



CFA Institute

CFA Institute Research Challenge

Hosted in

CFA Society of Minnesota

Team 1 - University of Minnesota Duluth

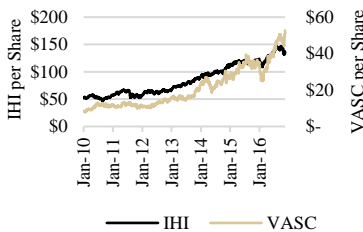


Date: 1/13/17
Ticker – NASDAQ: VASC

Current Price: \$55.75 (1/12/17)
Headquarters: Maple Grove, MN

Recommendation: SELL
Price Target: \$51

Share Price Movement



Highlights

We initiate a **Sell** recommendation on Vascular Solutions (“VASC” or “the Company”) based on a one-year target price of **\$51**, implying \$5 below the buyout offer price from Teleflex, Inc. of \$56 on December 2nd, 2016. Our recommendation is supported by:

Acquisition Analysis

On December 2nd, Vascular Solutions entered a definitive agreement to be acquired by Teleflex for \$56 a share, \$1 billion transaction value. The Board of Directors voted unanimously to approve the transaction. The deal is still subject to shareholder approval, if approved, the transaction is expected to close in the first half of 2017. The Company was trading at \$55.10 prior to the announcement, which results in a 1.6% premium, and over the 90-day average stock price, a 16% premium. We have reason to believe investors have priced in the Company’s future product lines, thus allowing a perfect time for management to announce the tender offer. We now know the sentiment of CEO, Howard Root with his remark, “I am not willing to assume much longer the personal risk associated with being the CEO of a public medical device company”. We understand the psychological hardship Mr. Root felt in the five-year lawsuit regarding the “Short Kit” litigation. We believe the tender offer is higher than the intrinsic value of Vascular Solutions by 9.8%.

Unique Market Position

Vascular Solutions operates in niche markets that have allowed the Company to grow revenue at a 13.4% CAGR over the last seven years. Vascular Solutions is well positioned between companies that produce product lines over \$100 million and firms that lack effective distribution methods for its products. The Company has been minimally impacted by macroeconomic conditions within the current global medical device industry, valued at \$345 billion. Vascular Solutions relies on its ability to create unique markets for products and does not solely rely on increased interventional procedure volumes.

Strong Product Pipeline

Vascular Solutions’ product pipeline is vital to its success. The Company has had over 100 products enter the market with 12 new product launches expected in 2017, and an additional 28 in development. Management plans to introduce at least 10 products a year to sustain double-digit revenue growth. We believe a strong product pipeline and the ability to gain FDA approval in the medical device industry is important for the future success of the Company. In 2015, the U.S. Army agreed to fund trials of Vascular Solutions’ RePlas Freeze Dried Plasma (“RePlas”). The product is designed to assist soldiers on the battlefield by speeding up the blood clotting process (“coagulation cascade”). If successful, this product is expected to come to market in 2019 upon FDA approval, with an estimated market opportunity of \$100 million annually.

Strategic Distribution Methods

VASC has a 105 person U.S sales team, some of which are certified physicians. The Company relies greatly on the expertise of its sales staff to promote the quality of its products. The direct sales force is strategically located in the East and Southeast regions of the United States where heart disease is more prevalent. VASC has been able to leverage a fixed base salary and consistent sales force headcount. Management has indicated that it expects to be able to double the Company’s revenue with its current sales staff. Due to the “Short Kit” litigation, the Company has ramped up training of its sales force in order to combat potential litigation related to marketing its products. The Company holds high standards for its sales team and in an average year terminates the bottom 10%.

Acquisition Risk Analysis

Vascular Solutions’ current stock price is trading \$0.25 below the offer price, implying a 0.45% return. We do not believe this limited upside is worth holding the stock, as the deal may not be approved. Our valuation indicates that the Company is worth **\$51** a share, reiterating our **Sell** recommendation.

Stock Data	
52 Week Range	\$24.34 - \$57.15
Market Value	\$981.2M
Enterprise Value	\$942.1M
Diluted Shares Outstanding	17.57M
Dividend Yield	0.0%
Float	96.1%
Top 10 Inst Holders	43.6%
Analyst Coverage	5
Beta	1.17
P/E	79.8x
EPS	\$1.11
Price/Book	5.9x
Price/Sales	5.4x
Key Financials (TTM)	
Gross Margin	64.0%
Operating Margin	8.4%
Net Income	12.14M
ROA	8.1%
ROE	9.1%
Cash Flow ROIC	9.8%
Cash Ratio	2.8x
Current Ratio	6.4x
Total Debt	\$0
EBITDA	\$19.88M

Valuation Analysis	
DCF Enterprise Value	\$853,393
Less: Net Cash (Net Debt)	\$41,491
Equity Value	\$894,884
Number of Shares Outstanding (MM)	17,568
DCF Value per Share	\$ 50.94

Key Financials and Ratios	2014A	2015A	2016E	2017E	2018E	2019E	2020E	2021E
Total Revenue	\$126,099	\$147,200	\$167,000	\$190,380	\$217,033	\$248,503	\$284,536	\$325,794
Net Operating Income	\$19,927	\$13,599	\$21,533	\$41,403	\$52,210	\$65,510	\$79,575	\$93,082
Operating Margin	15.8%	9.2%	12.9%	21.8%	24.1%	26.4%	28.0%	28.6%
Net Margin	10.1%	7.1%	9.5%	14.5%	15.9%	17.4%	18.5%	18.9%
Inventory Turns	2.9x	2.9x	2.8x	2.8x	2.7x	2.7x	2.7x	2.7x
Return on Equity	12.1%	8.7%	11.5%	16.5%	16.9%	17.4%	17.3%	16.7%
Free Cash Flow / Share	\$0.26	\$0.24	\$0.39	\$1.68	\$1.95	\$2.28	\$2.68	\$3.05
Return on Invested Capital	11.2%	8.2%	10.7%	15.0%	15.4%	15.8%	15.8%	15.3%

Monte Carlo Analysis

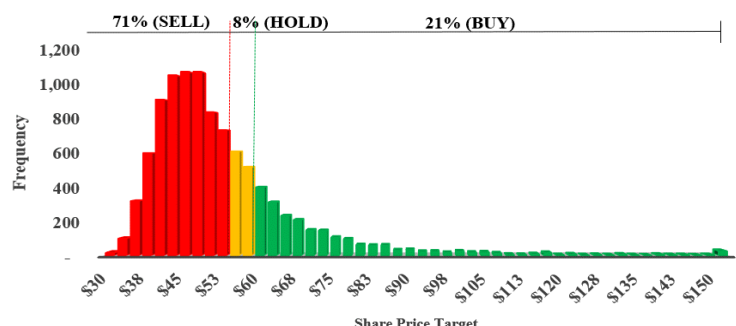


Figure 1: Sales Mix, 2015

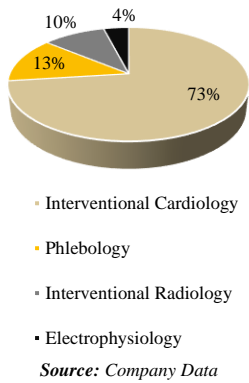


Figure 2: Revenue by Geography, 2015

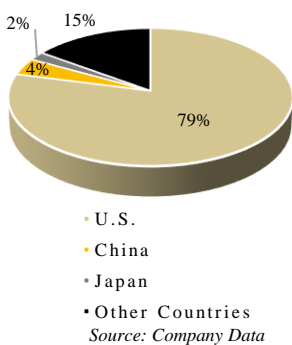


Figure 3: Total Revenue

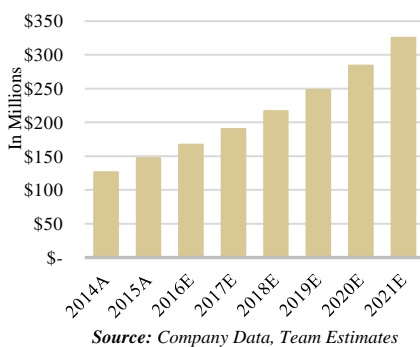
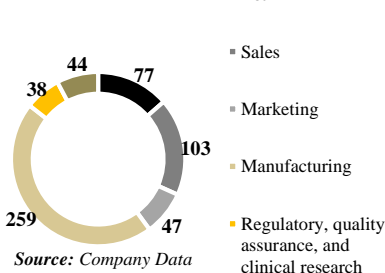


Figure 4: Employee Distribution, 2015



Business Description and Key Products

Founded in 1997, Vascular Solutions is a medical device company focused on clinically advanced solutions in four major segments: Interventional Cardiology, Interventional Radiology, Phlebology, and Electrophysiology (Figure 1). Headquartered in Maple Grove, Minnesota, Vascular Solutions has provided physicians with the most innovative and technically advanced medical devices. The Company operates in four geographic regions; U.S., China, Japan, and Other Countries (Figure 2). By the year 2021, we expect the Company to generate \$325 million in revenue (Figure 3). The Company operates on a fiscal calendar year.

GuideLiner

Vascular Solutions' GuideLiner product officially launched in the U.S. and Europe in 2009. The smaller, more flexible, and extendable second generation was introduced in December 2011, followed by the V3 featuring a half-pipe collar for better stent and wire placement in August 2013. In December of 2013, the Japanese Ministry of Health, Labour, and Welfare (MHLW) granted permission of GuideLiner into Japan's market. GuideLiner generated 30.8% of the Company's annual revenue and experienced a 43% increase year over year growth in 2015, and 53% in 2014. The product is used in conjunction with products like GuideWire and stents in angioplasty. In 3Q16, GuideLiner accounted for 29.3% of revenue. Management believes the potential market for the product is \$100 million. We expect the product to generate \$54 million in FY 2017, accounting for 29% of revenue (Appendix O). We believe with lower inventory levels in Japan, as stated by management, it will allow for substantial orders of GuideLiner to resume in FY 2017.

Pronto

Pronto extraction catheters are used for the removal of thrombi via vacuum suction in the arteries while protecting the arterial wall with its silva tip. The Company began selling internationally in 2003 and domestically in 2004. Pronto V3 came to market in late 2005 and the V4 was introduced in 2011. In the interim, variations of the Pronto came to serve the tortuous vascular system: the Short (Aug 2005), the .035" (Aug 2007), the LP (Jan 2008), and the XL (Jan 2012). QXT was a cheaper international catheter that was discontinued in 2014. The debut of the product was modest, generating \$97K in sales in 2003. However, the product generated revenue in 2013, 2014, and 2015 of \$20.3M, \$17.9M, \$15M, respectively. Pronto has recently experienced sales headwinds, decreasing by 11.6% in 2014 and 17% in 2015. Pronto was the Company's flagship product until the GuideLiner was introduced in 2009 and currently accounts for 7.7% of revenue. The worldwide extraction catheter market is estimated to be about \$50 million. We believe Pronto will derive \$12 million in revenue in FY 2017, accounting for 6% of revenue (Appendix O). We believe this catheter has run its course due to the saturated market and the shift to radial access.

Langston

The Langston dual lumen catheter is designed to measure pressure in the coronary arteries surrounding the heart. The main procedure using these catheters are Trans Aortic Valve Replacements ("TAVR"). The product has two designs, straight and pigtail. The Langston was introduced in 2004, generating sales of \$133K, and has since grown to \$6.6M in 2015. The Langston currently accounts for 4.3% of revenue and has potential of \$10 million annual revenue, according to management. We believe the Langston will derive \$9 million in FY 2017, making up 5% of revenue, due to the historical increasing trend and the increase of TAVR procedures (Appendix O).

Turnpike

The Turnpike product was introduced in 2015 with four models: Spiral, Standard, Gold, and LP. The expansion to radial access has created an optimal environment for Turnpike to thrive. The anatomy a catheter needs to follow to reach the heart in radial access is more difficult than femoral access. In 2015, the Turnpike generated \$1.5 million, 1% of revenue, and has already generated \$9.25 million in the first three-quarters of 2016, 7.6% of revenue. We estimate year over year growth of 860% with expected product revenue of \$12.9 million in 2016. Management believes the Turnpike products can generate \$50 million annually. We expect Turnpike products to grow dramatically over the next year to 9% of total revenue or \$17 million by FY 2017 (Appendix O). Due to the nature of being a new product and the compliment in complex coronary intervention procedures, we expect substantial growth from this product.

Hemostat Patches

Hemostat patches are thrombin infused pads used to quicken the coagulation cascade. King Pharmaceuticals, a subsidiary of Pfizer, is the sole supplier of thrombin for these patches. During medical procedures, hemostat patches require applied pressure after the use of catheters to stop bleeding. Product sales declined last year by roughly 3%. We believe part of the decline can be attributed to the shift to radial access, requiring fewer pads due to the decreased amount of blood. The Company estimates the worldwide market for hemostat patches used in catheterization procedures to be \$50M. Hemostat patches account for 6.8% of revenue and we expect this product line to decrease in 2017, as a percent of revenue, to 6% or \$11 million (Appendix O).

Vein Catheter Reprocessing

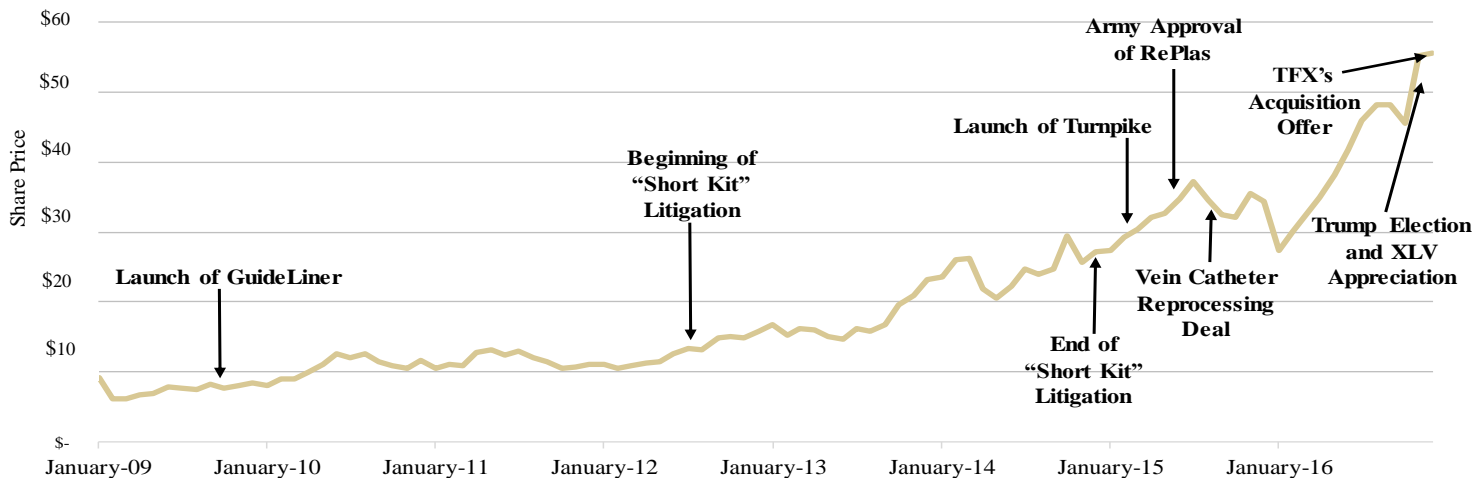
Vascular Solutions provides cleaning for Medtronic's ClosureFAST RF vein ablation catheters. This product was launched in 2012 and has seen steady growth. Vein catheter reprocessing accounts for 9.1% of sales and is estimated to generate \$20 million in sales annually. We expect this segment to generate \$15 million by FY 2017, equaling 8% of revenue (Appendix O). We believe this is attainable with management's goal of providing vein clinics with low-cost products while reducing waste.

Radial Access

Radial access includes a myriad of products from arm boards and splints to sheaths. The increase of radial access has been strong. Access through the arm was as little as 1% of procedures in 2007 and has since jumped to 27% in 2015. Roughly 60% of Canadian and Japanese procedures and roughly 50% of European procedures are performed radially. We believe the market for radial access will continue to expand because it is safer and easier than femoral

access. Researchers examined three million artery-opening procedures, 6.1% had bleeding complications during femoral procedures and 2.7% in radial procedures. Between 2004 and 2007, 1 out of 50 procedures were performed via the arm but by the end of 2012, it increased to 1 in 6. For the first nine months of 2016, Vascular Solutions reported revenues of \$6.6 million from the radial access product line, an increase of 21% year over year. The Company estimates its radial access could generate \$90M in the U.S. For FY 2017 we project sales of \$12 million, accounting for 6% of revenue (Appendix O).

Vascular Solutions Historical Stock Price



Corporate Governance & Management Summary

Board of Directors

Compensation- Each of Vascular Solutions’ non-employee directors receives a restricted share award each year with a fair market value of \$75,000 on the date of election or re-election. The members of the Board are also compensated on meeting fees and annual retainers based on the individuals’ position on the Board of Directors. In FY 2015, John Erb, Chairman of the Board, earned a total of \$195k.

