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IOI ChartBook – Zimmer Biomet (ZBH)

Industry consolidation may aid Zimmer, but management has a long history of destroying owner value.

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Three Things You Should Know About Zimmer Biomet

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- **Medical devices seem like a great business, but Zimmer management has done a poor job of creating value for its owners for years.**

  Selling artificial knees and hips – Zimmer Biomet's strongest product lines – should be a great business. Demographic tailwinds, network effects, and high barriers for new competitive entrants should mean the kind of business that an intelligent investor would want to own. However, Zimmer's profit growth has lagged nominal GDP for nearly every year in the past ten, and a lack of pricing power since 2009 has proved a headwind to Zimmer's top-line.

  The future of orthopedic devices may look different from the past, but judging by history, Zimmer's business does not look very compelling.

- **Zimmer spent 20% more on its 2015 acquisition of Biomet than it had generated in total profits since its 2001 IPO.**

  One of the main trends in the industry is consolidation. Zimmer acquired Biomet as a way to break out of a close, competitive pack and now holds an overall market share that is a close second to Johnson & Johnson's (JNJ) DePuy / Synthes unit (itself created through consolidation). The price Zimmer's owners paid to play in this game was a high one, however.

  The cash portion of the cash and stock Biomet transaction used up $7.8 billion – 84% of all the Owners' Cash Profits (OCP) generated by the firm since its IPO – and the stock portion had a dilutive effect equal to more than six average years' worth of profits since 2001. Profits have markedly dropped since the acquisition, and it is still too early to know where "normalized" profit levels will end up at the company. Politics may have as much to do with the answer to this question as commercial considerations.

- **The consolidating industry may improve Zimmer's prospects, but considering the political uncertainties regarding public health policy, we think risks may be tilted to the downside.**

  Zimmer's products were selling like hot cakes and had good pricing power before the Financial Crisis. Since that time, volumes have been generally weak and the firm has had to discount to retain its industry position. We think this may be due to the growing unwillingness of insurers or employers to approve the expensive procedures that are "elective" in many cases. Changes in public health policy – the repeal of the Affordable Care Act and potential drastic changes to Medicare – would likely harm Zimmer's business materially. On the other hand, Zimmer's strong position in a consolidating industry may allow it to operate in a cozy oligopoly if drastic changes in the payment environment do not occur.

