Healthcare Sector
Healthcare – Medical Appliances and Equipment

Investment Thesis

We recommend overweighting the healthcare sector, including in the medical appliances and equipment industry. This is due to increasing demand for medical services due to an aging population, continuous increase in research and development expenditures, increasing growth and demand in foreign markets.

Drivers of Thesis

- An aging population with higher instances of chronic disease or illness needing constant or regular monitoring which will drive continued increase in demand for medical equipment and devices.

- High growth is expected in the Asian Pacific market and UAE due to economic growth resulting in higher demand for and access to healthcare services.

- In order to stay competitive and profitable, companies must continually invest in research and development to maintain high levels of innovation to meet the needs of changing populations.

Risks to Thesis

- Increases or changes in regulation in both the US and abroad with regard to approval and sales of medical equipment.

- Global economic volatility, especially in emerging markets, could affect demand, and therefore growth opportunities.

Stock Rating

Overweight

Key Index Statistics

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<thead>
<tr>
<th>PRICE DATA</th>
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<tbody>
<tr>
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<td>Yield</td>
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<th>TRAILING RETURNS</th>
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<td>3-month return</td>
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<td>1-year return</td>
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<td>2-year return</td>
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<td>5-year return</td>
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MARKET CAPITALIZATION

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<table>
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<td>Hologic</td>
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12 Month Performance

Company Description

The medical equipment/appliance industry primarily offers equipment and devices which are designed for diagnosis, monitoring and treatment of patients in healthcare systems worldwide. This equipment ranges greatly in complexity and function. Firms in this industry research, develop, and manufacture primarily surgical, diagnostic and orthopedic instruments.

Source Data: Factset, Yahoo Finance
EXECUTIVE SUMMARY

Overall, we are bullish on the Medical device and equipment industry for three main reasons.

The first is due to a large portion of the population being 65 years of age or older. This is favorable for the healthcare sector and medical device industry because aging seniors spend more on healthcare than any other age group. For example, per capita, a patient 65 or older spends an average of just over $18,000 per year on healthcare, compared to approximately $6,000 on average for adults age 18-64.  

The second relates to growth opportunities in growing markets such as the UAE and the Asia Pacific region. Fast increasing GDP growth in both regions is expected to stimulate demand for healthcare services.

The third is medical device companies continuing to increase research and development expenditures in order to maintain a competitive edge, appeal to ever-changing needs of patients, and maintain a level of pricing power with buyers.

Nearly 90% of people in the United States have health insurance as of 2014 census data, which will also lead to an increase in doctor visits and demand for medical service.

INDUSTRY DESCRIPTION

The Medical equipment industry primarily researches, develops and manufactures medical, surgical, and dental instruments and apparatus. This equipment includes equipment as basic as syringes, catheters, and thermometers to anesthesia apparatus, blood transfusion equipment, and imaging machines. Development and sales of any biotechnology or pharmaceuticals are not considered part of the medical equipment industry.

For the more complex and high tech devices, there are high barriers to entry because of the extremely high capital requirements. These products typically also have a much higher margin than products in the less complex categories. The less complex equipment has much lower margins, and relies on large quantities sold to generate revenue.

In general, hospitals and health systems make up the majority of purchases of medical devices as seen in the chart below:

![Chart showing buyers of medical and surgical equipment in 2014]

Based on nine countries: China, Brazil, US, Germany, France, UK, India, Russia, Japan
Source: Euromonitor International

Because hospitals make up the vast majority of the buyers in this industry, we will focus primarily on drivers of hospital purchases of medical equipment throughout this analysis.

![Chart showing products and services segmentation]

Source: IBIS World.

As seen above, the medical equipment industry can be divided into 8 main sectors. We will dive into greater detail for the largest three segments.

Orthopedic instruments

Orthopedic instruments make up approximately a quarter of all sales in the medical device/equipment industry. This is largest segment with 23% market share. Orthopedic instruments are used for treatment (usually surgery or invasive procedures) that deal with the skeletal system or
joints. Demand in this segment is stimulated primarily by the aging population, as the need for joint replacements and/or fracture care increases due to decrease in bone strength 7.

Another factor that contributes to demand in this segment is the increasing obese population – primarily in the US. Higher body weights put increased pressure on bones and joints, causing an increase in demand for orthopedic services.

The chart below shows market share of orthopedic instrument sales by firm.

The chart above shows major company market share for diagnostic instrument sales 7. Andere and Johnson & Johnson are the major market leaders in this segment.

**Surgical Instruments**

Surgical instruments are any range of tools used in and designed specifically for use in surgical procedures and operations. This segment comprises 19% of the overall medical equipment industry. Like the other major equipment segments, demand is driven largely by the aging population and the overall increase in the number of surgeries performed. Elective surgeries have also increased significantly in recent years, all of which spur demand for increased innovation in surgical procedures.

