

Intuitive Surgical, Inc.
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Healthcare Sector Analysis

The Healthcare sector is the second largest sector in the US. Over the next 9 years, the sector is predicted to grow from 16.2% of GDP to 19.5% of GDP, showing 2% more growth per year than the average GDP growth rate of 5%. Firms are rewarded for innovative products and creating efficiencies.

Healthcare Products and Services Industry

Standard & Poor's predicts strong, long-term growth for the product and services subset of the healthcare sector. The healthcare products and services industry is broken up into two distinct categories: healthcare product suppliers (common supplies, low-tech companies) and healthcare equipment companies (high-tech). High-tech equipment companies are expected to experience higher future growth rates in comparison to low-tech common equipment suppliers.

Key growth drivers for companies within the healthcare products and services industry are as follows:

1. New products including expanded applications of existing products.
2. International expansion.

Strategies healthcare products and services companies are focusing on to ensure growth are as follows:

1. Systems' ability to convert open cavity procedures to minimally invasive procedures (MIS), increasing patient benefits.
2. Technologies that help address hospitals' cost pressures.
3. Increased market share and protective patents.
4. Healthy profit margins and cash flows.
5. Strategic and synergistic alliances.

Challenges for companies within the healthcare products and services industry are as follows:

1. Traditionalist surgeons' reluctance to undergo training for new products.
2. Restrictive opportunities for new competitors.
3. Pressure on government reimbursement programs, such as Medicare and Medicaid. During April 2007, the Centers for Medicare & Medicaid Services ("CMS") proposed a rule to increase the pressure on hospitals to improve their efficiency and accuracy of care.

4. Decline in hospital purchases of capital equipment, due to reduced amounts of financing available during the credit crunch.
5. Lawsuits and compliance with Food and Drug Administration (“FDA”) regulations.

Company Profile

Intuitive Surgical, Inc. (ISRG) describes itself as a designer, manufacturer, and marketer of the da Vinci Surgical System, a product that incorporates advanced robotics and computerized visualization technologies to improve the ability of surgeons to perform complex minimally invasive surgeries. As of 2008 year-end, the company had an installed base of 1,111 da Vinci Surgical Systems, 815 systems located in the United States and 286 systems internationally. In 2008, surgeons using the company's technology successfully completed approximately 136,000 surgical procedures of various types, including urologic, gynecologic, cardiothoracic and general surgery. ISRG generates revenue from both the initial capital sales of da Vinci Surgical Systems as well as recurring revenue, comprised of instrument, accessory, and service revenue. The da Vinci Surgical System sells for approximately \$1.0 million to \$1.7 million. Recurring revenue is generated as customers purchase EndoWrist (the main articulation point which mimics the human wrist) and accessory products for use in performing procedures with the da Vinci Surgical System. EndoWrist instruments and accessories will either expire or wear out as they are used in surgery and will need to be replaced as they are consumed. ISRG generates additional recurring revenue from ongoing system service contracts, an annual rate of approximately \$100,000 to \$150,000.

The da Vinci Surgical Systems consist of a surgeon's console, a patient-side cart, a high performance vision system and proprietary “wristed” instruments and surgical accessories. The da Vinci Surgical System controls Intuitive Surgical endoscopic instruments, including rigid endoscopes, blunt and sharp endoscopic dissectors, scissors, scalpels, forceps/pickups, needle holders, endoscopic retractors, electrocautery, ultrasonic cutters, and accessories during a wide range of surgical procedures. The da Vinci Surgical System seamlessly translates the surgeon's natural hand movements on instrument controls at the console into corresponding micro-movements of instruments positioned inside the patient through small puncture incisions, or ports.

One of the most attractive parts about ISRG is how it fits the key drivers in the healthcare equipment industry. Not only does it really hit the growth driver, but it avoids a lot of the potential growth impediments. This makes ISRG stand out, and warrants further investigation beyond a cursory glance.

Company Growth Strategies

ISRG's increased profitability and market performance is determined by its ability to increase the number and types of procedures performed using the da Vinci Surgery System. Following are the company's strategies to increase the number of procedures performed using the da Vinci Surgery System:

1. **Convert a large percentage of open procedures to da Vinci Surgery.** The da Vinci Surgical System enables surgeons to perform a wide range of surgical procedures. According to ISRG, its multi specialty surgical platform has the capability to perform nearly 100 different types of surgeries. This strategy allows ISRG to expand applications of its existing products and enter new, untapped markets with high growth potential.
2. **Focus on key procedures.** ISRG's procedure marketing efforts are primarily focused within four surgical specialties: urologic surgery, gynecologic surgery, cardiothoracic surgery, and general surgery. The procedures that have driven the most growth for ISRG are the da Vinci Prostatectomy ("dVP") and the da Vinci Hysterectomy ("dVH"). dVP procedures grew approximately 33% in 2008 and represented more than half of all the da Vinci surgical procedures for the year. dVP is now the leading treatment choice for localized prostate cancer in the United States. The dVH procedure was a faster growing procedure from a percentage growth standpoint in 2008, growing approximately 150%. Other urologic procedures such as da Vinci Nephrectomy, da Vinci Cystectomy, da Vinci Pyeloplasty, other gynecologic procedures such as da Vinci Myomectomy, da Vinci Sacral Colpopexy, cardiothoracic procedures such as da Vinci Mitral Valve Repair, da Vinci Revascularization, and da Vinci Gastric Bypass have also contributed to ISRG's growth. dVP and dVH represented approximately 79% of the procedures performed during 2008. The development of key procedures parallel with FDA clearances. FDA clearances to date are as follows:
 - July 2000: General laparoscopic procedures
 - March 2001: Non-cardiac thoracoscopic procedures
 - May 2001: Prostatectomy procedures
 - November 2002: Cardiotomy procedures
 - July 2004: Cardiac revascularization procedures
 - March 2005: Urologic surgical procedures
 - April 2005: Gynecologic surgical procedures
 - June 2005: Pediatric surgical procedures
 - March 2008: Clearance to market system-held cardiac stabilizer and permission to remove the warning in ISRG's labeling regarding system use in non-arrested heart procedures
3. **Enter into collaborative relationships.**
 - ISRG intends to continue to establish strategic alliances with leading medical device companies. To date, these alliances have taken several forms, including cooperation