Board- The Board of Directors has met on average five times each year since 2009. All members of the Board are independent except Mr. Root who serves as Chief Executive Officer of the Company. There are currently seven Directors on the Board for Vascular Solutions with an average tenure of 10 years. All the members have been nominated to the Board and elected by shareholders at the most recent annual meeting. In April 2011, the Company’s Board of Directors created a new position and elected John Erb as non-executive Chairman of the Board. Mr. Erb also serves as Chairman of the Compensation Committee and Chairman of the Compliance and Governance Committee.

Audit and Compensation Committee- The Audit Committee assists the directors in fulfilling their responsibility to the shareholders and investment community, specifically relating to corporate accounting, reporting practices, and the integrity of those reports. The Audit Committee must maintain an open relationship with the directors, independent auditors, internal auditors, and management of the Company. The Compensation Committee has the responsibility of reviewing, evaluating, and approving the compensation plans, policies, and programs of the Company. This pertains to all employees, officers, and members of the Board of Directors, all of which are subject to stockholder approval.

Management

Mr. Howard Root (55), Chief Executive Officer of Vascular Solutions Since 1997

Mr. Root has served as a board member and CEO of Vascular Solutions since he co-founded the Company in 1997. Prior to Vascular Solutions, Mr. Root served as Vice President and General Counsel at ATS Medical, Inc. and practiced corporate law at Dorsey & Whitney LLP.

Mr. James Hennen (43), Chief Financial Officer of Vascular Solutions Since 2004

Mr. Hennen is the current CFO at Vascular Solutions. Before his role as CFO, Mr. Hennen was the Controller & Director of Finance at VASC. Prior to joining Vascular Solutions, Mr. Hennen was International Controller at WAM!NET, Inc. and an auditor at Ernst & Young, LLP. Mr. Hennen is a Certified Public Accountant (inactive).

Mr. Brent Binkowski (47), Sr. Vice President of Operations Since 2015

Mr. Binkowski currently holds the position of Senior Vice President of Operations at Vascular Solutions, which he was appointed to in June of 2015. Prior to joining Vascular Solutions, Mr. Binkowski was the Vice President of Operations at CeloNova BioSciences, Inc. from February 2013 until he joined Vascular Solutions in 2015. Before CeloNova Biosciences, Mr. Binkowski also served as Senior Director of Operations for American Medical Systems from 2011 until 2013. Mr. Binkowski received his MBA from the University of Minnesota – Carlson School of Management in 2006.

Mr. Chad Kugler, Sr. Vice President of Research and Development Since 2014

Mr. Kugler joined Vascular Solutions as the Senior Vice President of Research and Development in March of 2014. Prior to Vascular Solutions, Mr. Kugler was the Co-Founder, President, and General Manager of BridgePoint Medical from 2005 through 2012, until Boston Scientific acquired the Company. Mr. Kugler received his

Figure 5: Executive Compensation Breakdown

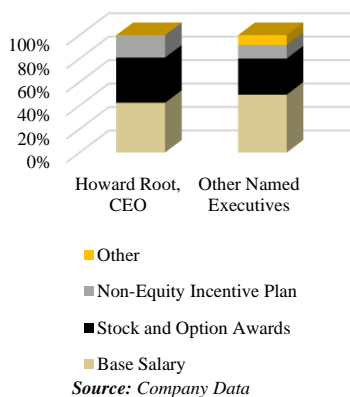
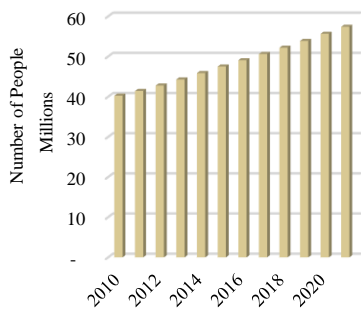


Figure 6: Stock Based Compensation by Department



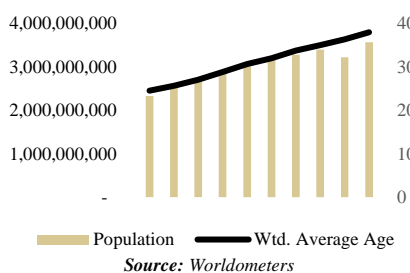
Source: Company Data

Figure 7: U.S. Population Ages 65+



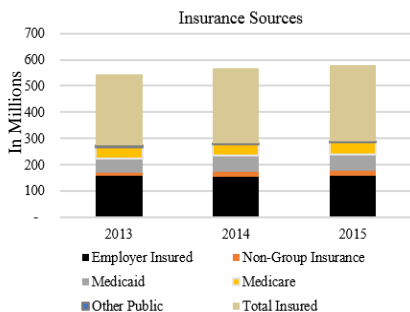
Source: MarketsandMarkets

Figure 8: US, UK, Germany, Japan, India, China Population and Average Age



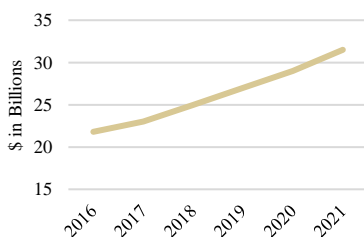
Source: Worldometers

Figure 9: Insurance Sources



Source: Kaiser Family Foundation

Figure 10: Interventional Cardiology and Peripheral Device Market



Source: Marketsandmarkets

undergraduate education from North Dakota State University and currently holds 35 U.S. patents, with additional patents pending.

Ms. Carrie Powers (41), Sr. Vice President of Marketing Since 2016

Ms. Powers currently serves as the Senior Vice President of Marketing and has been with Vascular Solutions since 2006. Ms. Powers only recently took on the position of Senior Vice President of Marketing in January 2016. She previously held the position of Vice President of Marketing from July 2009 to December 2015.

Compensation

Compensation for Vascular Solutions’ executive officers is based on recommendations from the Company’s Chief Executive Officer and Vice President of Human Resources to the Compensation Committee. The Compensation Committee evaluates the information and determines executive pay. In FY 2015, CEO Howard Root’s total compensation comprised of 42% base salary, 39% stock and option awards, and 19% non-equity incentive plan compensation, \$550k, \$500k, and \$248k, respectively (Figure 5). The average of all other executive officers included a higher portion of base pay to stock and option awards. In FY 2015, the Executive Incentive Compensation Plan was weighted on four measures; net revenue of \$141M, adjusted EPS of \$0.90, milestones for five new products, and ability to enter into an agreement to distribute a new product, 30%, 30%, 20%, 20%, respectively (Appendix A).

Industry Overview and Competitive Positioning

Medical Device Industry

The medical device market is a globally connected industry with numerous sub-sectors. The U.S. is the largest medical device market in the world, estimated to be about \$148 billion in annual sales while the global medical device market represented roughly \$345 billion in sales, in 2015. In the U.S., there are more than 6,500 medical device companies. With a majority considered small and medium sized companies, 80% employ less than 50 individuals.

Demographics

We believe the medical device industry is heavily dependent on the health service trends and demographic lifestyle trends of the global and domestic population. In the U.S., adult obesity now exceeds 20% in all states, 30% in 25 states, and 35% in four states (Appendix E). Globally, nearly 30% of the population is considered obese or overweight with 15% of that being from India and China. As obesity rates have increased, vascular diseases have become more prevalent and the need for advanced medical devices has increased. Although recent data shows that obesity rates are beginning to slow, the rates of today’s generation versus the previous generation are substantially higher. In the U.S., healthcare providers (hospitals and clinics) rely on third party payers such as Medicare, Medicaid, and private health insurance plans to pay for VASCs’ products. Vascular Solutions benefits from established reimbursement due to the necessity of procedures. In the medical device industry, there is a shift to lower margin products due to third party payers searching the market for less expensive products to complete the procedure (Figure 9).

Cardiovascular Disease Prevalence

Cardiovascular disease is now the number one cause of death, representing 31% of all worldwide deaths. An estimated 80 million Americans have one or more types of cardiovascular disease. Physicians can treat cardiovascular disease with minimally invasive methods using catheters inserted in the arteries, instead of traditional surgery. In 2015, Vascular Solutions management estimated nine million diagnostic and interventional catheterization procedures were performed worldwide.

Vascular Solutions Protected Market

Vascular Solutions serves a wide variety of professionals such as Cardiologists, Radiologists, Electrophysiologists, and Phlebologists, all of which use Vascular Solutions products to perform minimally invasive procedures. Vascular Solutions is not highly impacted by macroeconomic factors. Management has mentioned that the growth of procedure volume is not driving the Company’s expansion; instead, the Company is creating its own market for the new products. Vascular Solutions is also less affected by budget cuts at catheterization laboratories (“cath labs”) because its niche products are a smaller portion of these budgets. Vascular Solutions works directly with international independent distributors and utilizes multi-year agreements to expand global market presence.

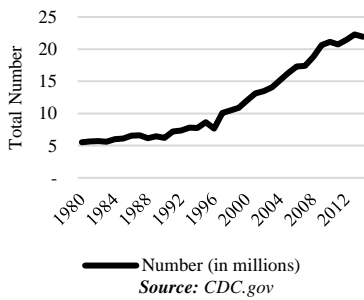
Competitive Landscape

Vascular Solutions has a smaller market cap than many of its competitors and has been able to generate superior sales growth. Vascular Solutions operates without long-term debt, generally financing its operations through free cash flow, but allowing it to take on debt if needed. Vascular Solutions’ gross, operating, and net margins are generally in line with competitors reflecting its ability to compete with larger firms.

Medtronic Plc

Medtronic (“MDT”) is a global leader in medical technology, services, and solutions. The company’s customers include hospitals, clinics, third-party health care providers, and distributors. Medtronic competes directly with VASC in its largest business segment, Cardiac and Vascular Group, making up 35% of revenue. MDT operates in three other segments, Invasive Technologies, Restorative Therapies Group, and Diabetes Group, which represent 33%, 25%, and 7% of total revenue, respectively. In FY 2016, the company generated \$28.8 billion in sales and has a market capitalization (“market cap”) of \$103.1 billion. Medtronic has experienced contracting gross, operating, and net margins since FY 2009. In FY 2015, gross margins fell 7%, operating margins dropped 4%, and net margins decreased by 5% due to the acquisition of Covidien (Figure 12). Medtronic has been able to reduce SG&A expense and R&D spending as a percent of revenue since FY 2009. In 2Q 2017, SG&A was 32.9% and

Figure 11: Diabetes in the U.S.

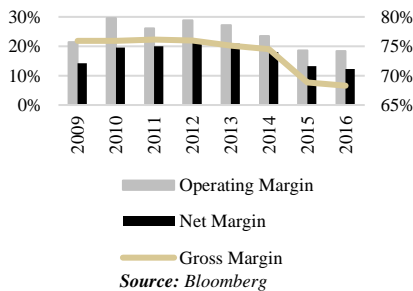


R&D was 7.5% of total revenue (Appendix J). Medtronic is headquartered in Dublin, Ireland and its operational headquarters is in Fridley, Minnesota.

Boston Scientific Corporation

Boston Scientific (“BSX”) is a global leader in the development, manufacturing, and marketing of medical devices. These devices are used in a broad range of interventional medical specialties including; interventional radiology, interventional cardiology, peripheral interventions, and vascular surgery. In 3Q 2016, Boston Scientific derived 57% of revenue from the United States and 43% internationally. Boston Scientific’s Cardiovascular segment accounted for 64% of total revenue while the other 36% came from the Endo-surgery Group and Neuromodulation segments. R&D spending has slightly declined by less than 1% since FY 2009, while SG&A expense has increased by 6% (Appendix J). The increase in SG&A has resulted in compressing operating margins to 10.7% in FY 2015 from 15.9% in FY 2009 (Figure 13). However, due to recent sales growth, SG&A was 36.5% in 3Q 2016, drastically lower than prior years, resulting in an increase of operating margins to 16%. The company is headquartered in Marlborough, Massachusetts and has a market cap of \$32 billion.

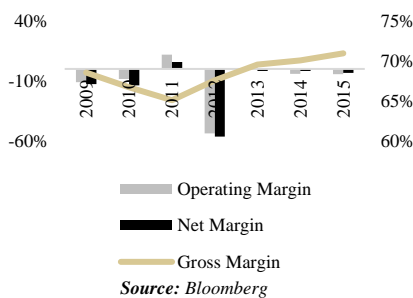
Figure 12: Medtronic



Asahi Intecc Co., Ltd

Asahi Intecc develops, manufactures, and sells medical and industrial equipment under two different segments: Medical and Device. In 1Q 2017, the Medical segment represented 80% of the company’s total revenue and involved the development, manufacturing, and sale of self-branded and original medical devices required for catheter treatment. The Device segment accounted for the remaining 20% of revenue. Gross margins have expanded by roughly 11% to 64.3%, since FY 2009. Asahi has been able to expand operating margins to roughly 25% in FY 2015. R&D spending has increased by 2% since FY 2009, and SG&A expenses have remained relatively constant (Figure 14). In 3Q 2016, SG&A represented 27.8% of total sales, while R&D was 9.3% (Appendix J). About 44% of Asahi’s revenue is generated in Japan, but the company also generates 22%, 9%, and 25% in the United States, China, and other countries, respectively. Asahi Intecc is headquartered in Nagoya, Japan and has a market cap of \$2.7 billion.

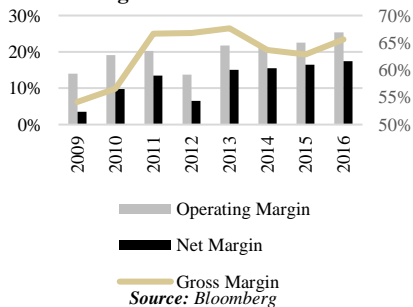
Figure 13: Boston Scientific



Merit Medical Systems, Inc.

Merit Medical Systems (“MMSI”) designs, develops, and manufactures single-use medical products for interventional and diagnostic procedures and operates in two segments: Cardiovascular and Endoscopy. Merit Medical Systems competes directly with Vascular Solutions in its Cardiovascular operating segment, which in 3Q 2016, accounted for approximately 96% of total revenue. Endoscopy makes up the additional 4%. In 2010, MMSI acquired BioSphere Medical, Inc. for roughly \$82 million. Since FY 2009, gross margins have increased by 1% to 43.5%. Operating margins have seen a contraction of 6%, which is partially influenced by the 3% increase of R&D spending and 4% increase of SG&A expense (Figure 15, Appendix J). Currently, SG&A and R&D are 33.9% and 7.3% of total sales for 3Q 2016. The company operates in the United States, Europe, and Asia. The Company has a market cap of \$1.2 billion and is headquartered in South Jordan, Utah.

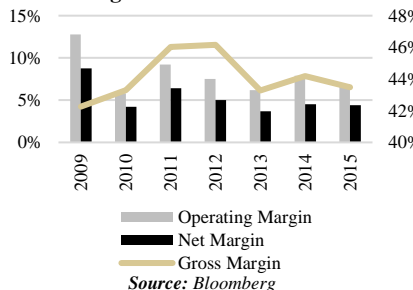
Figure 14: Asahi Intecc



AngioDynamics, Inc.

AngioDynamics (“ANGO”) designs, manufactures and sells medical, surgical and diagnostic devices. Through the acquisition of Navalist Medical in January 2012, for \$365 million, AngioDynamics gained a diverse portfolio of medical devices allowing it to expand its geographical presence. In 2Q 2017, AngioDynamics operated heavily in the U.S. as it accounted for 80% of total revenue, while the other 20% came from China, Japan, Europe and other countries. ANGO operates in four business segments; Peripheral Vascular generating 57%, Vascular Access representing 28%, Oncology/Surgery deriving 14%, and the remaining 1% coming from Supply Agreement. AngioDynamics has seen gross margins contract since FY 2009 by 13% to 43.8%. To offset this contraction, the company has decreased SG&A expense by 5% and R&D spending by 2%, however operating margins have still fallen 6% (Figure 16, Appendix J). In 2Q 2017, SG&A was 30.7% of total revenue and R&D was 6.6%. AngioDynamics has a market cap of \$642 million and is headquartered in Latham, New York.

Figure 15: Merit Medical



Spectranetics Corporation

Spectranetics (“SPNC”) develops, manufactures, markets and distributes medical devices used in minimally invasive cardiovascular procedures. The company focuses on two business segments: Disposable Products, accounting for 94% of total revenue, and Laser, Service, and Other at 6%, as of 3Q 2016. Spectranetics competes with Vascular Solutions in atherectomy for the removal of plaque from the arterial wall, labeled under Disposable Products, representing 65.2% of revenue. The Company’s operating markets are similar to VASC, 84% of revenue comes from the United States and the additional 16% comes from various countries including China, Japan, and Germany. SPNC has seen gross margins contract by 3% to 68.5%. SG&A expense has remained relatively constant and R&D spending has substantially risen by 13% since FY 2009 to 26.6% (Appendix J). This has resulted in operating margins declining to -17.2% in FY 2015 from -2.5% in FY 2009 (Figure 17). In 3Q 2016, R&D was 24.5% of revenue and SG&A was 59.7%. Spectranetics has a market cap of \$1.1 billion and is headquartered in Colorado Springs, Colorado.