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Valuation Overview

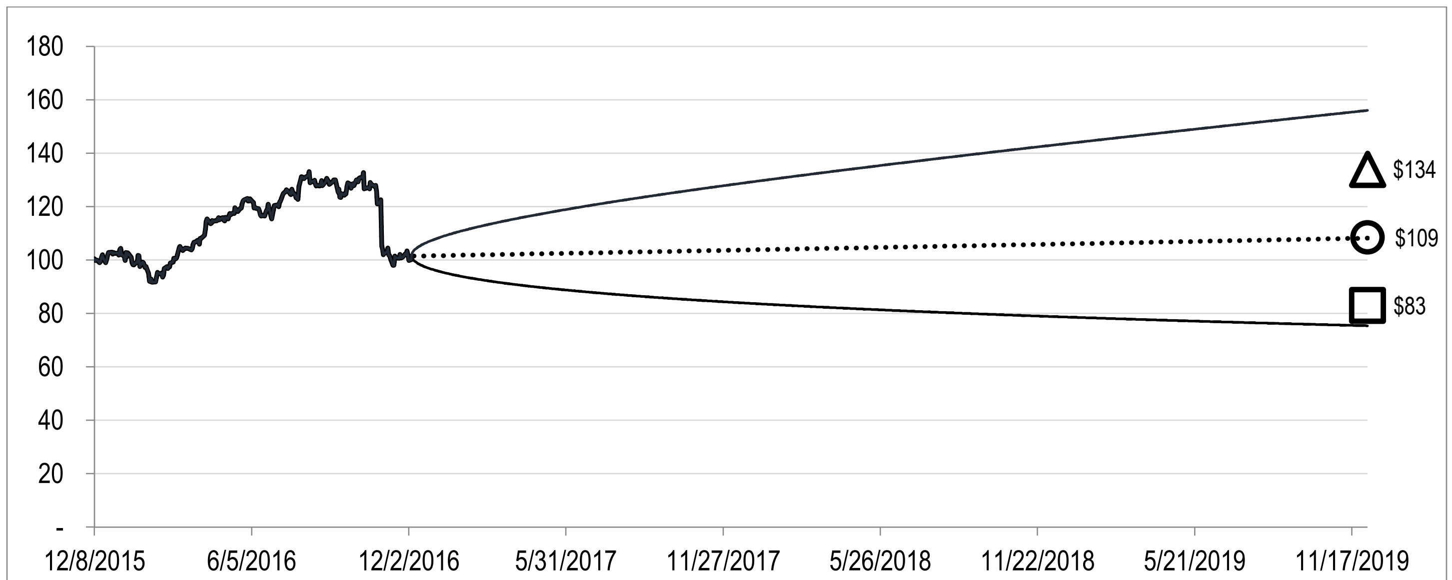

Figure 1. Source: YCharts, CBOE, IOI Analysis. Geometrical markers show IOI's best-case (triangle), worst-case (square), and equally-weighted average value (circle). Cone-shaped region indicates option market's projection of Zimmer Biomet's future stock price.

	IOI Best Case	IOI Worst Case	Historical Median
Year 1-5 Average Revenue Growth	11%	8%	3% (5 & 10-year)
Year 1-5 Average Profitability	15%	12%	14%, 18% (5-, 10-year)
Year 6-10 Cash Flow Growth	8%	5%	-6%

We have given the firm the benefit of the doubt in assuming a medium-term growth rate that is much better than the past 10 years' worth of its historical profit growth. We have two reasons. First, since the industry is consolidating and it is the second-largest player with a broader product portfolio, it is likely to be able to have more pricing power than it has had as the player struggling to retain its third place market position with a narrower product focus. Second, the main drivers of its knee and hip replacement franchises is age and obesity, and we think demographic and health trends give it a tailwind.

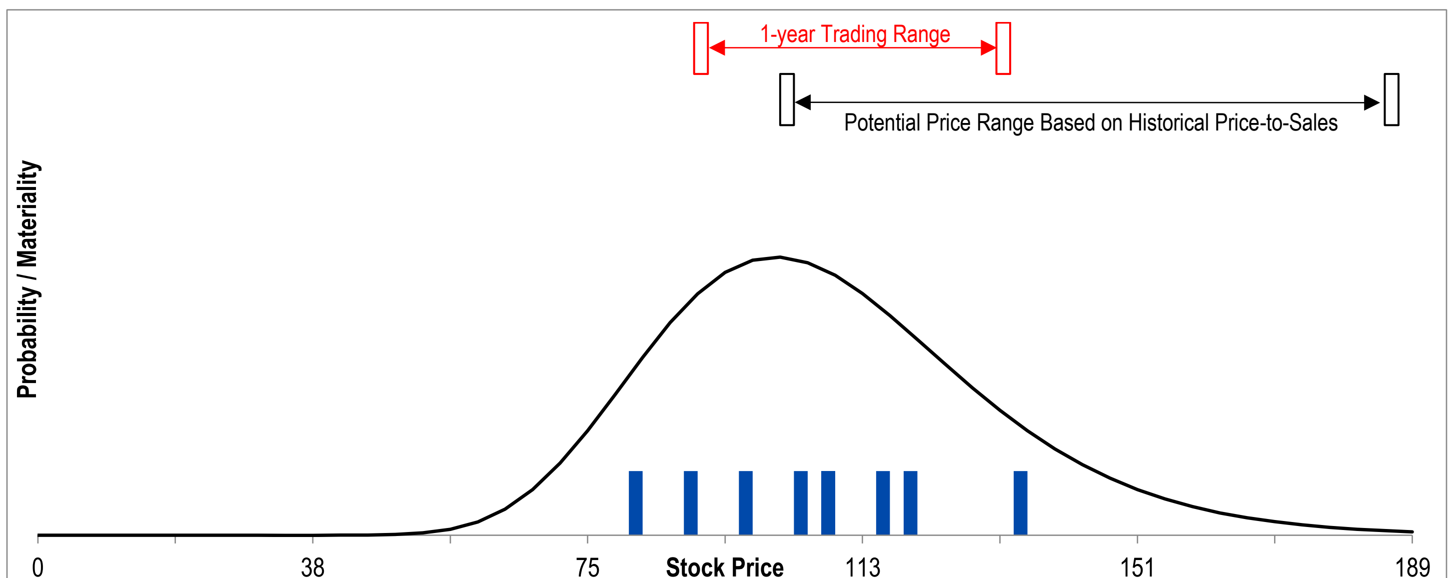

Figure 2. Source: CBOE, IOI Analysis

Both simple and complex valuation ranges say the same thing – Zimmer is properly priced by the market at present levels. Five of our valuation scenarios imply a per-share price of $109 or less. Especially considering the risk that Medicare will be privatized, we see relatively greater downside risks for Zimmer than we see upside risks.