in the areas of product development, training, and procedure development and marketing activities. ISRG has formed alliances with several companies, including Gyrus ACMI, Johnson & Johnson, Johns Hopkins University, Novadaq Technologies, Inc, Olympus Corporation, Power Medical Inc., SurgiQuest, Inc. and USGI Medical, Inc. ISRG has recently entered into collaborative relationships involving the development of stapling and fluorescence imaging products to increase the utilization and market penetration of the da Vinci Surgical System. These strategic relationships will expand ISRG's visibility as a leader in the industry.

- ISRG has developed academic and community hospital alliances that greatly expand the number of physicians who use the da Vinci Surgical System. These efforts are expected to result in increased usage per system, leading to higher volume sales of instruments and sales of additional systems at each hospital. Academic alliances play an integral role in increasing ISRG's brand awareness by introducing new surgeons to the da Vinci Surgical System. Professors are using the da Vinci Surgical System as a teaching tool. ISRG recently included a telestrator-like enhancement in order to increase the utility of the da Vinci system as a teaching tool.
- ISRG intends to develop relationships with leading surgeons to drive rapid and broad adoption. Leading surgeons tend to publish and report their clinical experiences in peer-reviewed forums. For example, cardiac procedures are among the most difficult to perform using MIS techniques. This strategy puts surgeons at the forefront of procedure development and provides them an opportunity to maintain a competitive edge within their specialty. Early adoption of ISRG's products by surgical thought leaders may provide other surgeons the confidence that the da Vinci Surgical System can be used for all types of surgical procedures.

4. Maintain market leadership.

- As of December 31, 2008, ISRG held exclusive field-of-use as well as non-exclusive licenses for over 260 U.S. patents and over 165 foreign patents, and owned outright over 150 U.S. patents and over 60 foreign patents. ISRG's patents create significant barriers to entry.
- ISRG increased research and development expenses in 2008. Lonnie M. Smith, ISRG's CEO, states, "This investment is a key part of our '...voyage of exploration into the unknown, an attempt to discover new ways of doing things better'. It is and will remain imperative to sustaining our leadership role in advancing the state of the art of surgical robotics." Increased research and development will enable ISRG to create new products and improve existing products, strengthening their market leadership within the industry.
- Reputation of the manufacturer is one of the major competitive factors in this industry. Since the installation of systems involves significant investments from hospitals and surgeons, it is necessary for these systems to be purchased from a reputable manufacturer. ISRG has a significant advantage over other competitors

because of their ability to distinguish themselves as the industry leader in the robotic assisted surgeries market.

5. Increase expansion internationally. ISRG intends to make a significant push into international markets, as a result ISRG has entered into foreign exchange contracts to hedge a portion of their risk associated with Euro exposure. Revenue to markets outside of the United States accounted for approximately 22% of ISRG's total revenue for the year ended December 31, 2008 and is expected to increase going forward.

6. Increase patient, surgeon, and hospital awareness of the benefits of MIS through the da Vinci Surgical System.

- **Patient Benefits:** According to Lonnie M. Smith, ISRG's CEO, patient value is the driver of procedure growth and adoption. The da Vinci Surgical System is changing the future of technology by significantly improving the value of surgery for the patient in terms of improved surgical efficacy and reduced surgical trauma, minimizing the disruption to their lives and the lives of their family members. The adoption of surgical robotics has proven to be procedure specific and patient driven. Patients seek the most effective and least invasive solution to their medical problems and make tradeoffs between those two considerations based upon their specific personal situations and needs.
- **Surgeon Benefits:** By placing computer-enhanced technology between the surgeon and patient, ISRG believes the systems enable surgeons to perform advanced MIS in a manner never before experienced. The da Vinci Surgical System provides the surgeon with the intuitive control, range of motion, fine tissue manipulation capability, and 3-D vision characteristic of open surgery, while simultaneously allowing the surgeon to work through the small ports of MIS. The da Vinci Surgical System enables surgeons to overcome many of the shortcomings of both open surgery and MIS. Surgeons operate while seated comfortably at a console viewing a high resolution, 3-D image of the surgical field. This immersive visualization connects the surgeon to the surgical field and the instruments. While seated at the console, the surgeon manipulates instrument controls in a natural manner, just as he or she has been trained to do in open surgery. The technology is designed to provide surgeons with a range of motion in the surgical field analogous to the motions of a human wrist, while filtering out the tremor inherent in a surgeon's hand. Surgeons can learn to manipulate da Vinci's instruments with only a limited amount of training, compared to the training required for a surgeon to become skilled in MIS. ISRG provides system training to surgeons and nursing personnel. They have established training centers where initial system training and ongoing surgical procedural training are provided. In addition, ISRG facilitates the proctoring of surgeons who are new to da Vinci Surgery by experienced da Vinci System users.
- **Hospital Benefits:** While improved efficacy and reduced surgical trauma have significant implications for the patient, they also have important implications for hospitals and global healthcare cost. As patients become aware of their options and