Company	Sales Growth (5 year CAGR)	Gross Margin (5 year Avg.)	EBITDA Margin (5 year Avg.)	Net Margin (5 year Avg.)	Long-Term Debt (MRQ)	Market Value (MM)
Vascular Solutions (VASC)	13.2%	65.6%	18.7%	9.7%	-	\$979
Medtronic (MDT)	12.6%	69.6%	31.2%	17.1%	\$29,010	\$103,100
Boston Scientific (BSX)	-2.2%	62.6%	23.0%	-13.5%	\$5,171	\$32,000
Asahi Intecc	19.8%	63.9%	11.3%	14.5%	\$3,923	\$2,700
Merit Medical Systems (MMSI)	12.8%	44.6%	14.7%	4.8%	\$318	\$1,200
AngioDynamics (ANGO)	10.3%	46.3%	13.4%	-3.0%	\$101	\$642
Spectranetics Corp. (SPNC)	15.5%	71.4%	4.4%	-8.5%	\$285	\$1,071

Figure 16: AngioDynamics

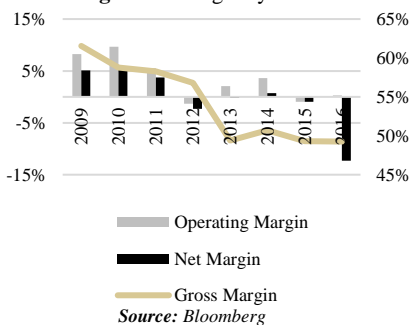


Figure 17: Spectranetics

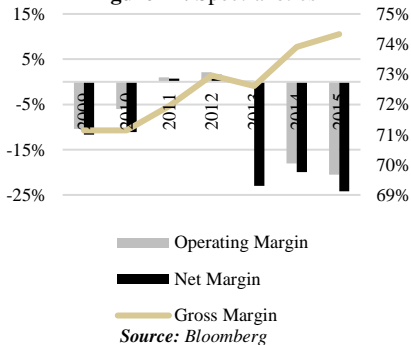


Figure 18: Porter's Five Forces

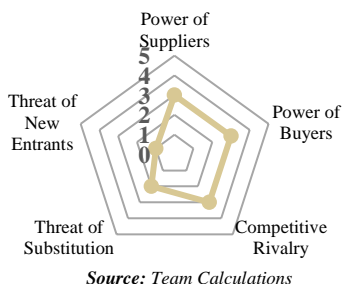
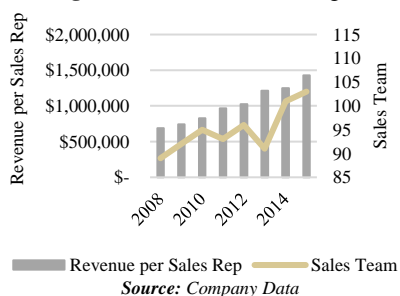


Figure 19: Sales Team Leverage



Porter's Five Forces Model

In analyzing Vascular Solutions under Porter's Five Forces analysis, we identified supplier power, buyer power, and competitive rivalry to be moderately significant on the continued profitability of the Company (Figure 18, Appendix D). VASC relies on single sources for multiple inputs, specifically, thrombin from King Pharmaceutical. A disruption in the supply of this product could have adverse effects on business operations. In addition, more hospitals are choosing to use Group Purchasing Organizations ("GPO's") as a cost effective method of purchasing medical supplies. Since VASC is not able to access these GPO's as easily as competitors with a wider product mix, VASC may face pressures on profitability. The medical device industry is always changing with technological advancements; therefore, companies who specialize in new products could put pressure on VASC to adapt. However, the size of VASC combined with the distribution abilities and established sales team, as well as the specialty products, creates an economic moat that will make it difficult for competitors to infiltrate.

Investment Summary

Unique Market Position

Vascular Solutions operates in niche markets that have allowed the Company to expand revenue at 13.4% CAGR from 2009 to 2016. Vascular Solutions is positioned between companies that produce product lines over \$100 million and smaller firms lacking effective distribution methods for products. VASC classifies its large main competitors as Medtronic and Boston Scientific, but the sheer breadth of business segments does not allow MDT or BSX to solely focus on medical instruments. Vascular Solutions has intentionally chosen to focus on medical device products like catheters, guidewires, and patches. These products are relatively inexpensive for customers; therefore, the Company is at lower risk for change in demand. However, VASC is still able to beat out the smaller upcoming competitors in this niche device industry with its well-tailored product lines. Vascular Solutions is minimally impacted by macroeconomic conditions currently influencing the domestic medical device industry, valued at \$148 billion and global medical device industry of \$345 billion. Vascular Solutions has relied on the ability to create unique markets for its products and does not rely solely on interventional procedure volumes. We believe that the Company will be able to utilize this economic moat to continue operating in the niche market created. Smaller companies may have trouble gaining equally effective distribution methods, and large companies could continue to ignore smaller product lines.

Strong Product Pipeline

Every company's product pipeline in the medical device industry is vital to its success. Vascular Solutions has brought over 100 products to market and expects to bring 12 new products in 2017, with an additional 28 products in development. Management plans to release about 10 new products a year in order to sustain its double-digit revenue growth. For example, the Pronto extraction catheter, the Company's first flagship product, was released in 2003, which grew from \$97K in 2003 to \$16.5M in 2012. Currently, the product is expected to generate \$12.5M in 2016. We believe this product has run its course with insertion tactics switching to radial access. As a result of this decline in sales, Vascular Solutions is engineering new products like Turnpike, which has seen immense growth of 447% for 3Q 2016, nine months ended. Management believes Turnpike will be the second leading product behind GuideLiner. We believe this is a prime example of how Vascular Solutions attacks shifts in the market to combat competition. In 2015, the U.S. Army agreed to fund the tests and trials of the Company's RePlas Freeze Dried Plasma designed to speed up the blood clotting process of wounds. If successful, RePlas is expected to come to market in 2019 with estimated revenue of \$100 million annually. We believe Vascular Solutions is both agile and proactive in its ability to adapt and anticipate market needs and trends.

Strategic Distribution Methods

VASC currently employs a sales staff of 105 people in the U.S., some of which are certified physicians (Figure 20). Vascular Solutions relies heavily on the expertise of its sales staff to promote its products. The Company's sales teams are strategically located in the East and Southeast regions of the United States where heart disease and demand for its key products are more prevalent. The sales team has established great connections with the majority of catheterization labs in the U.S., thus developing the acceptance and sale of its product to become quicker and easier. VASC has been able to leverage a fixed base salary and consistent sales force headcount. Management indicated that it expects to be able to double revenue with the current sales force headcount (Figure 19). Due to the "Short Kit" litigation, Vascular Solutions has ramped up training for its sales team in order to combat potential litigation when marketing products. We believe the established and credible nature of this sales force is unmatched by competitors of similar size, and we expect a continued emphasis to be placed on utilizing these employees.

Teleflex Acquisition Analysis

Reasons for Acquisition

Teleflex ("TFX") focused on surgical and critical care devices up until the \$2 billion dollar acquisition of Arrow International Inc. in October 2007. The acquisition of Arrow allowed TFX to operate in the interventional and peripheral vascular access market. Similarly, Teleflex wants to further increase its presence with the \$ 1 billion acquisition of Vascular Solutions, bringing an expected combined product portfolio of more than 150 cardiac, vascular, and interventional access products. The combined firm is expected to enhance TFX's international presence. Vascular Solutions' strong product pipeline should improve TFX's long-term growth potential, while gaining current high growth products.

Acquisition Details

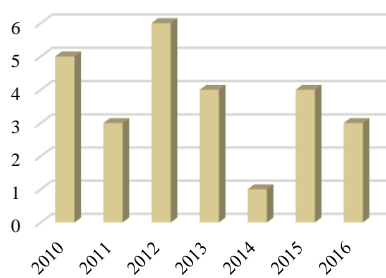
We do not believe a 16% premium over Vascular Solutions' 90-day average stock price is extremely attractive in the medical device industry, however given our intrinsic value calculation and precedent transaction analysis we

Figure 20: U.S. Direct Sales Force



Source: Company Presentations

Figure 21: Teleflex Acquisitions



Source: FactSet

believe the offer price is fair for shareholders. If the acquisition is accepted, shareholders are guaranteed \$56 per share. If the deal fails to commence, we could see a substantial decrease in share price due to lack of commitment by the current Chief Executive Officer.

Teleflex Management

Mr. Benson F. Smith, Chairman, President, Chief Executive Officer, and Director

Mr. Smith has served as Chairman, President, and CEO since January 2011 and has served as a Director since April 2005. Prior to Teleflex, Mr. Smith was the managing partner of Sales Research Group and CEO of BFS & Associates LLC. Prior to BFS & Associates, Mr. Smith held various executive and senior level positions at C.R. Bard, Inc., a company specializing in medical devices for approximately 25 years.

Mr. Liam J. Kelly, Executive Vice President, and Chief Operating Officer

Mr. Kelly has served as COO since April 2015. From April 2014 to April 2015, Mr. Kelly served as Executive Vice President and President, Americas. Prior to joining Teleflex, Mr. Kelly worked at Hill-Rom Holdings, Inc., a medical device company, where he held various senior level position from October 2002 to April 2009.

Mr. Thomas E. Powell, Executive Vice President and Chief Financial Officer

Mr. Powell is currently CFO at Teleflex, Inc., since March 2012. Mr. Powell joined Teleflex in August 2011 as a Senior Vice President, Global Finance. Prior to Teleflex, Mr. Powell served as CFO and Treasurer of Tomotherapy, Inc., a medical device company, from June 2009 until June 2011. Mr. Powell was also a CFO at Textura Corporation and Midway Games, Inc.

Financial Analysis

Competitive Positioning

In order to fully understand the recent growth in Vascular Solutions, our financial analysis focuses on the previous seven years, beginning 2009. Our analysis and forecasting of the Company consisted of GAAP reported financials. Refer to the table below for an expanded overview of primary financial information.

Year	2009A	2010A	2011A	2012A	2013A	2014A	2015A	2016E	2017E	2018E	2019E	2020E	2021E
Profitability													
Gross Margin	66.5%	66.3%	66.8%	66.9%	67.3%	66.9%	66.8%	65.6%	67.0%	67.5%	68.0%	68.0%	68.0%
SG&A to Sales	49.1%	48.3%	43.8%	44.9%	44.8%	44.6%	51.0%	46.7%	39.8%	37.1%	36.0%	34.5%	34.0%
Operating Margin	11.9%	17.3%	17.3%	16.2%	14.6%	15.8%	9.2%	12.9%	21.8%	24.1%	26.4%	28.0%	28.6%
Net Margin	7.9%	27.3%	10.8%	10.1%	10.1%	10.1%	7.1%	9.5%	14.5%	15.9%	17.4%	18.5%	18.9%
Liquidity													
Current Ratio	6.18x	4.95x	5.43x	4.61x	5.95x	5.74x	5.23x	5.90x	6.76x	7.99x	9.23x	10.39x	11.46x
Quick Ratio	4.85x	3.67x	3.74x	3.31x	4.72x	4.51x	3.90x	4.44x	5.40x	6.63x	7.84x	8.98x	10.03x
Asset Turnover Analysis													
Cash and ST Investments	5.47x	4.46x	5.79x	7.78x	5.22x	3.75x	3.78x	3.75x	3.05x	2.27x	1.84x	1.56x	1.37x
Receivables Turnover	7.67x	7.77x	7.90x	7.71x	7.82x	7.98x	8.13x	8.02x	7.89x	7.89x	7.91x	7.91x	7.91x
Inventory Turnover	2.51x	2.50x	2.24x	2.38x	2.72x	2.90x	2.66x	2.55x	2.51x	2.51x	2.49x	2.48x	2.47x
Current Assets	1.91x	1.73x	1.87x	2.05x	1.90x	1.77x	1.82x	1.81x	1.63x	1.38x	1.21x	1.08x	0.99x
Total Assets	1.43x	1.20x	1.16x	1.20x	1.13x	1.07x	1.07x	1.07x	1.03x	0.96x	0.91x	0.86x	0.82x
Shareholder Ratios													
SPS	\$ 4.15	\$ 4.61	\$ 5.24	\$ 5.98	\$ 6.49	\$ 7.12	\$ 8.16	\$ 9.44	\$ 10.58	\$ 11.73	\$ 13.15	\$ 14.74	\$ 16.54
EPS	\$ 0.33	\$ 1.26	\$ 0.57	\$ 0.60	\$ 0.65	\$ 0.72	\$ 0.58	\$ 0.90	\$ 1.53	\$ 1.86	\$ 2.29	\$ 2.72	\$ 3.12
FCF per Share	\$ 0.55	\$ 0.58	\$ 0.71	\$ 0.49	\$ 0.89	\$ 0.26	\$ 0.24	\$ 0.39	\$ 1.68	\$ 1.95	\$ 2.28	\$ 2.68	\$ 3.05
BV per Share	\$ 2.44	\$ 3.80	\$ 4.07	\$ 4.67	\$ 5.66	\$ 6.40	\$ 7.10	\$ 8.44	\$ 10.19	\$ 12.13	\$ 14.50	\$ 17.27	\$ 20.44

4Q 2016 Management Guidance

Management has given 4Q 2016 guidance reiterating the continuation of double-digit growth, similar to the prior seven years. Guidance for revenues is between \$43-\$44 million and \$0.34 to \$0.36 EPS, implying a 14% sales growth rate and 20% earnings growth rate, year over year, using the midpoints of the ranges, respectively. We expect the Turnpike to continue to grow revenues as the shift from femoral access to radial access continues, and see the micro introducer kits assisting revenue growth as the Company continues to expand globally. We believe this guidance is feasible due to expectations of Japan returning to active purchasing habits, combined with a higher margin product mix from the discontinuation of promotional activity regarding the reprocessed products.

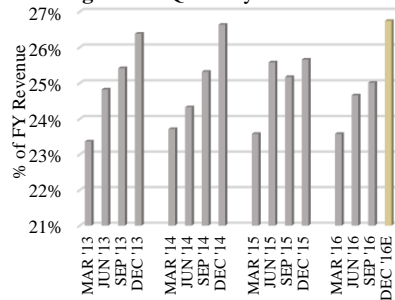
FY 2017 Management Guidance

Management has issued preliminary guidance for FY 2017 consistent with FY 2016. Revenue is expected to continue growing at a double-digit rate to \$183 million-\$187 million with earnings guidance of \$1.44-\$1.48 per diluted share. The midpoint of these assumptions reflects 12% and 20% year over year growth, respectively. We expect these estimates to be conservative and believe revenue growth will be stronger given the depth of the product pipeline, clearance of litigation charges, active GuideLiner ordering in Japan, and current products maturing, such as the Turnpike and Micro Introducer Kits.

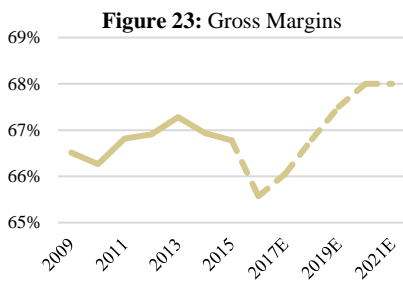
Gross Margins

Gross margins have slightly expanded since FY 2009 (Figure 23, Appendix C). We believe margin contractions over the past year occurred due to product mix and the increasing international sales to independent distributors. Due to the unexpected reprocessed catheters promotion, gross margins were adversely affected by roughly 100 basis points in 3Q 2016. We expect gross margins for 4Q 2016 to be 65%. The seven-year average has been 65.6% and we believe this is a short-term headwind as the product mix shifts, and it will expand to 67% in FY 2017. Management has stated product margins for GuideLiner and Turnpike are 80%. We currently estimate gross

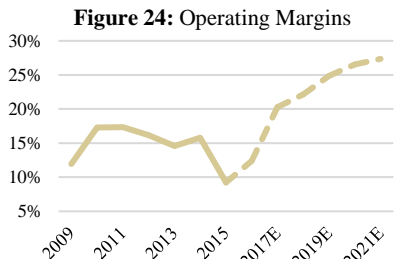
Figure 22: Quarterly Sales Trends



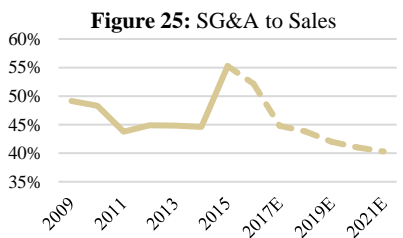
Source: Company Data



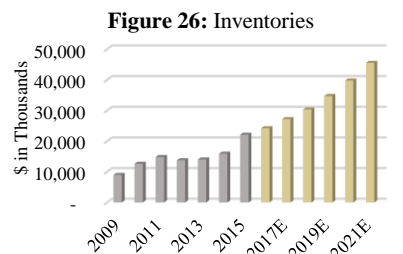
Source: Company Data, Team Calculations



Source: Company Data, Team Calculations



Source: Company Data, Team Calculations



Source: Company Data, Team Calculations

Table 1: WACC Analysis

WACC Calculation	
CAPM Model	
25 Year Arithmetic Return - S&P 500	8.37%
Beta CAPM	1.17
Risk Free Rate (10 Year)	3.25%
WACC Calculation	
Cost of Equity	9.26%

Source: Team Estimates, Team Calculations

margins to be 65.6% for FY 2016 and 68% for FY 2021. For 2016, we project 36% of revenue to be derived from these two catheters, this implies an average product margin of 57% for all other products to yield the 65.6% gross margin. In 2021, we expect both catheters to represent 40% of revenue and all other products would have an average margin of 60% resulting in a gross margin of 68%. We believe the gross margin increase is plausible with management’s goal of manufacturing more products in-house.