**Increased Regulation**

The Patient Protection and Affordable Care Act began in 2010, and included a $20 billion dollar tax on the medical device industry. In 2013, a 2.3 percent excise tax on the total revenue of medical device companies went into effect. Many small medical equipment firms may be driven out of business because the high cost of R&D, plus the extra taxation may prove to be too much. However, these firms may be an attractive target for acquisition by the larger manufacturers that will be less affected by the tax rates. 12

Another regulatory issue is the Unique Device Identification (UDI) regulation that went into effect in September of 2013. All medical devices and equipment companies have until 2020 to full comply with this law 12. The purpose is ultimately for patient safety concerns, but
will also allow the FDA to more quickly isolate problems, and allow for more global consistency in products.

**Provider Consolidation**

Healthcare providers are increasingly interested in providing high quality care at lower costs, primarily because quality outcomes are being increasingly tied to physician reimbursement and compensation. In recent years, the provider network has been transitioning away from individual owned spaces and more toward employment or affiliation with larger hospital systems and organizations. This trend affects medical device sales by greatly decreasing the customer base. Individual physicians have much less power as an employee to dictate purchases of medical equipment. This could change the fundamental sales model of many device firms that historically rely on building strong individual relationships.

We could also see some decreasing margin and general profitability of medical equipment industry as larger hospital networks gain more pricing power due to larger orders, and lower customer pool for the firms.

The graph below illustrates the growing trend with physicians to move toward system employment vs. owning their own practice.

**Fewer Private Practices**

More doctors are joining hospitals and health systems rather than go into private practice.

Percentage of medical practices owned by ...  

<table>
<thead>
<tr>
<th></th>
<th>Doctors</th>
<th>Hospitals</th>
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<tr>
<td>2002</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>2003</td>
<td>70%</td>
<td>30%</td>
</tr>
<tr>
<td>2004</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>2005</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>2006</td>
<td>40%</td>
<td>60%</td>
</tr>
<tr>
<td>2007</td>
<td>30%</td>
<td>70%</td>
</tr>
<tr>
<td>2008</td>
<td>20%</td>
<td>80%</td>
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Source: Medical Group Management Association

**Government subsidized healthcare**

As previously discussed, there is a large (and growing) population of citizens globally that are aged 65 and older. At least in the United States, the majority of medical expenses for the majority of these patients are paid by the government. However, there is a very high risk of lower reimbursement as more people are covered with a Medicare system that is slated to run short of money by 2024.

As illustrated in the graph below, Medicare enrollment continues to increase further stretching the Medicare budget allocation and possibly decreasing reimbursement rates.

**Medicare Enrollment, 1966-2013**

![Medicare Enrollment Graph]

NOTE: Numbers may not sum to total due to rounding. People with disabilities under age 65 were not eligible for Medicare prior to 1972. 

SOURCE: Centers for Medicare & Medicaid Services, Medicare Enrollment: Hospital Insurance and/or Supplemental Medical Insurance Programs, see Table, For Iverson and Managed Care Beneficiaries as of July 1, 2013. Unconditional Calendar Years 1980-2011, 2012-2013, 2013 Budget. In BUS/SP/050A.

Protecting margins will be increasingly difficult for companies in this industry, and to combat, they will need to provide undeniable justification of health outcomes or improvement so they are able to continue researching and developing new products. Companies with greater operational efficiency will be able to operate with the lower margins, and will likely gain market share.
Increasingly Mobile/Virtual Healthcare

Medical appliances and equipment are at the forefront of this change in healthcare delivery. More and more, hospitals and clinics are using virtual appointments to diagnose and treat patients. Especially with the increasing number of patients with chronic diseases like diabetes and COPD it is imperative that medical device and equipment companies work to produce more user-friendly/DIY devices. This is important because the need for these user-friendly or easily monitored devices will spur sales in the medical device industry.

A recent PwC Health Research Institute study revealed that of the patients surveyed, 60% are willing to try a virtual visit with a doctor and 21% have already used the technology in order to refill a prescription.

In conjunction with need for user-friendly devices, there is also a growing number of devices connected to the internet. According to the same PwC Health Research Institute report, internet connected healthcare products are projected to be worth close to $285 billion by 2020. While this offers great opportunities for growth, there is also a growing risk for cyber security breaches with regard to personal and protected medical information.

Another factor that needs consideration with regard to virtual appointments is the fact that many patients do not feel that at online visit warrants the same co-payment or co-insurance that they would be willing to pay for an in-person visit. This becomes increasingly difficult as physicians and health systems are already fighting decreased reimbursement rates from both public and private insurance providers and an increasingly “consumerist” health care culture.

As shown in the graph below, most patients are not willing to pay the same for online vs. in person visits.

Source: Health Populi

Iteration, not innovation

One major recent trend in the medical device industry is that of iteration vs. innovation. With the regulatory environment increasingly difficult to manage and pass through, companies (primarily smaller companies with less access to large capital) are beginning to focus their research efforts on improving existing equipment and product lines rather than take a risk on the regulatory requirements and potentially waste/lose large amounts of capital on R&D.

For a company to be successful with this model, there needs to be a strong identification of the competitive advantage on their existing products to leverage any changes into margin growth.