their relative benefits, they migrate to those hospitals that provide superior value in terms of outcomes and invasiveness. These hospitals draw more patients and benefit from the incremental revenue and contribution dollars associated with treating these patients. They also experience a lower cost to treat these patients because of fewer complications and a shorter length of hospital stay. The da Vinci Surgical Systems converts inpatients into outpatients, further reducing the cost of housing patients after surgery. It also diminishes the need for extra support from nursing staff or interns on surgical procedures, streamlining their work force for added efficiency. Moreover, the system reduces procedure times through improved accuracy and automation, allowing surgeons to attend to one to two more cases per day. According to the ISRG's CEO, Lonnie M. Smith, the construction cost in the United States of building a new hospital currently ranges between \$1.0 million and \$2.0 million per bed. Assuming an average new construction cost of \$1.3 million per bed, \$750 in operating cost per patient day, 90% occupancy rate and a mix of 250,000 patients currently treated with laparoscopic surgery and 350,000 patients treated with open surgery this difference in length of stay translates into potential capital saving of \$8.2 billion in hospital construction costs and \$1.5 billion in annual operating costs. Due to constrained budgets, specialists at large healthcare institutions go through a petition and approval process from their executive board to allow for the purchase of high-cost capital equipment. Robotic systems have an appeal to various specialists, and therefore, could be pooled from the budget of various clinical areas of focus. Hospitals and healthcare systems benefit in terms of reduced capital requirements and improved operating cost per surgical patient treated as surgical procedures are converted from open surgery to robotic surgery.

Risk Factors

1. **Competition:** Currently, ISRG has a large market share in the robotic assisted surgery segment; however, emerging companies with a medical robotics focus include: Armstrong Healthcare Ltd., Hitachi Ltd., Integrated Surgical Systems, Inc., MicroDexterity Systems, Inc., Richard Wolf Medical Instruments Corporation, Ross-Hime Designs, Inc., Sinters SA, Terumo Medical Corporation, and Toshiba, Inc., though their products are still several years away from regulatory approval. Companies attempting to enter the robot assisted surgery market may erode ISRG's current market share and place downward pressure on future revenues.
2. **Market Acceptance:** ISRG relies upon achieving physician, patient, and third-party acceptance. If ISRG's products fail to gain market acceptance, hospitals will no longer buy their products, restricting ISRG's ability to generate revenue. However, with every year, more and more medical journals praise the virtues and successes of da Vinci MIS procedures.
3. **Malfunctions:** ISRG's products incorporate mechanical parts, electrical components, optical components and computer software, any of which can contain errors or failures, especially when first introduced. In addition, new products or enhancements may contain undetected errors or performance problems that, despite testing, are discovered only after commercial shipment. ISRG's customers will have an increased sensitivity to such

4. **Economic and Political Conditions:** Pressure on government reimbursement programs, such as Medicare and Medicaid, reduced amounts of financing available during the credit crunch, and ongoing financial turmoil, could restrict hospitals' budgets, leading to a decline in demand for ISRG's products and services. However, along with the high fixed costs of da Vinci systems come massive cost savings for hospitals due to patient turnover, so this risk is also downplayed.
5. **Single Source Suppliers:** Some of the components necessary for the assembly of ISRG's products are currently provided by sole sourced suppliers or single-sourced suppliers. Furthermore, ISRG purchases components through purchase orders rather than long-term supply agreements and generally does not maintain large volumes of inventory. While ISRG believes that alternative suppliers exist and could be identified for sole-sourced components, the cost of the disruption or termination of the supply of components could cause a significant increase in the costs of these components, which could negatively affect operating results.

Other Notable Items

In the current market, methods of capital raising other than firm generated cash flows are nonexistent. ISRG does not run into that problem. Not only does it not have any debt, but it also has roughly \$900 million in cash, equivalent to 25% of its market cap. This cash has accumulated because of ISRG's massive margins (gross profit margins are over 70%).

With the financial stability, as well as strong growth drivers, ISRG would appear to be a darling in the healthcare industry. And it was. However, in q4 2008, the bottom dropped out of system sales, causing a massive devaluation of the stock price (a price decline from \$360 to \$85). Yet, system sales weren't necessarily cancelled, just postponed, and underlying fundamentals were relatively the same as they had been. Therefore, ISRG appears to be an attractive investment opportunity, as long as the stock is at the right price.

Relative Valuation Analysis

A primary concern when analyzing ISRG was its high price to earnings multiple. Even though ISRG demonstrated large potential growth in an initial analysis, it could still be trading at a price too high for the growth levels. In order to determine whether ISRG was currently trading at a justifiable price per share, a relative valuation analysis was performed.

Why were these specific companies chosen for the relative valuation analysis?

The companies used in the relative valuation analysis were chosen for two reasons:

1. To compare ISRG to the top companies in the healthcare sector and more specifically, the healthcare products and services industry

2. To incorporate a wide range of future growth rate estimates and current enterprise value to earnings before interest, tax, depreciation, and amortization (“EBITDA”) multiples

The comparable companies chosen in the relative valuation analysis were Johnson and Johnson (“JNJ”), St. Jude Medical (“STJ”), Medtronic (“MDT”), Stryker (“SYK”), Baxter (“BAX”), and Pfizer (“PFE”).