Operating Margins

Operating margins have been contracting since FY 2009 primarily due to litigation expenses. Including litigation expenses, operating margins averaged 14.9% over the past seven years, while excluding litigation expenses the average has been 16.7%. We expect that operating margins will increase to 21.8% in FY 2017 due to the relatively consistent headcount expense, which is primarily offset by new product revenue (Figure 24). We believe Research and Development expense will decrease to 12.0% of sales in 2017 due to the consistently higher than industry average spending. Management has given guidance that it expects to see a decrease in this area of business to help increase operating leverage, and we believe this to be reasonable as revenue continues to outpace spending.

Sales, General and Administrative Expense

General and Administrative, and Research and Development expenses have expanded as a percent of revenue since 2009 to 12.1% and 12.8%, respectively, for nine months ended 2016. Sales and Marketing expenses have contracted to 23.3% as a percentage of revenue for nine months ended 2016. We believe going forward, Vascular Solutions will be able to increase revenue without increasing these expenses significantly. Management has commented that it believes the current sales force size is sufficient to sustain top line growth. As a result, we believe Sales and Marketing expenses will continue to flatten out, with management guidance suggesting below 20% of revenue (Figure 25). General and Administrative expenses no longer have the “Short Kit” litigation and as a result, we expect to see expenses consistent with 3Q 2016, at or slightly below 6% of revenue. Research and Development expenses have increased recently due to additional headcount, but going forward we expect this to flatten as a percent of revenue. Research and Development has increased from 11.5% to 13% since 2009. We believe as revenue continues to grow at a double-digit rate, Research and Development spending will increase at a slower rate, and as a result will be 12% of total revenue in FY 2017.

Inventory

Vascular Solutions has seen an increasing trend in its inventories with a 15.8% CAGR since FY 2009, reaching \$24 million in 3Q 2016 (Figure 26). The expansion has been driven by the preparation for facility renovations. As a result of the increase in 3Q 2016, finished goods and raw materials represented an average of 43% and 48%, respectively since FY 2009. We believe this is something to monitor as the company continues to introduce new products, pressuring inventory levels and working capital for FY 2017. In 2015, the Financial Accounting Standards Board issued a new accounting policy related to inventories, which we believe will have no material impact on the Company. We believe inventory levels will return to normal levels of around 14% of revenue.

Capex & Depreciation

Vascular Solutions has been increasing Capital Expenditures more rapidly since 2009. In fiscal years 2012 and 2014, Vascular Solutions purchased two facilities to further expand operations. In FY 2015 VASC purchased a 26,000 square-foot building in Minnesota that it intends to use for the future production of RePlas. Over the last seven years, Capital Expenditures have been higher than normal levels, representing an average of 6.1% of sales. As a result of these building purchases, depreciation expenses have continued to increase and are based on the straight-line depreciation method. Management has communicated intentions to pursue product acquisitions in efforts to continue revenue growth, which would further boost Capital Expenditures. If an acquisition were to occur, we would expect the investment to be made with cash, similar to the previous investments. We have not forecasted additional Capital Expenditures other than expected annual maintenance.

Free Cash Flow

Vascular Solutions has access to capital markets, however, business operations are funded solely through Free Cash Flow. VASC currently has no long-term debt, which provides high liquidity and financial flexibility. Given the increase in Net Operating Cash Flow since FY 2009 (excluding the litigation years) along with the increase in Capital Expenditures, Free Cash Flow has been lower than normal. We expect Free Cash Flow to begin to increase back to normal levels due to no current litigation and the completion of manufacturing facility purchases in 4Q 2016. Vascular Solutions does not pay dividends as management focuses on growth through reinvestment activities. The Company has participated in repurchase programs in the past to satisfy income tax withholding obligations; however, the latest plan authorized by the Board of Directors expired in September of 2016. Without the acquisition, we assume VASC would have returned to normal operations and issued a new share repurchase program similar to the old program that would have continued into the future.

Valuation

Valuation Price Target: **\$51**

Recommendation: **Sell**

We utilized three valuation methodologies to determine a target price for Vascular Solutions. The Discounted Cash Flow (“DCF”) and Relative Multiples Valuation were used to determine the intrinsic value of VASC’s share price, while the Football Field Valuation Chart was used to analyze the \$56 offer price from Teleflex, Inc. Please see Appendix K, L, and M for forecasted financial statements.

Discounted Cash Flow to Firm

In our analysis of Vascular Solutions, we utilized a DCF method and determined our price target of \$51. Our DCF model gave us an intrinsic value by discounting our forecasted future cash flows. The intrinsic value of future cash flows was highly sensitive to both the Weighted Average Cost of Capital (WACC), as well as our expected terminal growth rate, therefore we included a sensitivity analysis of both variables to account for deviations (Appendix N). Vascular Solutions has no debt obligations and the DCF model consisted of projected financial statements through

Table 2: Perpetual Growth Rate

Expected Growth Rate Calculation	
Equity Reinvestment Rate:	
Net Capital Expenditures	\$ 13,000
Less: Depreciation	\$ 5,160
Plus: Δ Net Working Capital	\$ 4,954
Less: Net Debt Issues	\$ -
Net Income	\$ 15,934.42
Equity Reinvestment Rate:	19.7%
VASC 5 Year Average ROE	12.5%
Expected Growth Rate	2.5%
Projected World GDP 2020	3.7%
Terminal Value Growth Rate	3.1%

Source: Team Estimates, Team Calculations, Company Data

Table 3: 5-year Neutral Case Statistics

Simulation Statistics (5-YR)	
Mean	\$ 50.80
SD	16.15
25th Percentile	\$ 41.28
Median	\$ 47.13
75th Percentile	\$ 55.66

Source: Team Calculations

Table 4: Multiple Valuation Analysis

Relative Multiple Valuation	
Median EV/ 2017E Sales	3.7x
VASC 2017 SPS	\$ 10.84
Implied Stock Price	\$ 39.66
Maximum EV/ 2017E Sales	4.6x
VASC 2017 SPS	\$ 10.84
Implied Stock Price	\$ 49.16

Source: Team Estimates, Team Calculations

FY 2021 (Appendix K, L, and M). This model was highly sensitive to revenue growth rates, as well as operating margins and as such, we forecasted out multiple scenarios, 'Bull', 'Neutral', and 'Bear'. Each of these scenarios consisted of different assumptions for revenue growth and operating margins. In our 'Neutral' case, which we believe to be the most likely, we expect the Company to increase revenue growth to 14.5% by 2019 and continuing through 2021.

Revenue

Revenue growth is driven by the introduction of new niche products, as well as the continued sales of current products. VASC has maintained double-digit revenue growth for the past seven years and we believe that the current pipeline will continue to support this growth for years to come. In our 'Neutral' case, which we believe is the most likely, we expect the Company to increase revenue growth up to 14.5% by 2019 and expect that rate to continue through 2021. This forecasted growth is driven by the expected product release of RePlas and the Large Bore Closure Device, as well as the continued shift from femoral access to radial access in interventional procedures. Vascular Solutions has positioned itself in a unique market in which the Company has the ability to access multiple markets and not become overly dependent on one segment.

Gross Margins

Our forecasted financial statements were also impacted by the assumptions we made for gross margins. The company does not release information regarding margins for individual products, however, management has given guidance levels for gross margins and operating margins. Our assumptions for our 'Neutral' case are that margins will increase from 65.6% in 2016 up to 68% by 2021. We believe VASC has the ability to expand margins further, specifically through RePlas and the Large Bore Device. Also driving gross margin expansion is the expectation that the Company will not have any additional promotional activity for the reprocessed products, which cut gross margins by roughly 100 basis points in 2016.

Weighted Average Cost of Capital ("WACC")

Vascular Solutions does not currently carry any long-term debt obligations or preferred shares and the Company is solely funded by common equity. To determine our cost of equity, we used the Capital Asset Pricing Model ("CAPM") and chose to use the Fama-French Three-Factor Model (Appendix B). We ran a regression between the return premiums of Vascular Solutions' stock price to the market premium of the S&P 500, from July 2001 to November 2016. We chose this time frame because it represents the entirety of Vascular Solutions as a public company. In our regression analysis, we generated a beta of 1.17, statistically significant at the 1% level. We then computed a 25-year arithmetic average return of 8.37% for the S&P 500. In addition, we projected the 10 Year Treasury Yield to be 3.25%. The CAPM equation resulted in a cost of equity of 9.26% and since the Company has no debt, this presents us with the WACC (Table 1).

Perpetual Growth Rate

We established a 3.1% perpetual growth rate by taking the projected 2020 GDP for the global economy of 3.7% and then calculated an expected growth rate for Vascular Solutions. We calculated the Company's rate by determining the equity reinvestment rate and then multiplying that by the five-year average of the Company's return on equity. This yielded us a terminal growth rate of 2.5%. Finally, we took the average of the global economy GDP of 3.7% and our calculation of 2.5% to arrive at the 3.1% growth rate. To further confirm our perpetual growth rate we took the historical GDP from 1980 to 2016 of Vascular Solutions' top five geographical regions. We then calculated the average GDP of these five countries and multiplied them by the average weights. This yielded us an expected growth rate of 2.9%. Due to the recent growth of Vascular Solutions and the size of the Company, we believe 3.1% is a conservative rate (Table 2).

Monte Carlo Analysis

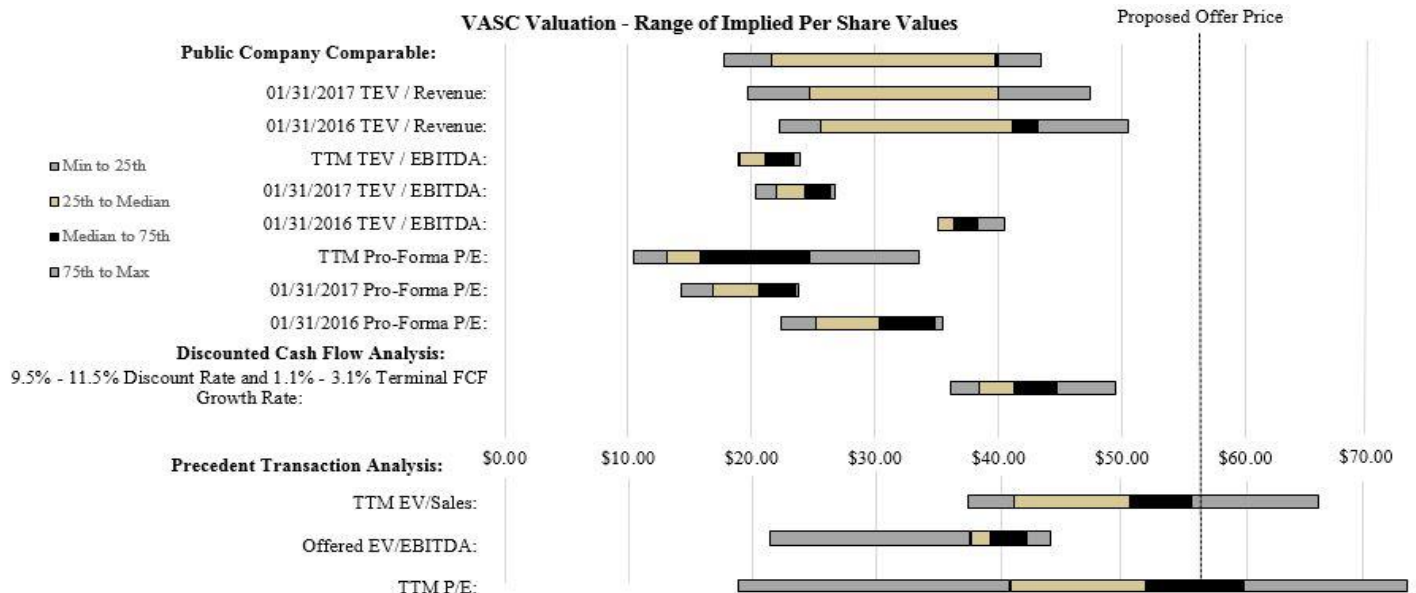
In order to account for the highly sensitive nature of the Discounted Cash Flow approach we have taken, we found a Monte Carlo analysis to be useful in understanding the fluctuations in price. We found the stock price to be highly sensitive to five items; revenue growth, gross margins, operating margins, terminal value growth rate, and weighted average cost of capital. We ran 10,000 simulations to account for variations in these inputs. This analysis led us to a price target of \$51 and reiterates our Sell recommendation, as 71.1% of the simulations resulted in a share price below the current offer price of \$56 (Table 3).

Relative Multiple Valuation

We have based our relative multiple valuation on an EV/SALES multiple due to the capital structure of Vascular Solution's competitors. This is to better quantify a P/S multiple approach as the EV/SALES accounts for the debt positions within the competitive peer group (Appendix P). We selected an EV/SALES range of 3.7x-4.6x which resulted in an overall range of \$40-\$50 per share (Table 4). We believe the higher end of these multiples reflect a more accurate forecast of VASC's 2017 EV/SALES of 5.1x. The \$56 offer price is above both our DCF price target of \$51 and our relative multiple valuation range, confirming our Sell recommendation.

Football Field Analysis

In constructing our football field valuation chart, we compared Vascular Solutions to five publicly traded competitors through various valuation methods. The comparable companies' method shows the offer price of \$56 for Vascular Solutions is \$5 above the maximum range, the DCF analysis shows the offer price is \$7 above the maximum range, and the precedent transaction analysis shows the valuation is in the high range. The combination of these factors reiterates our Sell recommendation of Vascular Solutions (Appendix P).



Investment Risks (Figure 27)

Risk of Teleflex Acquisition Failing (A1)

Teleflex’s acquisition of Vascular Solutions is expected to come to fruition in the first half of 2017, however, there is a risk that the deal is prolonged or fails altogether. If the Federal Trade Commission’s review of the acquisition raises questions about anti-trust regulations, the agency will lengthen the duration of the review and ask both Vascular Solutions and Teleflex to turn over more information. If the FTC does not approve they may take legal action to prevent the transaction from taking place. Of the merger filings the FTC reviews, 95% present no concerns and are approved without litigation. Additionally, there is a risk that Vascular Solutions could be sued by shareholders on the basis that the Board of Directors failed to satisfy their fiduciary responsibilities to shareholders by accepting too low of a price at \$56 per share.

Failure to Gain FDA Approval (A2)

Vascular Solutions’ profitability highly depends on the FDA’s approval of its products. We believe investors have partially priced in RePlas as a future revenue source and will continue to price it in until fruition. In the event of a complication with the RePlas approval process, we could see an adjustment in Vascular Solution’s share price. The Company’s business model thrives on its ability to launch new innovative products each year in order to drive sales. If the FDA denies approval for some of the Company’s key pipeline products, it could unexpectedly slow Vascular Solution’s top line growth.

Litigation on New and Existing Products (A3)

Vascular Solutions was recently acquitted on all counts in a criminal case that alleged CEO, Mr. Howard Root, and the Company’s sales force illegally promoted sales of the “Short Kit”, a product that treats varicose veins. Vascular Solutions spent \$25 million defending the case for the product that only generated about \$500,000 in total revenue over its lifespan. In addition, Vascular Solutions is susceptible to product liability risk in the event one of its products causes bodily harm to a patient. Product liability claims could result in costly litigation, reduced sales, and a diversion of attention of the entire organization away from the achievement of its goals.

Larger Competition Undercutting Profits (A4)

Due to Vascular Solutions small size, we believe there is an inherent risk with competition in some of its key products. For example, the success of GuideLiner has drawn other companies’ attention to produce an alternative product in a patent-friendly manner and market it at a lower price, effectively undercutting the price of Vascular Solutions’ products.