Increased Mergers and Acquisitions

The healthcare sector overall and specifically the medical equipment industry has seen a great amount of growth in merger and acquisition activity in recent years. This is a result of the desire of these companies for more vertical integration to provide end-to-end solution for its customers. Merger and Acquisition activity also paves the way for growth in emerging markets like the Asia Pacific region and the Middle East.

Some recent M&A activity in the medical device industry can be seen in the chart below.
This shows evidence of the trending toward growth through M&A in the 10 years. As a result of these deals, companies like Medtronic and Baxter have greatly increased their market share. This allows companies to offer more products and services, and decrease competition in similar pipelines.

MARKETS AND COMPETITION

Overall, the threat of entry into the medical device industry is low because of the extremely high capital requirements to break into the market. Capital is needed for research & development, manufacturing, installing, and servicing medical equipment.

There is also a high level of governmental regulation surrounding medical devices and their introduction to the market. For firms already in the device industry, rivalry is high as these companies already have significant capital expenditures and are competing to produce the best products.

There is great demand from hospitals/providers for this equipment, but as previously discussed, individual providers are increasingly losing purchasing power and larger organizations typically make decisions based heavily on price. However, buyers still have some amount of power in this industry. They do not have infinite choices in products, but between the products offered, they can be somewhat prices sensitive. Price sensitivity is affected by factors like the size of the hospital operation, and any budget restrictions they may be currently facing.

There is a threat of substitutes in the industry, primarily attributed to continued R&D investment and technology improvements of firms already in the medical device market. Improved technology is very attractive to buyers, but is combated slightly by the high costs of switching “brands” or companies.

The chart above shows market share data by company for the medical device industry as a whole.

ECONOMIC OUTLOOK

Rising economic living standards, GDP growth and an aging population make the health care sector an attractive long-term investment.

Advanced economies like the U.S., Europe, and Japan spend about twice as much of their income (averaging 12% of GDP) on health care as do emerging markets and developing economies (average of 6% of GDP). Overall, about two-thirds of the $8 trillion in global health care spending occurs in advanced economies, The US accounts for approximately $3 trillion alone 14.

There are two main reasons that health spending varies with income. The first reason is that health care is a somewhat of a superior good - demand rises more than proportionately with income. As countries become richer, people become more willing to spend money on healthcare services that are able to improve or extend life. These are services that before, they may not have been able to afford.

Secondly, very large aging populations are more prevalent in advanced economies. Overall, the aging population
(65+) makes up almost one quarter of the populations in more advance economies.

Analysts have also identified key growth opportunities in the medical device industry in the foreign markets. According to the chart below:

### Medical device market

- **Market Size**
- **2008 - 2014 CAGR**

#### CATALYSTS FOR GROWTH

The primary catalyst for growth in the medical equipment industry is the development and innovation of new technologies and the improvements of existing ones.

As previously discussed, buyers are looking for higher quality products and lower costs, with buyers trending toward an increase in pricing power. Innovation will become increasingly important not only in the devices themselves, but in the medical equipment firm operations as well.

Emerging markets and developing economies remain a large growth opportunity for this market as well. As shown above, even small increases in GDP per capita increases healthcare spending significantly. As these economies grow and become more advanced, there will be increasing demand for healthcare services and infrastructure.

### INVESTMENT POSITIVES

- Defensive nature of healthcare stocks – they are typically not greatly affected by changes in the market as healthcare is a service needed regardless of income or economic state
- Increasing number of citizens with insurance (primarily an effect of the affordable care act)

leads to increase demand for products and services

- Larger population with chronic medical issues such as diabetes, obesity, COPD, etc.
- Technological advancements with virtual appointments and internet-capable devices.

### INVESTMENT NEGATIVES

- Growing regulatory restrictions and requirements that can inhibit growth potential domestically
- The excise tax that was effective in 2013 will continue to negatively affect margins and overall profitability, particularly with regard to small-cap and some mid-cap firms.

### VALUATION

Portfolio diversification is very important for companies in the Medical Equipment industry. Research and Development is key in this industry and will be a good indicator of success when compared to other firms in the industry as well as the industry average. The metric of R&D as a percent of sales is also a good indicator and comparative measure for medical equipment. Generally, diversity in products, and geography is desirable when valuing these companies. One particularly attractive company in this sector right now is ABBOTT because of its low P/E ratio compared to the industry, and the high dividend yield.

### KEYS TO MONITOR

- Reimbursement reduction from government payers (Medicare/Medicaid)
- Additional regulatory requirements or changes including but not limited to: FDA 510(k) filing process and the Affordable Care Act
- Analysis of any major mergers or acquisitions that will affect market share and/or pricing power

### REFERENCES

2. IBIS World Medical Device Industry Reports
4. World Health Organization Data
5. HealthIT.gov - dashboards
8. “Three key trend in the Medical Device industry” Cipher Systems. 2015
10. Rajan, Renji. “UAE has emerged as one of the fastest growing healthcare markets in ME”. 11 February 2015.
12. CMS.gov – medicare enrollment data

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