1. JNJ and PFE were chosen because they are industry leaders and represent a variety of healthcare industries and are more mature companies with lower multiples and slower growth expectations, due to their cyclical nature.
2. MDT, SYK, and BAX were chosen because they are direct competitors of ISRG and leaders in the products and services industry of the healthcare industry. The companies are trading at lower multiples than ISRG but are expected to experience high growth rates similar, but not equivalent to, ISRG.
3. STJ was chosen because it has a higher multiple in comparison to ISRG with growth expectations similar to BAX, MDT, and SYK.

What were the metrics used to compare ISRG to its peers in the industry?

The metrics chosen to compare ISRG to its peers in the industry were as follows:

1. Enterprise value to EBITDA
2. Enterprise value to forward EBITDA

EBITDA was used to compare and analyze each company’s profitability in the relative valuation analysis because it eliminates the effects of financing and accounting decisions, which are imbedded in reported earning numbers. EBITDA is a good proxy for operating cash flow while allowing for a more neutral comparison among companies because it eliminates interest charges arising from a company’s chosen capital structure and the effect of income taxes resulting from a company’s chosen tax policies. Depreciation and amortization charges vary significantly among companies in the healthcare sector and are not representative of actual capital expenditures. EBITDA accounts for the variability in these expenditures by excluding them from the profitability calculation.

An adjustment to market capitalization was performed in order to convert an equity value to an enterprise value. Since ISRG has so much cash, essentially \$25 of each share is an investment in cash. Since all of this cash is unnecessary in operations, it can be paid out as a large one time dividend to shareholders, decreasing the share price appropriately. On the flip side, ISRG has no debt. Debt can be treated as another source of capital, aka a source of funds. In order to arrive at an enterprise value for each comparable company, debt was added to the market cap, and investments and cash were. In addition, enterprise value was used instead of an equity value because the denominator chosen in the metric / equation to value the comparable companies excludes interest expense, a component of a multiple used to derive an equity valuation.

Enterprise value to EBITDA was used to compare the relative value of each company's stock, compared to current EBITDA levels. However, this measure doesn't take any growth into account. A company like ISRG may have a much lower multiple if forward EBITDA is used, indicating a much better value for the price.

Forward EBITDA was calculated using analyst estimated growth rates from a variety of Web sites including www.hoover.com and www.netadvantage.standardpoor.com. The ratio is calculated with one year, two year, and five year forward EBITDA levels, to show the shift in value as growth is taken into account more and more.

How does ISRG compare to its peers in the industry?

When analyzing enterprise value to EBITDA, ISRG might initially appear expensive relative to its peers in the healthcare sector; however, this is not the case when analyzing enterprise value to forward EBITDA. When future growth rates are incorporated into the determination of whether ISRG truly is expensive relative to its peers, along a five-year time horizon, ISRG proves to be one of the least expensive stocks in the analysis. This is a direct result of its superior growth rates in comparison to its peers. Relative to its lower multiple and slower growth peers, ISRG is inexpensive, and fundamental analysis should be performed.

Relative Valuation

	Market Capitalization	Enterprise Value	EBITDA	Price to EBITDA (TTM)	EV / EBITDA (TTM)	EBITDA Per Share (TTM)	2009 Estimated Growth Rate**	2010 Estimated Growth Rate**	Estimated 5 Year Growth Rate (Per Annum)**	2009 Estimated EV / EBITDA	2010 Estimated EV / EBITDA	2013 Estimated EV / EBITDA
Intuitive Surgical (ISRG)	\$ 4,043,928	\$ 3,142,055	\$ 335,919	12.04	9.35	8.56	15.00%	25.00%	21.00%	8.13	6.51	3.61
Johnson and Johnson (JNJ)	\$ 140,272,800	\$ 139,311,800	\$ 18,820,000	7.45	7.40	6.79	-1.10%	8.70%	8.25%	7.48	6.89	4.98
St. Jude Medical (STJ)	\$ 12,693,321	\$ 12,793,665	\$ 879,187	14.44	14.55	2.54	9.10%	13.50%	13.10%	13.34	11.75	7.86
Medtronic (MDT)	\$ 32,009,600	\$ 34,334,600	\$ 4,469,180	7.16	7.68	3.99	12.70%	9.60%	11.35%	6.82	6.22	4.49
Stryker (SYK)	\$ 13,406,679	\$ 11,231,579	\$ 1,967,800	6.81	5.71	4.96	9.50%	12.80%	14.20%	5.21	4.62	2.94
Baxter (BAX)	\$ 31,404,566	\$ 33,023,566	\$ 3,158,000	9.94	10.46	5.14	10.70%	13.40%	12.48%	11.58	8.33	5.81
Pfizer (PFE)	\$ 98,145,000	\$ 79,395,000	\$ 15,566,000	6.31	5.10	2.31	-16.00%	12.00%	0.75%	4.28	5.42	4.91

Company Specific Valuation Overview

ISRG is in a very unique situation, in that it single handedly created the Robotic Assisted Surgery (RAS) market. It has maintained a monopoly through the introduction stage of the market, and looks to maintain that monopoly through a good chunk of the growth stage. In addition, the growth stage of the RAS market has potential for exponential growth to still exist, depending on the speed and magnitude at which RAS eats market share of the open and laparoscopic surgery markets.