Reliance on Key Niche Products (A5)

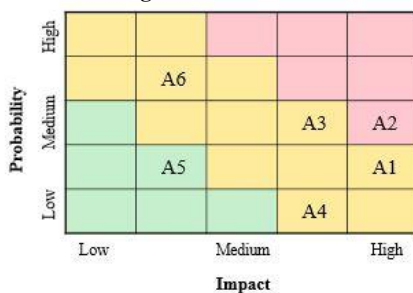
Vascular Solutions’ niche market strategy could limit growth potential. To maintain current growth levels, Vascular Solutions will have to add a higher volume of niche products or target larger product markets. We believe this could be a long-term risk and could limit the Company’s growth strategy. Vascular Solutions generates about 80% of profits from its nine largest products. All of these products are in different lifecycle stages; therefore, generate varying revenue growth rates.

Inability to Capture Revenues Through Relevant Sales Trends (A6)

Group Purchasing Organizations (“GPO”) are entities that help healthcare providers, such as hospitals, realize savings and efficiencies by using aggregate purchase order volume and using that leverage to negotiate discounts with manufacturers and distributors. Approximately 98% of hospitals in the U.S. currently use GPO contracts. We believe this is a risk for Vascular Solutions because only about 18% of its distribution comes from GPO’s therefore, the Company could be missing out on a larger stream of revenue.

Sources: Bloomberg, FactSet, Capital IQ, Team Calculations, Yahoo! Finance, Company Disclosures/Folings, FRED, Company Website/Presentations, SelectUSA.gov, StateofObesity.org/rates, American Heart Association, MarketsandMarkets, Worldometers, KKF.org, Breakingintowallstreet, CDC.org.

Figure 27: Risk Matrix



Source: Team Calculations

Appendix

A: Additional Management and Compensation

B: Regression & CAPM

C: Financial Analysis

D: Porter's Five Forces Analysis

E: Adult Obesity in U.S.

F: Obesity Rates and Trends

G: SWOT Analysis

H: Shares Outstanding

I: Company Reported Surprise History

J: Company Expenses and Spending Trends

K: Projected Income Statement

L: Pro Forma Balance Sheet

M: Projected Statement of Cash Flows

N: Discounted Cash Flow

O: Revenue by Product

P: Football Field Analysis

A: Additional Management and Compensation (Source: Company Proxy Statements)

Name and Principle Position	Year	Salary (\$)	Bonus (\$)	Stock and Option Awards (\$)	Non-Equity Incentive Plan Compensation (\$)	All Other Compensation (\$)	Total (\$)
Howard Root	2015	550,000.00	-	499,976	247,500.00	-	1,297,476.00
Chief Executive Officer	2014	525,000.00	-	499,990	142,980.00	-	1,167,970.00
	2013	500,000.00	-	443,963	190,625.00	-	1,134,588.00
James Hennen	2015	300,000.00	50,000.00	199,979	85,950.00	4,500.00	640,429.00
Senior Vice President of	2014	280,000.00	-	199,996	39,228.00	4,375.00	523,599.00
Finance and Chief Financial Officer	2013	265,000.00	-	181,681	61,533.00	3,188.00	511,402.00
Charmaine Sutton	2015	383,333.00	62,500.00	249,974	100,334.00	4,500.00	800,641.00
Senior Vice President,	2014	360,000.00	-	249,995	61,992.00	4,380.00	676,367.00
Regulatory & QA	2013	340,000.00	-	221,982	70,839.00	3,188.00	636,009.00
Chad Kugler	2015	350,000.00	45,833.00	183,324	76,125.00	4,066.00	659,348.00
Senior Vice President of	2014	196,000.00	-	999,995	40,982.00	2,631.00	1,239,608.00
Research & Development	-	-	-	-	-	-	-
Carrie Powers	2015	300,000.00	50,000.00	199,979	52,031.00	3,470.00	605,480.00
Vice President of	2014	265,000.00	-	149,997	40,827.00	3,384.00	459,208.00
Marketing	2013	250,000.00	-	150,001	44,141.00	1,690.00	445,832.00

Mr. William Rutstein (63), Sr. Vice President of International Sales Since 2015

Mr. Rutstein was named Senior Vice President of International Sales in January 2015; however, he has served in various roles for the Company since joining in August 1999. From July 2010 to January 2015, Mr. Rutstein was the Senior Vice President of Worldwide Sales, and the Vice President of International Sales from October 2008 to July 2010.

Ms. Laura Lonsdale, Vice President and Compliance Officer

Ms. Lonsdale joined Vascular Solutions in August 2014 as a Vice President and Compliance Officer. Before joining Vascular Solutions, Ms. Lonsdale served as the head of the Office of Business Conduct and Ethics, along with senior compliance counsel at Pentair, Ltd. Ms. Lonsdale has held various compliance roles since 2003 and has a Juris Doctor of Law from Boston University.

Phillip Nalbhone (54), Vice President of Corporate Development and Head of Investor Relations

Mr. Nalbhone has served as Vice President of Corporate Development and Head of Investor Relations since September 2011. Prior to joining Vascular Solutions, Mr. Nalbhone spent 20 years as a medical device analyst for multiple investment firms.

Vascular Solutions Corporate Objectives	Weight of Objective
(1) Achieve \$141 million in net revenue in 2015	30%
(2) Attain 2015 adjusted earnings per share of \$0.90	30%
(3) Achieve specific milestones for five material new products	20%
(4) Acquire or enter into an agreement to distribute a material new product	20%

Executive Incentive Compensation Plan

Under the Executive Incentive Compensation Plan, the CEO can earn a bonus of 50% of his base salary. Senior Vice Presidents can earn a bonus of 30% of their base salaries for achieving a target level of performance against corporate and individual objectives. The CEO's bonus is weighted 75% on corporate objectives and 25% on individual objectives, and Senior Vice Presidents' bonuses are weighted 60% corporate and 40% individual.

Appendix B: Regression & CAPM (Source: Team Calculations)

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Jensen's Alpha	0.015056399	0.011443322	1.315736696	0.189873197	-0.007518198	0.037630997	-0.007518198	0.037630997
Beta CAPM	1.173433715	0.260050821	4.512324589	1.13129E-05	0.66042339	1.68644404	0.66042339	1.68644404
SMB	0.043609466	0.01727742	2.524072872	0.012432384	0.009525764	0.077693168	0.009525764	0.077693168
HML	0.029227344	0.020141082	1.451130824	0.148418893	-0.010505592	0.068960281	-0.010505592	0.068960281

Beta is statistically significant at any level.

SMB is statistically significant at the 5% level.

Jensen's Alpha & HML is not statistically significant at any level.

Cost of Capital

In determining our cost of capital, we calculated the arithmetic average return of the S&P 500 for the past 25 years. We chose the 25-year time period because we believe it is a short enough time span to exclude the industrial age economy, but long enough to present us with a sufficient amount of data. We believe this time period better reflects our economy today due to technological advancements and the switch to more of service based economy. Our risk-free rate assumption is based on the current interest rate environment that we are in and we expect interest rates to continue to rise back to normal levels in the future. We looked at the average 10-year treasury rate during the 25-year time period and calculated an average rate of roughly 4.5%. We feel that this is too high with where rates currently are today.

Cost of Capital	
Risk-Free Rate	3.25%
Expected Market Return	8.37%
Beta	1.1734
Market Risk Premium	5.12%
Cost of Equity	9.26%
Cost of Debt	0.0%
Cost of Preferred	0.0%
WACC	9.26%

Appendix C: Financial Analysis (Source: Company Data, Team Calculations)

Year	2009A	2010A	2011A	2012A	2013A	2014A	2015A	2016E	2017E	2018E	2019E	2020E	2021E
Profitability													
Gross Margin	66.5%	66.3%	66.8%	66.9%	67.3%	66.9%	66.8%	65.6%	67.0%	67.5%	68.0%	68.0%	68.0%
SG&A to Sales	49.1%	48.3%	43.8%	44.9%	44.8%	44.6%	51.0%	46.7%	39.8%	37.1%	36.0%	34.5%	34.0%
Operating Margin	11.9%	17.3%	17.3%	16.2%	14.6%	15.8%	9.2%	12.9%	21.8%	24.1%	26.4%	28.0%	28.6%
Net Margin	7.9%	27.3%	10.8%	10.1%	10.1%	10.1%	7.1%	9.5%	14.5%	15.9%	17.4%	18.5%	18.9%
Liquidity													
Current Ratio	6.18x	4.95x	5.43x	4.61x	5.95x	5.74x	5.23x	5.90x	6.76x	7.99x	9.23x	10.39x	11.46x
Quick Ratio	4.85x	3.67x	3.74x	3.31x	4.72x	4.51x	3.90x	4.44x	5.40x	6.63x	7.84x	8.98x	10.03x
Asset Turnover Analysis													
Cash and ST Investments	5.47x	4.46x	5.79x	7.78x	5.22x	3.75x	3.78x	3.75x	3.05x	2.27x	1.84x	1.56x	1.37x
Receivables Turnover	7.67x	7.77x	7.90x	7.71x	7.82x	7.98x	8.13x	8.02x	7.89x	7.89x	7.91x	7.91x	7.91x
Inventory Turnover	2.51x	2.50x	2.24x	2.38x	2.72x	2.90x	2.66x	2.55x	2.51x	2.51x	2.49x	2.48x	2.47x
Current Assets	1.91x	1.73x	1.87x	2.05x	1.90x	1.77x	1.82x	1.81x	1.63x	1.38x	1.21x	1.08x	0.99x
Total Assets	1.43x	1.20x	1.16x	1.20x	1.13x	1.07x	1.07x	1.07x	1.03x	0.96x	0.91x	0.86x	0.82x
Shareholder Ratios													
SPS	\$ 4.15	\$ 4.61	\$ 5.24	\$ 5.98	\$ 6.49	\$ 7.12	\$ 8.16	\$ 9.44	\$ 10.58	\$ 11.73	\$ 13.15	\$ 14.74	\$ 16.54
EPS	\$ 0.33	\$ 1.26	\$ 0.57	\$ 0.60	\$ 0.65	\$ 0.72	\$ 0.58	\$ 0.90	\$ 1.53	\$ 1.86	\$ 2.29	\$ 2.72	\$ 3.12
FCF per Share	\$ 0.55	\$ 0.58	\$ 0.71	\$ 0.49	\$ 0.89	\$ 0.26	\$ 0.24	\$ 0.39	\$ 1.68	\$ 1.95	\$ 2.28	\$ 2.68	\$ 3.05
BV per Share	\$ 2.44	\$ 3.80	\$ 4.07	\$ 4.67	\$ 5.66	\$ 6.40	\$ 7.10	\$ 8.44	\$ 10.19	\$ 12.13	\$ 14.50	\$ 17.27	\$ 20.44

Gross Margins

Vascular Solutions rarely gives any information on margins (or costs) by product, therefore, we are unable to forecast specific COGS for each product segment. We have used guidance for gross margins to determine an approximation for COGS. Management has stated GuideLiner and Turnpike is an 80%+ gross margin product, with expectations for this to continue to remain constant. Our forecasted gross margin expansion is due to current product pipeline margins estimated to be around 70%, combined with the expected growth of GuideLiner and Turnpike sales. Management's specific guidance for gross margins is between 66% and 68% for 2018-2019.

Research and Development

Our forecast is for R&D to contract as a percentage of revenue. Management has given guidance to reduce R&D spending as a percentage of revenue, with expectations for 10%-12% by 2018-2019. The seven-year historical average from 2009-2015 has been 11.8%, and a deep product pipeline, combined with the government agreeing to cover the costs associated with the RePlas product, we believe R&D spending will begin to contract towards the industry average.

Sales and Marketing

Management has recognized the opportunity to leverage the current sales force, specifically keeping headcount generally stable. Management has expressed a target of 19% of revenue by 2018-2019. We believe this is aggressive in the short term, however expect that the growth rate of revenue will help drive this expense down.

General and Administrative

Vascular Solutions incurred significant General and Administrative Expenses in the past, primarily due to litigation expenses associated with "Short Kit". Excluding this litigation, the Company has been able to keep General and Administrative Expenses between 6% and 8% since 2012. We believe the Company will be able to avoid significant litigation expenses in the future, and as a result, expect General and Administrative Expenses as a percentage of revenue to decrease moving forward. Again, management has stated expectations for this expense to be 5% by 2018-2019, however we feel this is fairly aggressive in the short term, and do not expect the Company to reach this level until 2020.

Operating Margins

In 2013, operating margins were 14.6% and increased to 15.8% in 2014. Due to litigation expenses from "Short Kit", operating margins contracted by 6.6% in 2015 to 9.2%. Going forward, we expect no significant litigation expenses to occur, and given the expected reduction of expenses as a percentage of revenue, operating margins will reflect the leveraging of Research and Development, Sales and Marketing, and General and Administrative Expenses.

Accounts Receivables

The seven-year historical average of Accounts Receivable, as a percentage of revenue has been 13.5%. We believe going forward this percentage will remain constant, as we do not expect to see any changes in the business model of Vascular Solutions.

Inventory

In 2015, inventory levels were higher than prior years due to the anticipation of a reduction in production levels. The Company began the process of renovating manufacturing facilities in 2014 which may have temporarily restricted production levels. We expect that inventory levels will remain slightly higher in 2016, and in 2017 will begin to return to the seven-year historical average of 14.3% of revenue.

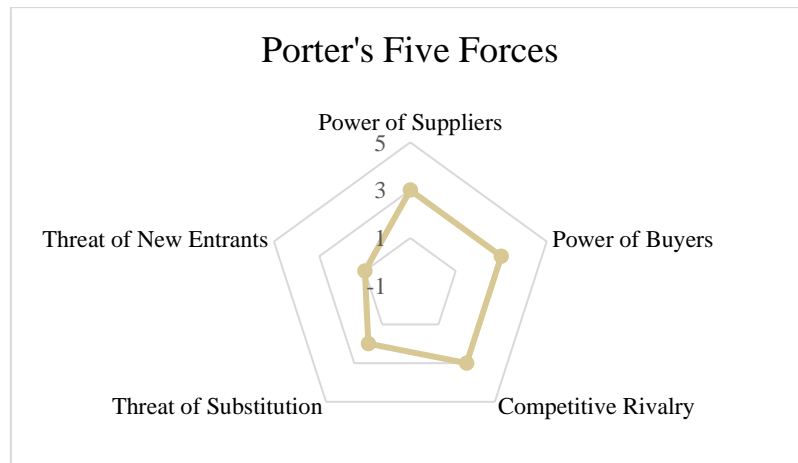
Net Property, Plant, and Equipment ("PP&E")

Due to the recent facility renovations and purchases in 2014 through 2016, PP&E has roughly increased by \$10 million each year. Taking a conservative approach, we believe the Company will not require any additional significant capital expenditures to maintain current manufacturing levels. However, due to the expectations of continued growth of the business, we recognize there will be continued growth in PP&E. To forecast out PP&E, we used our terminal value growth rate of 3.1%, as a growth rate, year over year.

Accounts Payable

The historical average from 2009 to 2015 of Accounts Payable has been 3.4% of Revenue, and 9.9% of Cost of Goods Sold. We believe that the business model will continue as planned and Accounts Payable will remain relatively constant as a percent of both Revenue and Cost of Goods Sold.

Appendix D: Porter's Five Forces Analysis (Source: Team Estimates)



Supplier Power

Vascular Solutions relies on single suppliers of multiple inputs for products, most notably is the reliance on King Pharmaceuticals for thrombin. It may be difficult to find other suppliers who can provide the same product for a similar price and in the same quantity, in a timely manner. Also noteworthy is the relationship with Medtronic, as Vascular Solutions uses products from Medtronic for reprocessing, and distributes both to third party vendors, as well as back to Medtronic.

Buyer Power

For the basic products that are not specific to Vascular Solutions, such as general catheters, it is very easy for hospitals and doctors to switch to a competitor, or to drive prices down. However, there are specialty products that Vascular Solutions has that physicians and hospitals cannot find in other places. In addition, the RePlas product currently has no competitors; therefore, the Company will be able to determine its price. It is difficult for VASC to get involved with Group Purchasing Organizations because many competitors can offer larger product lines that include products outside of the four fields that Vascular Solutions operates in. However, the Company also has many buyers and so if they lose one; it is not detrimental to the business. A strength that the Company does have is in the sales team. Vascular Solutions employs 105 sales people and a portion of the sales force were once medical professionals. The sales force has also established relationships with physicians and hospitals.

Competitive Rivalry

In the medical device industry, there are always competitors trying to outdo what other companies are focusing on. However, because Vascular Solutions does not rely on one specific product to grow, the Company has positioned itself strategically between larger companies (Medtronic, Boston Scientific), and smaller companies (AngioDynamics, Spectranetics, Asahi Intecc). However, the medical device industry is always changing with the needs of patients, and because VASC operates in a unique area, does not mean that will last forever.

