first time we can see the divergence from the price which is a good sign. When the price is increasing and the short interest is decreasing it means that investors do not believe the stock is being overvalued as it continues to climb. I believe the short interest was so high because they had only been public for two years at the time and medical device companies can be difficult investments, however I believe they have proven they are a solid company with products that are beneficial to their users. They are continue to look for ways to advance their company to keep up with the technology as can be seen with their recent joint venture with MVI Health and Sixense.

Conclusion:

In conclusion, I believe that Penumbra is a buy because of the devices they offer and the growth opportunities associated with the company. Their products are on the cutting edge for medical technology and they are investing heavily in R&D, which is a positive sign. They have also proven to be successful and timely with introducing new products. They have a completely new aspiration device coming in 2018 that investors are extremely excited about. They have also partnered with MVI Health and Sixense to bring virtual reality to the medical device field to look for potential applications. This should also be extremely exciting for investors as Penumbra is showing they are embracing and planning for the future of the medical device market and not sticking to what they know because it is the “safer” option. Penumbra has also been able to grow revenue over 20% year over year and looks to continue to do the same in 2018. They have been able to return positive earnings per share to shareholders, when estimates had them returning negative EPS. Finally, Penumbra has seen a large decrease in their short interest over the last year which is a very positive sign that investors are embracing the company and believe it is not overvalued in the market. I believe Penumbra is a buy now with all the potential for growth that is currently posses as well as being a financially smart company, shown by returning positive profits against analyst estimations.

Penumbra, Inc. (pen)

CENTER FOR GLOBAL FINANCIAL STUDIES

BULLISH

Analysis by Al Capone
4/6/2018

Current Price: **\$118.40**
Dividend Yield: **0.0%**

Intrinsic Value: **\$39.64**
Target Price: **\$142.95**

Target 1 year Return: 20.74%
Probability of Price Increase: 0%



Description	
Penumbra, Inc. designs, develops, manufactures, and markets medical devices in the United States, Europe, Canada, Australia, Japan, and internationally.	
General Information	
Sector	Healthcare
Industry	Healthcare Equipment and Supplies
Last Guidance	February 12, 2018
Next earnings date	May 8, 2018
Market Assumptions	
Estimated Equity Risk Premium	5.33%
Effective Tax rate	22%

Market Data	
Market Capitalization	\$4,041.11
Daily volume (mil)	0.40
Shares outstanding (mil)	34.13
Diluted shares outstanding (mil)	35.32
% shares held by institutions	109%
% shares held by investments Managers	66%
% shares held by hedge funds	7%
% shares held by insiders	10.35%
Short interest	7.39%
Days to cover short interest	8.44
52 week high	\$127.40
52-week low	\$77.75
Volatility	0.00%

Past Earning Surprises		
Quarter ending	Revenue	EBITDA
12/31/2016	8.63%	-13.69%
3/31/2017	3.26%	N/A
6/30/2017	5.93%	32.28%
9/30/2017	6.36%	20.43%
12/31/2017	9.40%	43.83%
Mean	6.72%	20.71%
Standard error	1.1%	#VALUE!

Market and Credit Scores	
Recommendation (STARS) Value	-0
Recommendation (STARS) Description	-0
Quality Ranking Value	-0
Quality Ranking Description	-0
Short Score	-2
Market Signal Probability of Default % (Non-Ratings)	-0.009%
CreditModel Score (Non-Ratings)	-N/A

Industry and Segment Information	
LTM Revenues by Geographic Segments	LTM Revenues by Business Segments
United States--66%	Design, Development, Manufacturing and Marketing of Innovative Medical T
Japan--10%	--
Other International--24%	--
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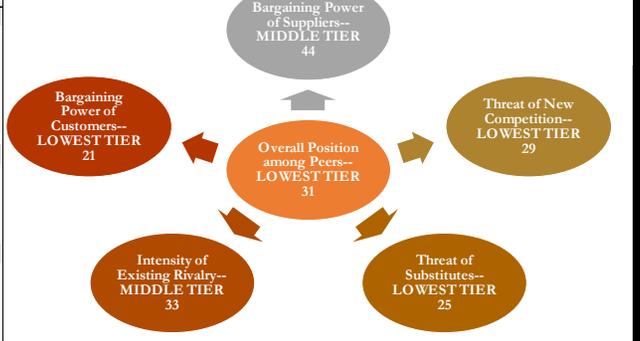
Management	
Manager	Position
Elsesser, Adam	Co-Founder, Chairman, Chief Executive Officer a
Bose, Arani	Co-Founder, Chief Innovator and Director
Kosaraju, Sridhar	Chief Financial Officer and Head of Strategy
Rothman, Lynn	Chief Business Officer and Executive Vice Presi
Davis, Daniel	Chief Commercial Officer & President of North A
Powers, Ryan	Vice President of Operations

Total Compensations Growth	
-8.75% per annum over 4y	
Stock Price Growth During Tenure	
-61.91% per annum over 3y	
-7.47% per annum over 4y	
37.32% per annum over 4y	
18.57% per annum over 1y	

Peers	
Neuro Corp.	Boston Scientific Corporation
Cardiovascular Systems, Inc.	AngioDynamics, Inc.
AtriCure, Inc.	ABIOMED, Inc.
Edwards Lifesciences Corporation	Endologix, Inc.
CryoLife, Inc.	Stryker Corporation

Profitability		
	pen (LTM)	pen Historical
Return on Capital (GAAP)	14.6%	86.72%
Operating Margin	10%	11.65%
Revenue/Capital (GAAP)	1.43	7.44
ROE (GAAP)	4.6%	105.6%
Net margin	4.2%	10.4%
Revenue/Book Value (GAAP)	1.10	10.20

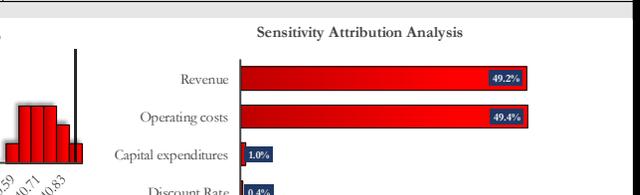
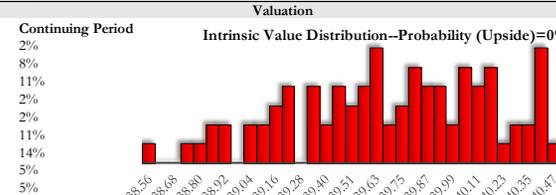
Peers' Median (LTM)	
9.14%	
10.69%	
0.86	
8.9%	
9.2%	
0.97	



Invested Funds		
	pen (LTM)	pen Historical
Cash/Capital	34.9%	160.9%
NWC/Capital	23.7%	30.8%
Operating Assets/Capital	39.6%	-91.6%
Goodwill/Capital	1.7%	0.0%

Peers' Median (LTM)	
23.9%	
8.6%	
40.5%	
27.0%	

Capital Structure		
	pen (LTM)	pen Historical
Total Debt/Market Capitalization	0.05	0.06
Cost of Debt	3.7%	4.8%
CGFS Rating (F-score, Z-score, and default Probability)	AA	
WACC	5.2%	9.0%



Forecast Assumptions	
Revenue Growth CAGR	18%
Average Operating Margin	8%
Average Net Margin	11%
Growth in Capital CAGR	14%
Growth in Claims CAGR	19%
Average Return on Capital	12%
Average Return on Equity	14%
Average Cost of Capital	5%
Average Cost of Equity/Kc	5%