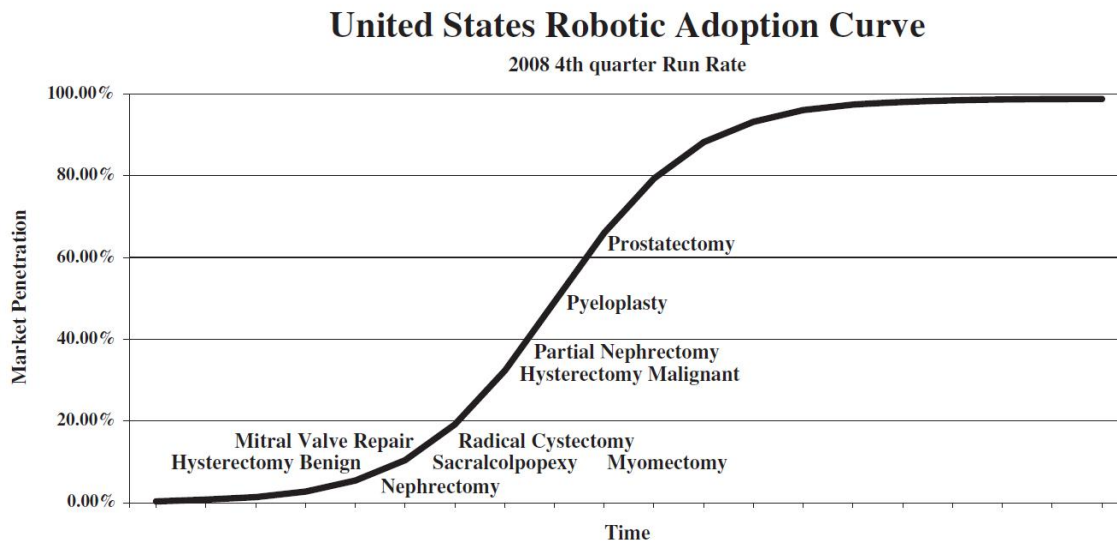
The effect of potential earth-shattering growth creates a very large positive skew of the present value distribution. Therefore, more focus is put on what could be considered the median return, since the mean would generate much higher present value.

It is evident that growth is the main driver of ISRG. Since top line revenue growth is supported organically with healthy margins, revenue growth is the key driver for numerator growth for ISRG. There are three main drivers of growth: competition, procedures, and horizon value growth assumptions. Competition is the most important factor, since ISRG holds 100% of the market share in the RAS market. Procedures drive the value of the market share. Procedure growth translates to system growth (for maxed out systems in existence), accessory growth (each procedure wears out parts that must be replaced), and service growth (more procedures means machines have to be serviced more often, and more machines means more units to service). Third, since the RAS market is brand new, and has massive room for technological innovation, it is likely that it will still grow faster than GDP in 10 years. Thus, an 8% horizon value is used, versus a 6% GDP + inflation value.

However, denominator growth is also a huge factor. ISRG has a very active employee stock option program, which will likely continue into the future. Therefore, only a portion of future cash flows will be returned to current shareholders, as it is likely more shareholders will emerge in the future.

Historical Analysis

ISRG acquired its only competitor in 2003. Since then, they have had complete control over the RAS market, and haven't ridden its high growth very while. Maintaining high profit margins has ensured high cash flows, with gross profit margins above 70%, operating income 4 year CAGR of 107%, and earnings 5 year CAGR of 57%. A lot of this discrepancy of growth pertains to very high depreciation and amortization costs as a result of the startup phase. The combination of high growth and high margins has resulted in the massive cash levels-roughly 25% of market capitalization.



This growth has been driven by procedure growth. Patients, doctors, and hospitals are gravitating towards robotic surgery. Prostatectomies and hysterectomies, the two historical drivers of growth, have already achieved significant market penetration. Procedure growth is

based on how many open and laparoscopic (old MIS procedure technique) surgeries are transferred to da Vinci surgery. This is plotted on an adoption curve, which goes from 0-100%. Prostatectomy adoption is already above 60%, while hysterectomy adoption is near 40%. Not only is there a lot of room to grow (which is highly likely) in these main procedures, but there are lots of procedures that are on the very low end of the adoption curve, which will drive high growth in the future.

Even though procedure growth is the main driver of revenue, revenue streams are broken into recurring and non-recurring revenue. Non-recurring revenue is associated with system sales, with the idea that a system sale is a one-time deal until it is sold. Recurring revenues are made through the sale of accessories, replaceable parts, and servicing fees. Since parts and machines wear down with use, these revenue lines will always produce revenue, even if new machines don't sell. In 2008, recurring revenue grew more than non-recurring revenue, which is a good sign, showing that the number of procedures is really picking up, outpacing system placement, which will provide a better income stream in the future.

With all of the fundamental strength of ISRG, it's important to look at why the stock price declined from 360 to 85 within 6 months. The decline in stock price was mainly caused by the bottom falling out of system sales in the fourth quarter of 2008. Hospital budgets shrunk, and the purchasing of systems was delayed. However, demand still remains strong, and although system revenue should be flat for 2009, it will pick up in 2010 and beyond.

Recurring revenue still has a strong outlook. The types of procedures da Vinci performs are life critical, so people cannot put them off in a down economy. Thus, recurring revenue will remain strong in 2009, albeit slightly lower from 2008 and earlier predictions for 2009.

Approach to valuation

In the DCF approach, each line item is analyzed to ensure it is grown at a proper level. For the same reasons used in the relative valuation, DCF simply values operational cash flows. For the end valuation, non-operational assets (investments) are added to the equity value. To adjust for future equity issuances, the individual cash flows are weighted, not the end equity value or end shares outstanding.

The discount rate is 15%, the same as the all equity cost of capital. This essentially incorporates a Beta of 1.35 (taken from Value Line, under the premise that it has better calculation methodologies than a simple regression of returns), a risk free rate of 5%, and a risk premium between 7.25% and 7.5%.