Threat of Substitution

Some of Vascular Solutions' growth is dependent on the continuing switch from femoral to radial access. If this shift does not continue, and femoral remains the primary access point, the Company will see minimal growth in certain product lines. Many products VASC supplies are niche products, and just because sales are strong and growing now, does not mean they will forever. There are always new products coming to fruition. VASC's success will be dependent on its ability to continue to discover the new niche markets where others do not operate.

Threat of New Entry

Vascular Solutions identified the market for niche products early, especially the shift from femoral to radial access, and has been able to capitalize on it. The Company is one of the few who grow to be as large as they are without being acquired. Due to this, the Company's size and access to markets has created a significant barrier to entry for competitors. Vascular Solutions has a strong cash position, therefore if a smaller company enters the market with threatening products, the Company has the ability to purchase the specific products or the entire company.

Appendix E: Adult Obesity in U.S. (Source: The State of Obesity)

Adult Obesity in the United States



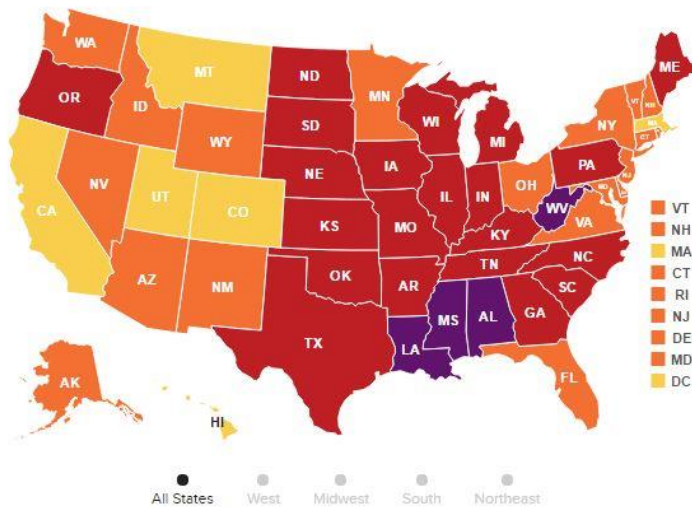
Updated September 1, 2016: According to the most recent data, adult obesity rates now exceed 35 percent in four states, 30 percent in 25 states and are above 20 percent in all states. Louisiana has the highest adult obesity rate at 36.2 percent and Colorado has the lowest at 20.2 percent. U.S. adult obesity rates decreased in four states (Minnesota, Montana, New York and Ohio), increased in two (Kansas and Kentucky) and remained stable in the rest, between 2014 and 2015. This marks the first time in the past decade that any states have experienced decreases — aside from a decline in Washington, D.C. in 2010.

Adult Obesity Rate by State, 2015

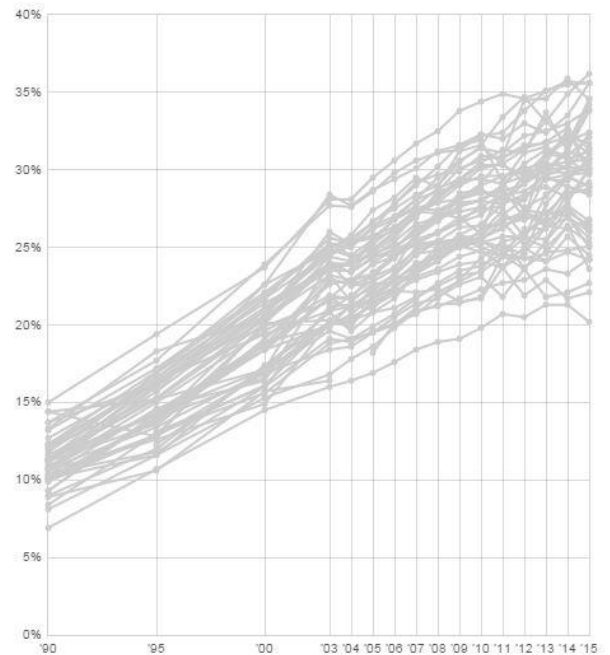
Select years with the slider to see historical data. Hover over states for more information. Click a state to lock the selection. Click again to unlock.

Percent of obese adults (Body Mass Index of 30+)

0 - 9.9% 10 - 14.9% 15 - 19.9% 20 - 24.9% 25 - 29.9% 30 - 34.9% 35%+



Adult obesity rates, 1990 to 2015



Appendix F: Obesity Rates and Trends (Source: The State of Obesity)

the STATE of OBESITY Better Policies for a Healthier America A project of the Trust for America's Health and the Robert Wood Johnson Foundation

Rates & Trends	Policy Analysis	State Briefs	Lists	Fast Facts	Resources	About
----------------	-----------------	--------------	-------	------------	-----------	-------

Home Obesity Rates & Trends Obesity Rates & Trends Overview

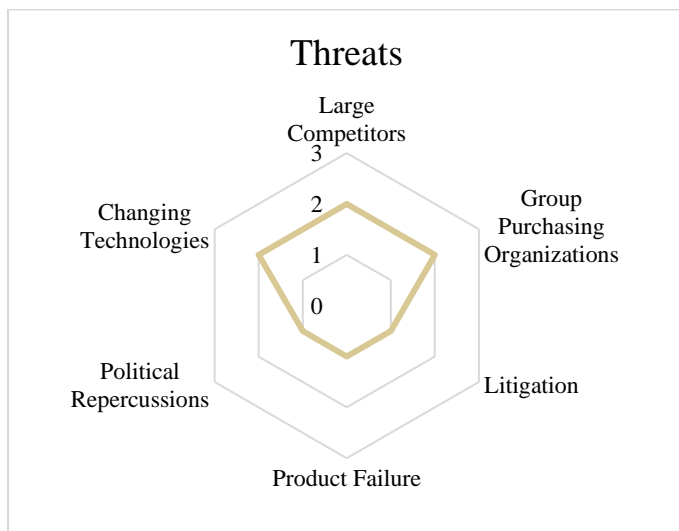
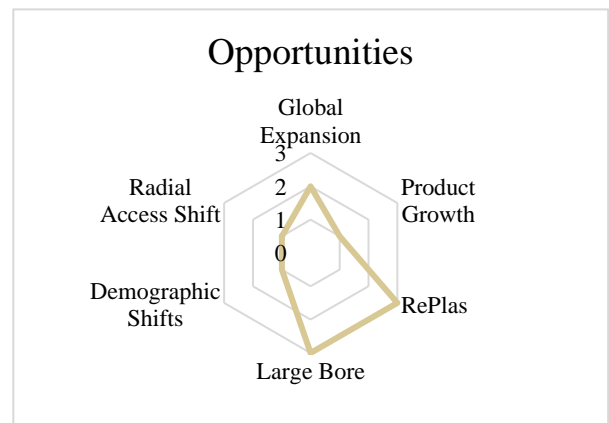
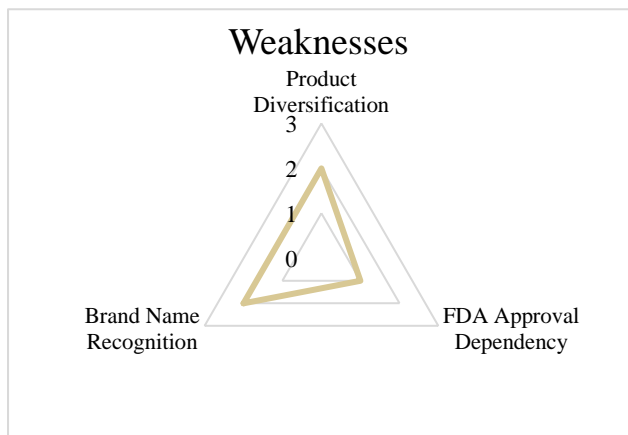
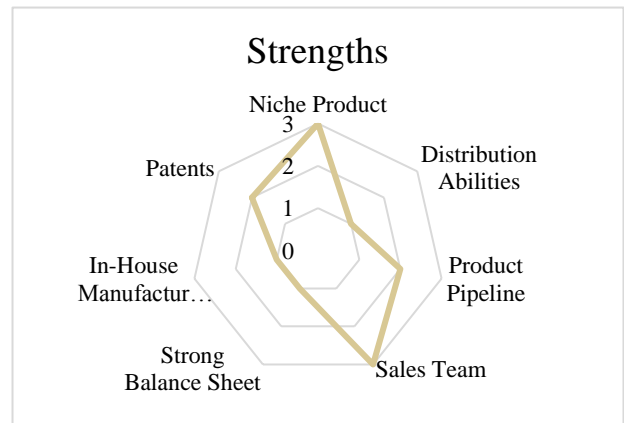
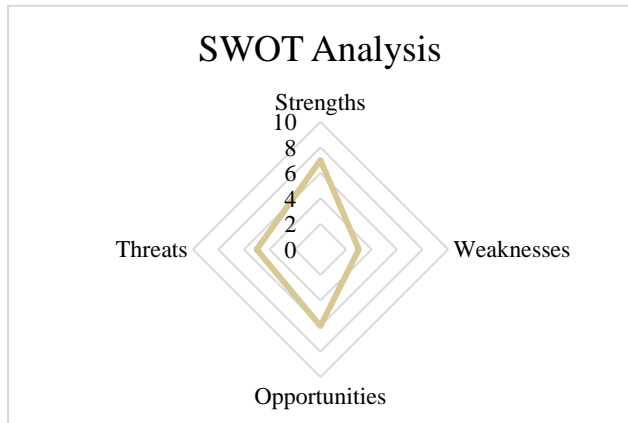
Obesity Rates & Trends Overview



After decades of increasing, the national childhood obesity rate has leveled off and the rise in obesity among adults is beginning to slow. This is progress, but rates are alarmingly higher than they were a generation ago as demonstrated by this report, which looks at data over the past 25 years.

Obesity remains one of the biggest threats to the health of our children and our country, putting millions of Americans at increased risk for a range of chronic diseases and contributing to more than \$147 billion to \$210 billion dollars in preventable healthcare spending.¹

Appendix G: SWOT Analysis (Source: Team Calculations)

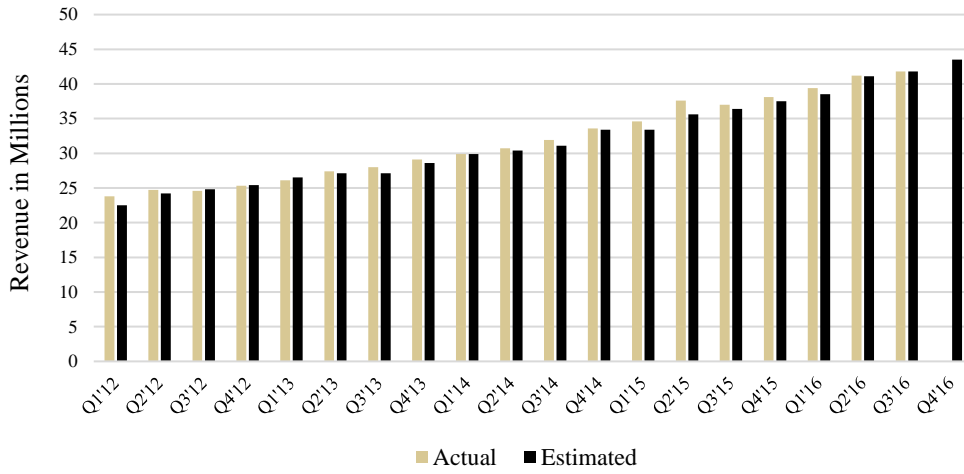


Appendix H: Shares Outstanding (Source: Company Reports, Team Calculations)

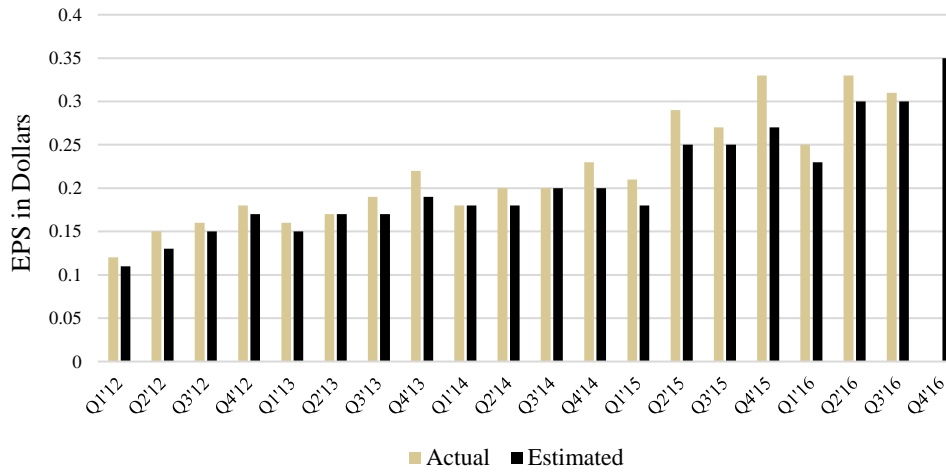
Part of our assumptions for forecasts from 2017 through 2021 include Diluted Shares. The Company has repurchased a minimal amount of shares in the past, which have been funded through the program set forth by the Board of Directors. The plan was in place for a total of \$20 million, however, it expired on September 30, 2016. The Company has not released a new plan for the future, and with the acquisition by Teleflex, we do not expect there will be one put in place. We have Diluted Shares increasing slightly each year, as part of the compensation of management and employees including options for employees to purchase shares at a discount of 15% of market value. The Company has 2.7 million shares reserved for this plan, which ends in April 2020.

Appendix I: Company Reported Surprise History (Source: Company Data, Team Calculations)

Revenue Surprise History

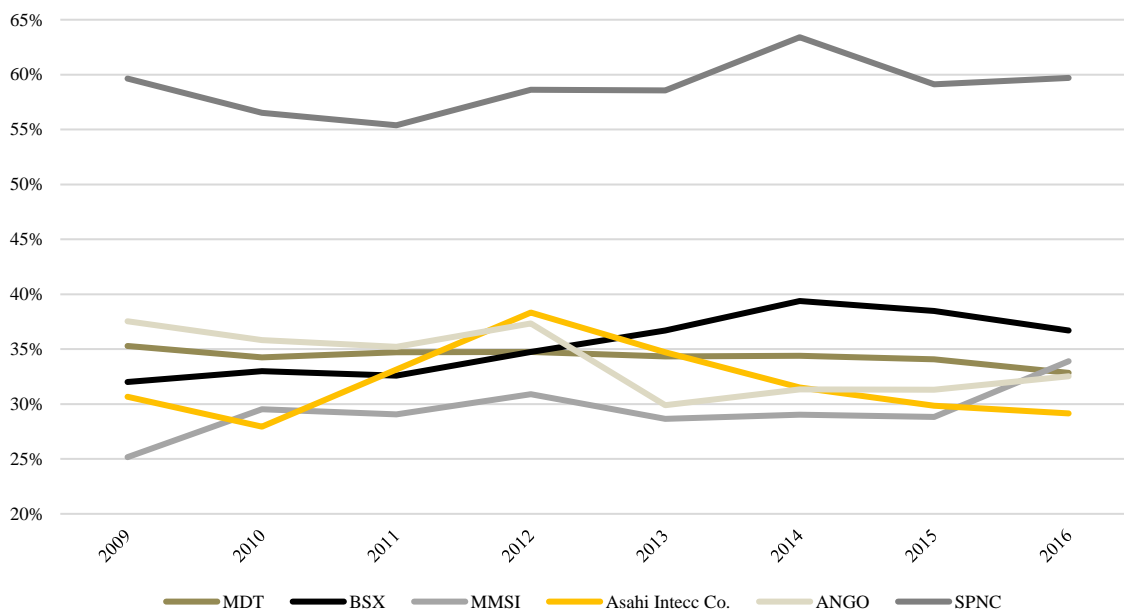


EPS Surprise History

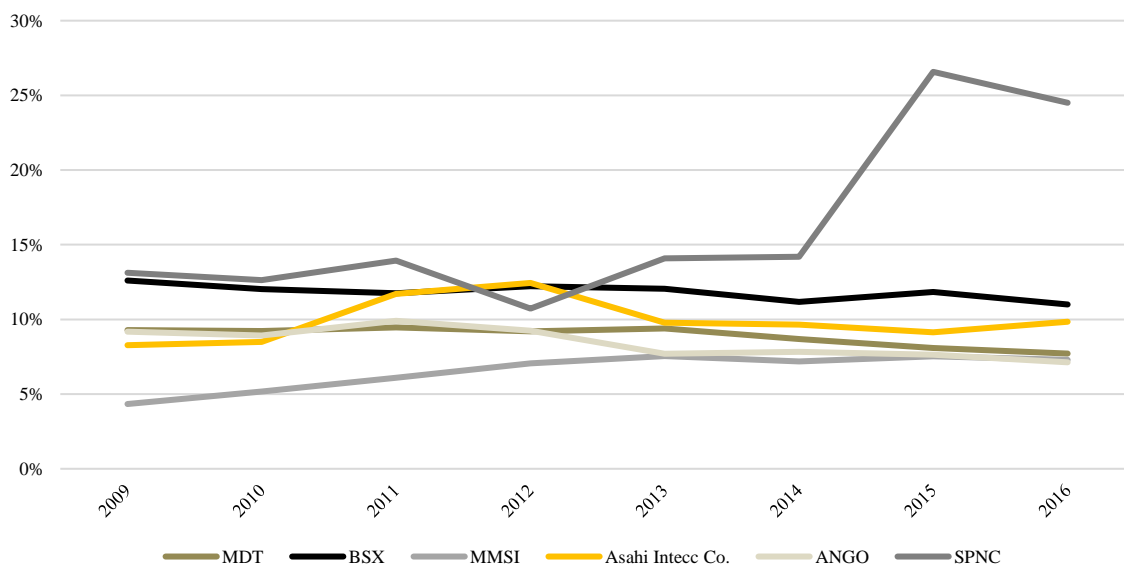


Appendix J: Company Expenses and Spending Trends (Source: FactSet)