Different present value scenarios are created in a 2 step approach. The numerator is adjusted through differing growth scenarios. Each scenario is applied to 3 different denominators: no dilution, full dilution of current shares, and the option model (not discussed in this paper). It is important to note that more attention is given to lower-than-median growth scenarios than high growth scenarios, since high growth scenarios increase the discount at which the stock is currently trading by enormous proportions.

Balance Sheet

Cash is held constant in the first year. This is to ensure the firm has enough cash to last through the recession. However, by 2010, cash will fall back to a 5% of sales level. This change is routed to cash flow via the “required cash” net operating working capital portion. 5% is already a relatively high cash buffer, and coupled with the massive operating cash flows produced by ISRG, cash crunches will not be a problem. The Excess Cash account is the plug variable. The increase in excess cash each year is equivalent to the free cash flow from operations. This does not take into account proceeds from option exercises.

Short term investments are held constant in the model, but their book value is paid out at time 0, due to the distinction between present value of operating cash flows versus non-operating assets. The book value of assets is marked to market. Long term investments are treated the same way. There had been concern in 2008 with some long term investments being level 3, illiquid assets. However, the market for those assets has now become liquid (municipal bonds), so those investments are able to be sold.

Next, Deferred Tax Assets, Other Assets, and Long Term Other Liabilities are held constant. All these accounts fluctuate and are inconsistent, and statistically there is no drawback to holding them constant.

Most of the other accounts on the balance sheet are held as a percent of sales, via the relationship in 2008. This includes Accounts Receivable, Prepaid Expenses, Accounts Payable, Accrued Compensation, Deferred Revenue, and Other Accrued Short Term Liabilities. Inventory is held at the 2006 percent of sales level, since the 2008 level is overinflated due to the non-finalization of sales in q4 2008. 2007 levels seem slightly understated.

Fixed Assets are held as a percent of sales. This might not be extremely accurate, since ISRG plans to restart construction on a building in 2010, but the long-term trend should hold fairly constant to the current % of sales level (if not lower, since ISRG is surpassing the introductory stage, either way this isn't a crucial account). Percent of sales relationships were strong in both Gross Fixed Assets and Accumulated Depreciation from 2006 through 2008, so 2008 percent of sales relationships are used for both accounts.

Intangible Assets are almost held as a percent of sales. Breaking down the account, only intellectual property (patent expenses) is growing. Thus, patent expenses are grown as a percent of sales, and all other accounts are held constant. Accumulated Amortization is calculated as a percent of Gross Intangible Assets (only a slight over-statement of intangibles in the first couple of years, a negligible effect).

Income Statement

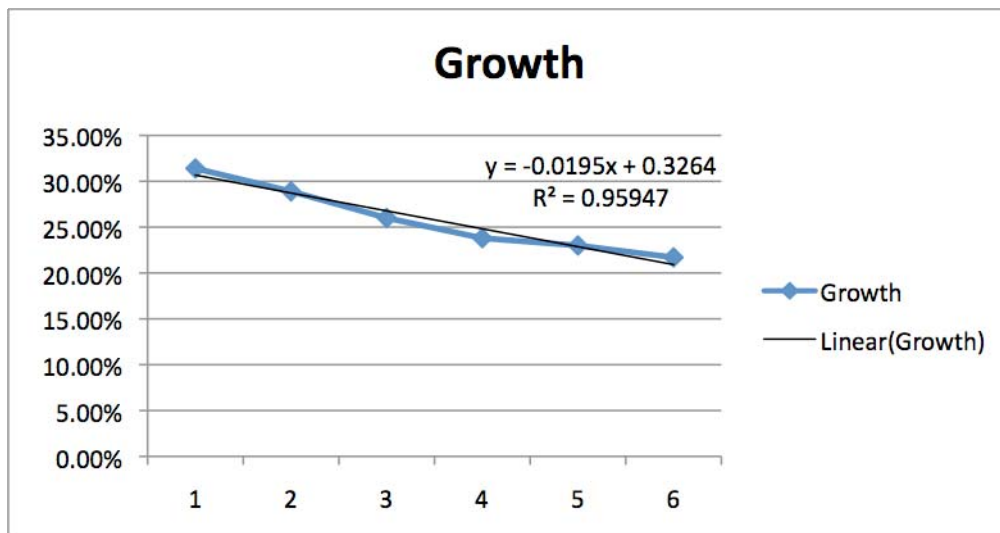
Revenues will be addressed with growth. Cost of goods sold is the first line item. This is broken up between product costs and service costs. Since systems have the same gross profit margins as accessories, their costs are lumped. Each section is grown by the variable amount as a percent of sales, given by a fixed-variable linear relationship indicated by 2007 and 2008 income results. Product costs are based on product sales, service costs are based on service sales. It should be noted that these costs include option related expenses.

SG&A is essentially percent of sales based. However, before calculating the relationship, depreciation expenses were subtracted, and these expense projections are kept in a separate account. Further, efficiencies should be created as ISRG has a very solid business setup already, so a decay of -1% is assessed on the % of sales rate each year, so by the horizon year the % of sales relationship has fallen 2%, from 24% to 22%. Also, SG&A has a massive options expense.

Research and Development has a very different relationship from SG&A. Regardless of sales growth, ISRG plans to have a defined R&D expense for the next year, and likely the next 3-5 years. Therefore, R&D, with amortization subtracted, is GROWN at the same level at which it grew between 2007 and 2008 for the first three years, to ensure sufficient investment for new products. However, for years 4 through 7, this is gradually turned into a percent of sales relationship. The ending % of sales relationship given in year 3 (13.79% in all cases) is decreased by 2% each year for 3 years, and held at 8% for years 7+. Again, R&D houses option expenses.