Selling General & Administrative Expenses (% of Revenue)



Research & Development Spending (% of Revenue)



Appendix K: Projected Income Statement (Source: Team Calculations, Company Financial Statements)

Income Statement									
	Historical			Projection					
	FY 2013A	FY 2014A	FY 2015A	FY 2016E	FY 2017E	FY 2018E	FY 2019E	FY 2020E	FY 2021E
Total Revenue	\$110,498	\$126,099	\$147,200	\$167,000	\$190,380	\$217,033	\$248,503	\$284,536	\$325,794
Cost of Goods Sold	36,156	36,156	41,699	48,903	57,500	62,825	70,536	79,521	91,052
Gross Profit	74,342	84,400	98,297	109,500	127,555	146,497	168,982	193,484	221,540
<i>% of Sales</i>	<i>67.28%</i>	<i>66.93%</i>	<i>66.78%</i>	<i>65.57%</i>	<i>67.00%</i>	<i>67.50%</i>	<i>68.00%</i>	<i>68.00%</i>	<i>68.00%</i>
R&D	13,191	13,441	18,358	21,376	22,846	24,525	27,335	28,454	32,579
<i>% of Sales</i>	<i>11.94%</i>	<i>10.66%</i>	<i>12.47%</i>	<i>12.80%</i>	<i>12.00%</i>	<i>11.30%</i>	<i>11.00%</i>	<i>10.00%</i>	<i>10.00%</i>
Clinical & Regulatory	4,408	4,979	6,323	8,300	8,567	9,766	9,940	11,381	13,032
<i>% of Sales</i>	<i>3.99%</i>	<i>3.95%</i>	<i>4.30%</i>	<i>4.97%</i>	<i>4.50%</i>	<i>4.50%</i>	<i>4.00%</i>	<i>4.00%</i>	<i>4.00%</i>
Sales & Marketing	27,372	29,825	34,085	37,575	41,503	45,143	49,701	55,485	61,901
<i>% of Sales</i>	<i>24.77%</i>	<i>23.65%</i>	<i>23.16%</i>	<i>22.50%</i>	<i>21.80%</i>	<i>20.80%</i>	<i>20.00%</i>	<i>19.50%</i>	<i>19.00%</i>
General & Administrative	8,991	12,986	22,583	19,000	11,423	10,852	12,425	14,227	16,290
<i>% of Sales</i>	<i>8.14%</i>	<i>10.30%</i>	<i>15.34%</i>	<i>11.38%</i>	<i>6.00%</i>	<i>5.00%</i>	<i>5.00%</i>	<i>5.00%</i>	<i>5.00%</i>
Other Operating Expenses	4,283	3,242	3,349	1,716	1,813	4,002	4,071	4,363	4,656
Total Operating Expense	58,245	64,473	84,698	87,967	86,152	94,287	103,472	113,909	128,458
EBIT	16,097	19,927	13,599	21,533	41,403	52,210	65,510	79,575	93,082
<i>% Margin</i>	<i>14.57%</i>	<i>15.80%</i>	<i>9.24%</i>	<i>12.89%</i>	<i>21.75%</i>	<i>24.06%</i>	<i>26.36%</i>	<i>27.97%</i>	<i>28.57%</i>
Interest & Other Expense/Income:	(14.00)	(15.00)	42.00	-	-	-	-	-	-
Pretax Income	16,083	19,912	13,641	21,533	41,403	52,210	65,510	79,575	93,082
<i>% Margin</i>	<i>14.56%</i>	<i>15.79%</i>	<i>9.27%</i>	<i>12.89%</i>	<i>21.75%</i>	<i>24.06%</i>	<i>26.36%</i>	<i>27.97%</i>	<i>28.57%</i>
Income Taxes	4,941	7,178	3,177	5,599	13,870	17,751	22,273	27,056	31,648
Net Income	11,142	12,734	10,464	15,934	27,533	34,459	43,236	52,520	61,434
<i>% Margin</i>	<i>10.08%</i>	<i>10.10%</i>	<i>7.11%</i>	<i>9.54%</i>	<i>14.46%</i>	<i>15.88%</i>	<i>17.40%</i>	<i>18.46%</i>	<i>18.86%</i>
Diluted Shares Outstanding	17,025	17,711	18,048	17,700	18,100	18,500	18,900	19,300	19,700
Earnings per Share	\$0.65	\$0.72	\$0.58	\$0.90	\$1.52	\$1.86	\$2.29	\$2.72	\$3.12
EBITDA Reconciliation:									
EBIT	16,097	19,927	13,599	21,533	41,403	52,210	65,510	79,575	93,082
Plus: Depreciation & Amortization	4,433	4,899	5,996	6,776	7,806	8,030	8,449	9,105	10,100
EBITDA	20,530	24,826	19,595	28,309	49,208	60,240	73,959	88,680	103,182
<i>% Margin</i>	<i>18.58%</i>	<i>19.69%</i>	<i>13.31%</i>	<i>16.95%</i>	<i>25.85%</i>	<i>27.76%</i>	<i>29.76%</i>	<i>31.17%</i>	<i>31.67%</i>

*Cost of Goods Sold line item includes Depreciation.

*Other Operating Expenses includes Medical Device Excise Tax, Collaboration Expenses, and Litigation Expenses for both historical and projected numbers.

Appendix L: Pro Forma Balance Sheet (Source: Team Calculations, Company Financial Statements)

Pro Forma Balance Sheet									
Assets									
	Historical			Projection					
	FY 2013A	FY 2014A	FY 2015A	FY 2016E	FY 2017E	FY 2018E	FY 2019E	FY 2020E	FY 2021E
Cash and Cash Equivalents	30,785	36,461	41,491	47,208	77,295	113,226	156,287	207,967	267,881
Accounts Receivable	14,481	17,105	19,121	22,545	25,701	29,299	33,548	38,412	43,982
Inventories	14,002	15,908	22,105	24,215	27,224	30,385	34,790	39,835	45,611
Prepays & Other Current Assets	2,472	5,231	4,361	3,674	5,140	5,860	6,710	7,682	8,796
Current Portion of Deferred Tax Assets	6,000	-	-	-	-	-	-	-	-
Total Current Assets	67,740	74,705	87,078	97,642	135,361	178,770	231,335	293,897	366,271
Net PP&E	16,187	25,665	34,508	44,000	45,364	46,770	48,220	49,715	51,256
Goodwill	10,532	10,259	10,045	10,089	10,089	10,089	10,089	10,089	10,089
Intangibles	11,943	10,164	8,445	7,347	5,731	4,115	2,499	883	-
Deffered Tax Assets	1,739	5,814	4,797	7,000	7,036	7,036	7,036	7,036	7,036
Total Assets	108,141	126,607	144,873	166,078	203,581	246,780	299,179	361,620	434,652
Liabilities									
	Historical			Projection					
	FY 2013A	FY 2014A	FY 2015A	FY 2016E	FY 2017E	FY 2018E	FY 2019E	FY 2020E	FY 2021E
Accounts Payable	3,762	4,806	5,830	5,000	7,225	8,112	9,145	10,471	11,989
Accrued Compensation	4,365	4,580	6,702	7,130	7,679	8,270	8,907	9,593	10,332
Accrued Expenses	2,467	3,016	3,626	4,000	4,720	5,570	6,572	7,755	9,151
Accrued Royalties	235	230	226	220	215	210	205	200	195
Current Portion of Deferred Revenue	556	391	273	200	194	213	239	267	290
Total Current Liabilities	11,385	13,023	16,657	16,550	20,032	22,375	25,068	28,286	31,957
Long Term Deferred Revenue	406	202	-	-	-	-	-	-	-
Other - Long Term Deffered Tax Liabilities	-	42	72	74	74	74	74	74	74
Total Liabilities	11,791	13,267	16,729	16,624	20,106	22,449	25,142	28,360	32,031
Shareholder's Equity									
	Historical			Projection					
	FY 2013A	FY 2014A	FY 2015A	FY 2016E	FY 2017E	FY 2018E	FY 2019E	FY 2020E	FY 2021E
Common Stock	170	172	174	177	180	183	186	189	195
Additional Paid in Capital	92,346	97,324	102,123	107,469	113,953	120,349	126,815	133,515	141,436
Accumulated Other income	(1)	(725)	(1,186)	(1,159)	(1,159)	(1,159)	(1,159)	(1,159)	(1,159)
Accumulated Earnings (Deficit)	3,835	16,569	27,033	42,967	70,500	104,959	148,195	200,715	262,149
Total Liabilities & Shareholders Equity	108,141	126,607	144,873	166,078	203,581	246,780	299,179	361,620	434,652

Appendix M: Projected Statement of Cash Flows (Source: Team Calculations, Company Financial Statements)

Statement of Cash Flows									
	Historical			Projection					
	FY 2013A	FY 2014A	FY 2015A	FY 2016E	FY 2017E	FY 2018E	FY 2019E	FY 2020E	FY 2021E
<i>Operating Activities</i>									
Net Income	11,142	12,734	10,464	15,934	27,533	34,459	43,236	52,520	61,434
Depreciation	2,861	3,257	4,381	5,160	6,092	6,294	6,958	7,682	8,796
Amortization	1,572	1,642	1,615	1,616	1,713	1,736	1,491	1,423	1,303
Stock Based Compensation	3,343	3,882	4,126	4,580	5,084	5,643	6,264	6,953	7,717
Deferred Taxes (Net)	3,138	1,971	1,051	(1,051)	-	-	-	-	-
Other Funds	(2,165)	(1,747)	(882)	(21)	-	-	-	-	-
Funds from Operations	19,891	21,739	20,755	26,218	40,422	48,132	57,949	68,577	79,251
<i>Changes in Working Capital</i>									
Accounts Receivable	(713)	(2,741)	(2,092)	(3,424)	(3,156)	(3,598)	(4,248)	(4,864)	(5,570)
Inventories	(435)	(1,909)	(6,256)	(2,110)	(3,009)	(3,160)	(4,406)	(5,045)	(5,776)
Prepaid Expenses and Other	158	(948)	1,857	(687)	(1,466)	(720)	(850)	(973)	(1,114)
Accounts Payable	(86)	1,086	1,063	(830)	2,225	887	1,033	1,326	1,518
Other Current Liabilities	571	252	2,427	796	1,264	1,436	1,635	1,864	2,130
Working Capital Impact	(505)	(4,260)	(3,001)	(6,255)	(4,143)	(5,156)	(6,836)	(7,692)	(8,812)
Cash Flow from Operations	19,386	17,479	17,754	19,963	36,279	42,976	51,113	60,885	70,439
<i>Investing Activities</i>									
Capital Expenditures	(4,234)	(12,804)	(13,353)	(13,000)	(6,092)	(6,945)	(7,952)	(9,105)	(10,425)
Proceeds from the Sale of Equipment	22	28	-	7	-	-	-	-	-
Cash Paid for Acquisitions	(820)	-	-	(500)	-	-	-	-	-
Cash Flow from Investing	(5,032)	(12,776)	(13,353)	(13,493)	(6,092)	(6,945)	(7,952)	(9,105)	(10,425)
<i>Financing Activities</i>									
Sale of Common and Preferred Stock	3,976	2,406	2,066	2,800	2,200	2,200	2,200	2,200	2,200
Repurchase of Common Shares	(1,211)	(3,131)	(2,333)	(3,534)	(2,300)	(2,300)	(2,300)	(2,300)	(2,300)
Tax Benefit from Stock-Based Awards	2,084	1,823	942	-	-	-	-	-	-
Cash Flow from/used by Financing	4,849	1,098	675	(734)	(100)	(100)	(100)	(100)	(100)
Exchange Rate Effect	28	(125)	(46)	(19)	-	-	-	-	-
Net Change in Cash	19,231	5,676	5,030	5,717	30,087	35,931	43,061	51,680	59,914

*Other Funds line item, includes Tax Benefit From Stock-Based Awards, Gain on Disposal of Fixed Assets, Change in Fair Value of Contingent Consideration, and Change in Accounts Receivable Allowance.

*Other Current Liabilities includes Accrued Compensation, Accrued Expenses, Accrued Royalties, and Current Portion of Deferred Revenue.

*Capital Expenditures includes Purchase of Property and Equipment and Purchase of Building and Land Lines.

Appendix N: Discounted Cash Flow (Source: Team Calculations)

Discounted Cash Flow										
	Historical			Projection						
	FY 2013A	FY 2014A	FY 2015A	FY 2016E	FY 2017E	FY 2018E	FY 2019E	FY 2020E	FY 2021E	
EBIT	16,097	19,927	13,599	21,533	41,403	52,210	65,510	79,575	93,082	
<i>Plus: Depreciation</i>	2,861	3,257	4,381	5,160	6,092	6,294	6,958	7,682	8,796	
<i>Plus: Amortization</i>	1,572	1,642	1,615	1,616	1,713	1,736	1,491	1,423	1,303	
EBITDA	20,530	24,826	19,595	28,309	49,208	60,240	73,959	88,680	103,182	
<i>Less: Capital Expenditures</i>	(4,234)	(12,804)	(13,353)	(13,000)	(6,092)	(6,945)	(7,952)	(9,105)	(10,425)	
EBITDA Less Capex	16,296	12,022	6,242	15,309	43,116	53,295	66,007	79,575	92,756	
<i>Less: Taxes</i>	5,006	4,334	1,454	6,019	14,444	18,342	22,780	27,539	32,091	
<i>Less: Change in NWC</i>	(92)	5,651	3,709	4,954	4,149	5,136	6,811	7,664	8,788	
Unlevered Free Cash Flow	11,382	2,037	1,079	4,336	24,523	29,817	36,416	44,372	51,877	
Terminal Value Growth Rate	3.1%									
Projected Free Cash Flow	53,474									
Discount Rate (WACC)	9.26%									
Terminal Enterprise Value	865,453									
Terminal EV/EBITDA Multiple	8.4									
Discounted Cash Flows				3,969	20,543	22,862	25,555	28,500	30,497	
Terminal Value										721,468
Total Cash Flows	853,393									

Valuation Analysis	
DCF Enterprise Value	853,393
Less: Net Cash (Net Debt)	41,491
Equity Value	894,884
Number of Shares Outstanding	17,568
DCF Value per Share	\$ 50.94

Sensitivity Analysis									
Perpetual Growth Rate	WACC								
	\$ 50.94	7.50%	8.00%	8.50%	9.00%	9.50%	10.00%	10.50%	11.00%
2.00%	\$ 59.02	\$ 54.81	\$ 51.24	\$ 48.15	\$ 45.46	\$ 43.10	\$ 41.00	\$ 39.12	
2.25%	\$ 60.71	\$ 56.19	\$ 52.36	\$ 49.09	\$ 46.24	\$ 43.76	\$ 41.56	\$ 39.60	
2.50%	\$ 62.59	\$ 57.69	\$ 53.59	\$ 50.10	\$ 47.09	\$ 44.47	\$ 42.16	\$ 40.11	
2.75%	\$ 64.67	\$ 59.35	\$ 54.93	\$ 51.20	\$ 48.00	\$ 45.23	\$ 42.80	\$ 40.65	
3.00%	\$ 67.00	\$ 61.18	\$ 56.40	\$ 52.40	\$ 48.99	\$ 46.05	\$ 43.49	\$ 41.24	
3.25%	\$ 69.60	\$ 63.22	\$ 58.02	\$ 53.71	\$ 50.07	\$ 46.95	\$ 44.24	\$ 41.87	
3.50%	\$ 72.55	\$ 65.49	\$ 59.81	\$ 55.15	\$ 51.24	\$ 47.92	\$ 45.05	\$ 42.55	
3.75%	\$ 75.90	\$ 68.04	\$ 61.80	\$ 56.73	\$ 52.52	\$ 48.97	\$ 45.92	\$ 43.28	
4.00%	\$ 79.74	\$ 70.91	\$ 64.02	\$ 58.49	\$ 53.93	\$ 50.12	\$ 46.87	\$ 44.07	