Depreciation and amortization are given separate income statement lines, to reflect the changes in accumulated depreciation/amortization accounts. Taxes are given by the effective tax rate of 40%. Past interest income is removed, since all interest bearing securities are non-operational.

Growth



(Growth estimates and other data taken from Frost & Sullivan's analysis on RAS and IGS markets)

An analysis of ISRG's growth requires an analysis of the robotic medicine sub-industry. This industry is split between RAS and Image Guided Surgery (IGS). RAS is then split between companies who focus on areas like orthopedics, and ISRG. Aside from surgery based around the brain or joints, ISRG is the only player in the market of RAS focused on surgery in the human core. While competition *may* arise, this won't be for a couple of years at least, and will be extremely difficult for the entrant. ISRG has a dominant brand name, intuitive design, and a

constant supply of upgrades and accessories that meet demand, as well as a wide array of patents. It is more likely that, instead of a company eating into ISRG's market, ISRG will make an acquisition, which will let ISRG eat into the rest of the RAS market, or the IGS market.

The challenges in the RAS industry are mostly bypassed by ISRG. Learning RAS requires relearning surgery for doctors. However, the controls for the da Vinci machine are so natural that the learning curve is gentle. Furthermore, ISRG is making many academic partnerships, so the supply of new doctors will be well trained on the da Vinci system, compounding future growth.

Another "industry challenge" is the difficulty firms face rooting out entrenched competition. Essentially, ISRG is the industry challenge for other firms. Last, the high cost of RAS devices could be a problem in the future. However, the massive cost savings ISRG provides, via quicker patient turnover and fewer staff per surgery, is a benefit that both hospitals, medical providers, and the government find attractive.

There are also benefits that work directly with ISRG. Often, doctors want to practice on the newest, fanciest equipment. It's like a kid in a candy store. The da Vinci machines are the candy. Often, doctors and hospitals try to brag about their new robotic machines, via extensive advertising. Their motivation is justified, since patients don't view surgeries in an open versus MIS approach. They see regular surgery versus robotic surgery, and always opt for robotic surgery. Therefore, if hospitals don't keep up with new equipment, they will lose business to those with RAS devices. Especially now, with more and more medical journals extolling the patient benefits for RAS, the patients' opinions are justified.

Also, the placement of da Vinci machines with academics is creating new teaching techniques. Professors are able to demonstrate surgery to students in a fashion never before seen. There is potential for not only an increase in MIS surgeries, but a better quality MIS surgery. Then there are the system placements with "enlightened" doctors. These people can come up with new techniques that other surgeons can then apply after FDA approval.

With ISRG's avoidance of industry drawbacks, and smashing success in potential industry synergies, it has the potential for huge exponential growth in the coming years. Since ISRG is almost the equivalent to the "industry" as far as the main body cavity is concerned, it is given the same base case revenue growth as the robotic medical industry, with a few modifications.

The first major modification is in the first year growth rate. While the industry was initially predicted to have 31% growth, this is not as likely given the state of the economy. Therefore, guidance is taken from ISRG for 2009, with flat system sales and 25% growth in recurring revenue. Then, through years 2 and 5, industry growth is in line with ISRG growth.

For years 6-11, a linear trend is fit to growth, tailoring it to 10% across recurring and non recurring revenue. This is realistic, since saturation current potential of systems won't happen for at least 8 years. For years 12+, and 8% growth rate is assessed. Since this RAS market just started, it is likely that technology will drive innovation for more than 10-12 years, and a 6% horizon growth rate vastly understates potential revenues.

Since guidance is being used for 2009 growth, it is important to state how the guided 8% operating income growth is achieved. Even though sales grows by more than 8%, and SGA/Cogs grow with sales, R&D has been properly adjusted (even with the amortization adjustment) to achieve 8% operating income growth. This is essentially achieved through constant growth of R&D expense, with a slower growth of sales.

Scenario Analysis

Value	Value Diluted	Scenario
110.88	113.94	10% adoption loss* (S4)
119.38	121.70	5% adoption loss*
127.88	129.45	10% price discount*
144.87	144.96	S3
166.54	164.74	S2
182.75	179.53	S1
199.75	195.04	<u>Base Growth</u>
255.88	246.27	H1
312.01	297.50	H2
179.99	177.02	Average

Each scenario embodies a certain growth driver that deviates from the norm (either positive or negative). Some of these effects are cumulative, to show what adverse effects would have to occur to bring share price down to the current price. Yet again, some high growth scenarios are left out because their predictability is circumstantial; and distortion of a reasonable present value is realistic.

In scenario S1, ISRG loses 10% of market share to competition in year 4. In S2, ISRG loses 20% in year 4. In S3, the 20% market loss is coupled with a 6% horizon growth rate. These three scenarios are the most likely deviations from the main scenario (even though all scenarios are equally weighted).

In addition, other loss scenarios are modeled. First, the S3 result is taken, and a 10% discount is modeled in (% of sales relationships must hold true to original sales, but then sales in the Income Statement are reduced by 10%) to model cost cutting effects generated by the cutting of health care budgets in the government. Then, 5% and 10% growth limitations are modeled in to simulate lower ceilings along the adoption curve. Both of these scenarios are added to the S3 + price discount scenario.