O: Revenue by Product (Source: Bloomberg, Team Calculations)

Revenue by Product (In Thousands)								
	Historical		Projection					
	FY 2014A	FY 2015A	FY 2016E	FY 2017E	FY 2018E	FY 2019E	FY 2020E	FY 2021E
Total Revenue	\$126,100	\$147,200	\$166,500	\$189,880	\$216,533	\$248,003	\$284,036	\$325,294
GuideLiner Catheters	\$31,840	\$45,410	\$47,895	\$54,426	\$61,495	\$67,606	\$73,651	\$81,833
Other Product Revenue	\$25,380	\$30,000	\$31,962	\$37,182	\$43,000	\$49,621	\$56,763	\$67,000
Extraction Catheters (Pronto)	\$18,000	\$14,970	\$12,588	\$12,134	\$11,909	\$11,656	\$11,930	\$11,711
Vein Catheter Reprocessing	\$10,210	\$12,600	\$13,965	\$15,000	\$16,000	\$17,500	\$19,000	\$20,500
Specialty Catheters (Micro)	\$10,420	\$12,340	\$14,752	\$17,500	\$20,500	\$24,000	\$28,000	\$32,500
Hemostat Patches	\$12,420	\$12,000	\$11,310	\$11,131	\$12,250	\$14,000	\$15,500	\$17,851
Access Products (Radial)	\$5,840	\$7,440	\$8,949	\$12,243	\$15,000	\$18,000	\$22,000	\$26,000
Langston Catheters	\$6,110	\$6,590	\$7,573	\$8,500	\$9,250	\$10,000	\$11,000	\$12,000
D-Stat Flowable Hemostat	\$5,460	\$5,320	\$4,327	\$4,303	\$4,907	\$5,208	\$5,681	\$6,250
License & Collaboration	\$430	\$580	\$492	\$499	\$569	\$652	\$746	\$855
Turnpike	—	—	\$12,687	\$16,963	\$21,653	\$29,760	\$39,765	\$48,794
Product Revenue (% of Total Revenue)								
	Historical		Projection					
	FY 2014A	FY 2015A	FY 2016E	FY 2017E	FY 2018E	FY 2019E	FY 2020E	FY 2021E
Total Revenue	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
GuideLiner Catheters	25.2%	30.8%	28.8%	28.7%	28.4%	27.3%	25.9%	25.2%
Other Product Revenue	20.1%	20.4%	19.2%	19.6%	19.9%	20.0%	20.0%	20.6%
Extraction Catheters (Pronto)	14.3%	10.2%	7.6%	6.4%	5.5%	4.7%	4.2%	3.6%
Vein Catheter Reprocessing	8.1%	8.6%	8.4%	7.9%	7.4%	7.1%	6.7%	6.3%
Specialty Catheters (Micro)	8.3%	8.4%	8.9%	9.2%	9.5%	9.7%	9.9%	10.0%
Hemostat Patches	9.8%	8.2%	6.8%	5.9%	5.7%	5.6%	5.5%	5.5%
Access Products (Radial)	4.6%	5.1%	5.4%	6.4%	6.9%	7.3%	7.7%	8.0%
Langston Catheters	4.8%	4.5%	4.5%	4.5%	4.3%	4.0%	3.9%	3.7%
D-Stat Flowable Hemostat	4.3%	3.6%	2.6%	2.3%	2.3%	2.1%	2.0%	1.9%
License & Collaboration	0.3%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
Turnpike	0.0%	0.0%	7.6%	8.9%	10.0%	12.0%	14.0%	15.0%

GuideLiner Catheters

We have projected GuideLiner to be roughly 28% of revenue for three years and then slowly drift down. We believe GuideLiner will continue to be the Company's flagship product but as a percent of revenue, it will dwindle with the emerging Turnpike. GuideLiner has seen great growth since 2009 when it was brought to the market. We have seen growth start to slow with the market saturation and therefore, we predict the product to generate year over year growth but slowing as a percent of revenue. Even with our furthest projection six years out, we still expect it to be the Company's biggest contributor to revenue.

Pronto Extraction Catheters

Pronto was Vascular Solutions main product that drove the Company to where it is today. This extraction catheter has seen growth as high as \$16.5M, but in 2012, year over year revenue growth started to decline. Currently, the Pronto is on track for roughly \$12.5M in 2016. We believe this catheter has run its course and the market for this product has become saturated. This catheter is used heavily in femoral access procedures in which we have seen a decline.

Specialty Catheters Micro

The Micro Introducer Kits have been on a recent tear with the demand for radial access. We project this product line to increase as a percent of revenue from roughly 9% in FY 2016 to 10% in FY 2021. In 2003, VASC brought introducer kits to the market. Introducer kits act as a port that allows catheters and guidewires to be inserted into the vascular system. The Company has delivered increased revenue by manufacturing these products in-house, thus lowering production costs. Worldwide potential for Micro Introducer Kits are expected to be \$75 million annually. We estimate revenues of \$18 million, accounting for 9% of revenue in FY 2017 due to the shift to internal manufacturing and greater variety of introducer kits offered.

Turnpike

At the moment, Turnpike is expected to produce about 7.6% of revenue in 2016. With management's guidance of this product being the number two product, right behind GuideLiner in the next couple years, we have projected it to be roughly 10% of total revenue in three years and 15% at the end of our forecast. We believe this product is currently the most essential product in its pipeline and could cause compression in other products as a percent of revenue.

Radial Access

Radial access is the next big shift domestically in interventional cardiology; therefore, we strongly believe the Company's radial access products will increase to 6% in the future.

P: Football Field Analysis (Source: Bloomberg, Breaking Into Wall Street, FactSet, and Team Calculations)

Comparable Company Analysis:

Valuation Statistics - VASC	VASC - Range of Valuation Multiples"					Applicable VASC Figure	VASC - Implied Per Share Value Range"				
	Maximum Multiple	75th Percentile Multiple	Median Multiple	25th Percentile Multiple	Minimum Multiple		Minimum Multiple	25th Percentile Multiple	Median Multiple	75th Percentile Multiple	Maximum Multiple
Public Company Comparables:											
TTM TEV / Revenue:	5.1 x	4.6 x	4.6 x	2.4 x	1.9 x	\$ 147.20	\$ 17.82	\$ 21.57	\$ 39.76	\$ 40.00	\$ 43.43
01/31/2016 TEV / Revenue:	4.9 x	4.1 x	4.1 x	2.4 x	1.9 x	\$ 166.50	19.69	24.67	39.99	39.99	47.37
01/31/2017 TEV / Revenue:	4.6 x	3.9 x	3.7 x	2.2 x	1.9 x	\$ 189.88	22.26	25.62	41.09	43.19	50.56
TTM TEV / EBITDA:	20.1 x	19.5 x	17.5 x	15.5 x	15.4 x	\$ 19.60	18.92	19.01	21.11	23.37	23.94
01/31/2016 TEV / EBITDA:	15.7 x	15.4 x	14.2 x	12.7 x	11.6 x	\$ 28.31	20.39	22.01	24.36	26.31	26.76
01/31/2017 TEV / EBITDA:	14.1 x	13.3 x	12.6 x	12.1 x	12.1 x	\$ 49.21	35.07	35.13	36.38	38.33	40.50
TTM Pro-Forma P/E:	57.8 x	42.6 x	27.3 x	22.7 x	18.0 x	\$ 0.58	10.44	13.14	15.84	24.69	33.54
01/31/2016 Pro-Forma P/E:	26.4 x	26.2 x	22.9 x	18.7 x	15.9 x	\$ 0.90	14.31	16.81	20.57	23.56	23.76
01/31/2017 Pro-Forma P/E:	23.3 x	22.9 x	20.0 x	16.6 x	14.7 x	\$ 1.52	22.34	25.19	30.40	34.85	35.42
Discounted Cash Flow Analysis:											
9.5% - 11.5% Discount Rate and 1.1% - 3.1% Terminal FCF Growth Rate:							\$ 36.16	\$ 38.42	\$ 41.22	\$ 44.76	\$ 49.41

Operating Statistics	Capitalization			Revenue			EBITDA			EPS		
	Share Price	Equity Value	Enterprise Value	TTM	2016	2017	TTM	2016	2017	TTM	2016	2017
Medtronic plc	\$ 71.77	\$ 98,544	\$ 119,771	\$ 29,012	\$ 29,424	\$ 20,512	\$ 8,609	\$ 9,315	\$ 9,912	\$ 3.00	\$ 4.51	\$ 4.88
Boston Scientific Corporation	21.76	\$ 29,630	\$ 34,818	\$ 8,095	\$ 8,357	\$ 8,827	\$ 1,874	\$ 2,235	\$ 2,537	0.05	1.10	1.26
Merit Medical Systems, Inc.	26.35	\$ 1,175	\$ 1,485	\$ 585	\$ 607	\$ 663	\$ 72	\$ 95	\$ 104	0.42	1.00	1.14
AngioDynamics, Inc.	16.85	\$ 626	\$ 705	\$ 357	\$ 359	\$ 367	\$ 44	\$ 52	\$ 56	(1.15)	0.63	0.71
Spectranetics Corporation	25.00	\$ 1,080	\$ 1,327	\$ 263	\$ 269	\$ 296	\$ (14)	\$ (12)	\$ (7)	(1.30)	(1.08)	(0.89)
Maximum:	\$ 71.77	\$ 98,544	\$ 119,771	\$ 29,012	\$ 29,424	\$ 20,512	\$ 8,609	\$ 9,315	\$ 9,912	\$ 3.00	\$ 4.51	\$ 4.88
75th Percentile:	26.35	\$ 29,630	\$ 34,818	\$ 8,095	\$ 8,357	\$ 8,827	\$ 1,874	\$ 2,235	\$ 2,537	0.42	1.10	1.26
Median:	25.00	\$ 1,175	\$ 1,485	\$ 585	\$ 607	\$ 663	\$ 72	\$ 95	\$ 104	0.05	1.00	1.14
25th Percentile:	21.76	\$ 1,080	\$ 1,327	\$ 357	\$ 359	\$ 367	\$ 44	\$ 52	\$ 56	(1.15)	0.63	0.71
Minimum:	16.85	\$ 626	\$ 705	\$ 263	\$ 269	\$ 296	\$ (14)	\$ (12)	\$ (7)	(1.30)	(1.08)	(0.89)
Vascular Solutions	\$ 55.70	\$ 979	\$ 940	\$ 159	\$ 167	\$ 190	\$ 20	\$ 28	\$ 48	\$ 0.69	\$ 0.90	\$ 1.50

Valuation Statistics	Capitalization			Enterprise Value / Revenue			Enterprise Value / EBITDA			P / E Multiple		
	Share Price	Equity Value	Enterprise Value	TTM	2016	2017	TTM	2016	2017	TTM	2016	2017
Medtronic plc	\$ 71.77	\$ 98,544	\$ 119,771	4.6 x	4.1 x	3.9 x	15.6 x	13.0 x	12.1 x	27.3 x	15.9 x	14.7 x
Boston Scientific Corporation	21.76	\$ 29,630	\$ 34,818	4.6 x	4.1 x	3.7 x	20.1 x	15.3 x	13.0 x	18.0 x	19.6 x	17.2 x
Merit Medical Systems, Inc.	26.35	\$ 1,175	\$ 1,485	2.4 x	2.4 x	2.2 x	19.4 x	15.7 x	14.1 x	57.8 x	26.1 x	22.8 x
AngioDynamics, Inc.	16.85	\$ 626	\$ 705	1.9 x	1.9 x	1.9 x	15.4 x	11.6 x	12.1 x	NA	26.4 x	23.3 x
Spectranetics Corporation	25.00	\$ 1,080	\$ 1,327	5.1 x	4.9 x	4.6 x	NA	NA	NA	NA	NA	NA
Maximum:	\$ 71.77	\$ 98,544	\$ 119,771	5.1 x	4.9 x	4.6 x	20.1 x	15.7 x	14.1 x	57.8 x	26.4 x	23.3 x
75th Percentile:	26.35	\$ 29,630	\$ 34,818	4.6 x	4.1 x	3.9 x	19.5 x	15.4 x	13.3 x	42.6 x	26.2 x	22.9 x
Median:	25.00	\$ 1,175	\$ 1,485	4.6 x	4.1 x	3.7 x	17.5 x	14.2 x	12.6 x	27.3 x	22.9 x	20.0 x
25th Percentile:	21.76	\$ 1,080	\$ 1,327	2.4 x	2.4 x	2.2 x	15.5 x	12.7 x	12.1 x	22.7 x	18.7 x	16.6 x
Minimum:	16.85	\$ 626	\$ 705	1.9 x	1.9 x	1.9 x	15.4 x	11.6 x	12.1 x	18.0 x	15.9 x	14.7 x
Vascular Solutions	\$ 55.70	\$ 979	\$ 940	5.1 x	5.7 x	5.1 x	40.6 x	27.4 x	19.8 x	69.9 x	44.9 x	37.9 x

Precedent Transaction Analysis:

Announcement Date	Acquirer Name	Target Name	Equity		Enterprise		Net	
			Value (MM)	Debt (MM)	Value (MM)	Sales (MM)	EBITDA (MM)	Income (MM)
1/1/2001	Covidien	Given	\$ 493	\$ -	\$ 493	\$ 188.9	\$ 25.0	\$ 16.5
1/1/2001	Bayer	Conceptus	\$ 774	\$ -	\$ 774	\$ 145.8	\$ 29.7	\$ 10.1
1/1/2001	Asahi	Zoll	\$ 1,315	\$ -	\$ 1,315	\$ 544.1	\$ 81.1	\$ 34.0

EV to Sales	EV to EBITDA	Price to Earnings
2.61x	19.71x	29.88x
5.31x	26.07x	76.63x
2.42x	16.22x	38.68x

VASC		Last Price	Implied Price Range						
Equity Value Multiples	Metric	Shares Outstanding	EPS	Min	1st Quartile	Mean	3rd Quartile	Max	
		\$ 56.00							
Net Income	\$ 12.2	17.6	\$ 0.69	\$ 20.71	\$ 23.76	\$ 33.55	\$ 39.97	\$ 53.12	

Min	2.42x	16.22x	29.88x
1st Quartile	2.51x	17.97x	34.28x
Mean	3.45x	20.67x	48.40x
3rd Quartile	3.96x	22.89x	57.66x
Max	5.31x	26.07x	76.63x

Enterprise Value Multiples	Metric	Shares Outstanding	Total Debt	Cash & Equivalents	Net Debt
Sales	\$ 158.8	17.6	\$ -	\$ 41.5	\$ (42)
EBITDA	\$ 19.9	17.6	\$ -	\$ 42	\$ (42)

Implied Price Range					
MIN	1st Quartile	Mean	3rd Quartile	Max	
\$ 24.17	\$ 25.04	\$ 33.45	\$ 38.09	50.28	
20.69758575	\$ 22.67	\$ 25.73	\$ 28.24	31.84	

Implied Enterprise Value Range					
Min	1st Quartile	Mean	3rd Quartile	Max	
\$ 383.92	\$ 399.12	\$ 547.23	\$ 628.88	\$ 843.44	
\$ 322.78	\$ 357.54	\$ 411.32	\$ 455.59	\$ 518.87	

EV/Sales	EV/EBITDA	P/E
\$ 24.17	\$ 20.70	\$ 20.71
\$ 25.04	\$ 22.67	\$ 23.76
\$ 33.45	\$ 25.73	\$ 33.55
\$ 38.09	\$ 28.24	\$ 39.97
\$ 50.28	\$ 31.84	\$ 53.12

Disclosures:

Ownership and material conflicts of interest:

The author(s), or a member of their household, of this report does not hold a financial interest in the securities of this company. The author(s), or a member of their household, of this report does not know of the existence of any conflicts of interest that might bias the content or publication of this report.

Receipt of compensation:

Compensation of the author(s) of this report is not based on investment banking revenue.

Position as an officer or director:

The author(s), or a member of their household, does not serve as an officer, director or advisory board member of the subject company.

Market making:

The author(s) does not act as a market maker in the subject company's securities.

Disclaimer:

The information set forth herein has been obtained or derived from sources generally available to the public and believed by the author(s) to be reliable, but the author(s) does not make any representation or warranty, express or implied, as to its accuracy or completeness. The information is not intended to be used as the basis of any investment decisions by any person or entity. This information does not constitute investment advice, nor is it an offer or a solicitation of an offer to buy or sell any security. This report should not be considered to be a recommendation by any individual affiliated with CFA Society of Minnesota, CFA Institute or the CFA Institute Research Challenge with regard to this company's stock.



CFA Institute

CFA Institute Research Challenge