In the higher growth scenarios, erosion of the projected laparoscopic market is modeled in (from a Frost & Sullivan laparoscopic market analysis). In H1, only half of the market is consumed. In H2, the entire laparoscopic market is consumed by ISRG. These scenarios obviously show the enormous growth potential, with further growth scenarios possibly embodying growth into

the IGS market (with a similar 25% 5 year CAGR). Even adding one more high growth scenario will massively weight the mean beyond the base year return.

*Note, the additional loss scenarios are made via estimates. The actual price of the worst scenario (S4) is \$106.64 non-diluted, and \$110.07 diluted.

Expected Returns

Company	Price	Discount (Premium)	Percent Discount (Premium)	Cash Flow Growth (5 year CAGR)	Expected Return
Intuitive Surgical (ISRG)	\$103.03			21.00%	21.00%
Johnson and Johnson (JNJ)	\$50.64	(\$13.87)	-27.40%	8.25%	1.54%
St. Jude Medical (STJ)	\$36.67	(\$20.01)	-54.57%	13.10%	-3.41%
Medtronic (MDT)	\$28.58	(\$6.02)	-21.07%	11.35%	6.20%
Stryker (SYK)	\$33.81	\$6.44	19.04%	14.20%	18.25%
Baxter (BAX)	\$51.16	(\$20.39)	-39.87%	12.48%	1.60%
Pfizer (PFE)	\$14.54	(\$3.13)	-21.52%	0.75%	-4.02%

Instead of a usual expected return analysis of all companies considered, this chart displays the appropriate price each company should command for a given level of 5 year forward EBITDA. From that point on, each company will “theoretically” earn the same growth rate. In addition, the 5 year CAGR is given, to show the theoretical growth of operating cash flows each firm generates in those 5 years leading to the 5 year forward. Higher growth rates indicate higher return for a fairly priced security (Price + premium/discount, with discounts meaning that the current price is selling at a discount). Actual expected returns will hinge on how rapidly the premium/discount is assessed. Out of these results, it is obvious that no other company compares to ISRG, with the exception of Stryker. Stryker should command a higher price, but once that higher price is reached, it will grow at a slower rate. The expected return column is based on an equally distributed realization of premiums and discount.

To compare the relative value “Expected Returns” to the DCF “Expected Returns” in the base case, consider how ISRG is selling at a 95% discount and has a rough CAGR of FCF at 24%, giving an expected return estimate of 42.1%.

Conclusion

ISRG is an excellent investment. It is located in a sector with above average GDP growth, an industry with high growth potential, and a sub industry (which it created) with enormous growth outlooks. A specific process was followed to find this investment:

1. Analyze industries in the Healthcare sector, heavily consider stronger industries
2. Rule out firms with acquisitions (this assumption would have been relaxed if suitable investments were not found, however this relaxation wasn't necessary)
3. Rule out firms who needed to access capital markets
4. Analyze P/E ratios, compare with projected earnings growth rates
5. Analyze cash flows, how the firms fit with industry drivers, etc
6. Select

ISRG stuck out after step 3. However, what really drove the selection was the incredibly high growth potential, coupled with high profit margins, high operating cash flows, no debt, and massive amounts of cash.

After the initial selection was made, the forward EBITDA relative value analysis was performed. This only verified suspicions that, when valuing growth of earnings instead of earnings, ISRG was fairly priced. Following this was extensive research to unearth the fundamentals. ISRG is one of the companies that makes you feel really good, because it does so many things right. It slams all industry growth drivers out of the park, maneuvers around big roadblocks, and is in the process of creating potentially one of the biggest impacts the healthcare industry will face in decades. ISRG has found a way to add value to everyone. Patients have a better quality of life. Doctors can perform more surgeries with ease. Academic institutions have new research/teaching venues. Hospitals have a product which creates big efficiencies through patient length of stay and staffing requirements (which ties in with the government and health care providers as well). The only real externality is that the da Vinci creates a smaller market for nurses. But also keep in mind that there is a shortage of nurses, so shrinking that market might not result in layoffs.

Fundamental analysis really shines a positive light on the firm. Taking a worst case scenario for growth leaves a fairly priced stock, including all dilution effects. The base case scenario suggests that the stock is trading at a 95% discount, while positive growth effects cause the present value of the stock to skyrocket.

The only possible "flaws" in the DCF lie in the fixed asset account. Capex is growing in the same relationship that it was in 2006 and 2007, which is most likely overstated. One might also argue that SG&A shouldn't decrease as a percent of sales, yet holding the SG&A ratio constant will only shift each scenario value slightly. It is still obvious that the key driver is growth.

Value	Value Dil	Opt Model
106.64	110.07	122.47
119.38	121.70	179.57
127.88	129.45	171.83
144.87	144.96	156.37
166.54	164.74	174.30
182.75	179.53	189.58
199.75	195.04	205.61
255.88	246.27	260.93
312.01	297.50	316.24
179.52	176.59	197.43

After examining the option modeling a bit, it's interesting that the cash savings a company gets from issuing options for compensation is *beneficial* to current owners. Whilst this benefit is not substantial (compared to growth), it is still interesting. Also, it should be noted that there is no tax shield added to the option model prices, so their actual share prices will be increased slightly. However, the benefit of calculating the fair value doesn't seem worthwhile.

On a final note, the option model does a VERY good job calculating the fair value per share price in each year. The way it is set up, the model calculates share prices based on future value of free cash flows and the current weighted average exercise price. However, the difference in present value given by the actual WAEP of 165, and the present value given by a WAEP of 0, is 2 cents per share. This indicates that all prices are based off of future cash flows.