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Valuation Waterfall

Revenue Growth

In the best-case, we see revenues growing at an average of 11% from 2016-2020 (7% excluding acquisition effects), much better than recent history. Worst-case sees average growth of 8% (3% excluding acquisition effects). We think that with focus on medical budgets, the worst-case is more likely.

Profitability

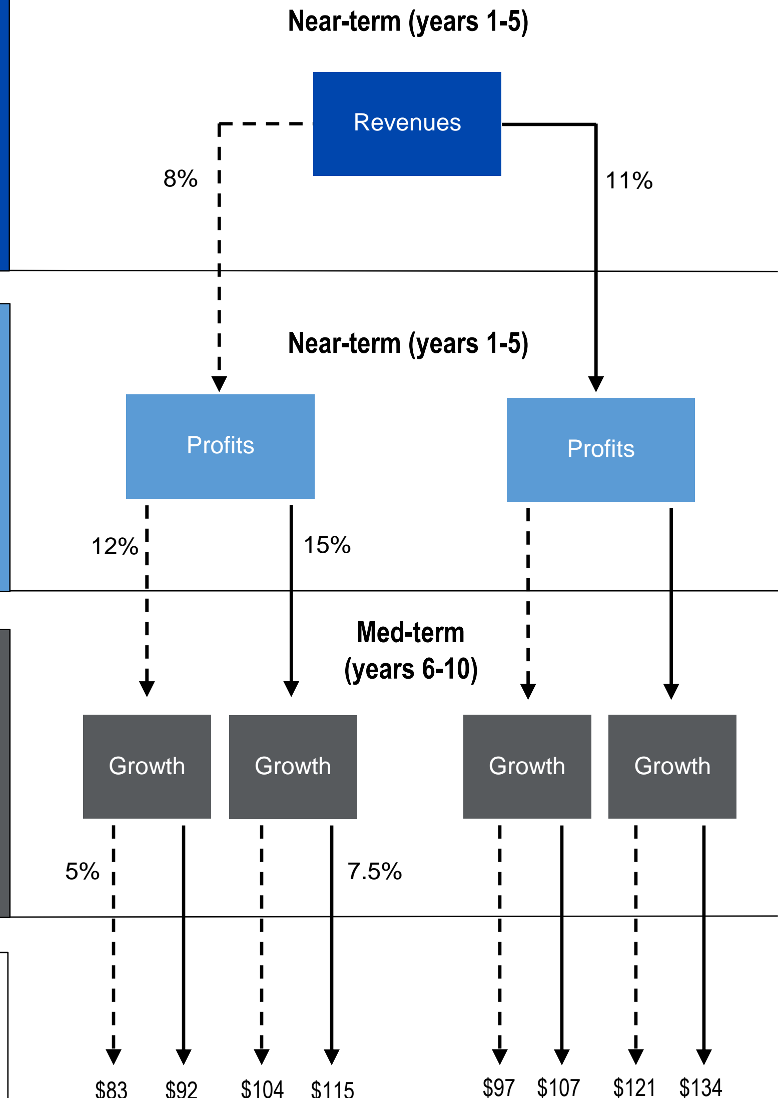
Best-case scenario assumes a quick rebound to historical (17% OCP margin) levels after acquisition is digested. Worst-case scenario assumes that 10-year trend toward lower profitability is irreversible and project 12% average OCP margin (14% ex-acquisition). We think the high-profitability case is relatively more likely considering industry consolidation.

Medium-Term Cash Flow Growth

Historical investment efficacy has been low, but we think that industry consolidation and demographic tailwinds are likely to allow Zimmer's medium-term growth to improve. The biggest uncertainty is Medicare's future status. Our best-case assumption represents 50% better than trend growth. Our worst-case assumption of 5% does not include negative effect if Medicare is materially altered.

Fair Value Range

Our fair value range extends from $83 to $134 / share with an equally-weighted average value of $109 / share – within a few percentage points of where the shares are now trading. We think that the Low Revenue / High Profit branch is relatively more likely, which would imply a fair value range between $104 - $115 – roughly the same as the equally-weighted average of highest and lowest estimates.



Methodology

IOI analyses focus on three main valuation drivers: revenue growth, profitability, and medium-term cash flow growth. We estimate a best- and worst-case scenario for each of these drivers resulting in a total of $2^3 = 8$ fair value scenarios based on discounted cash flow methodology. Profitability is measured by Owners' Cash Profit (OCP) margin. We use a discount rate of 10% for large capitalization stocks.

A wide spread of lowest and highest fair values indicates a firm whose value is uncertain. Risk depends on the stock price's relationship to the valuation range.

Best-case scenarios are represented with a solid line; worst-case scenarios, with a dotted one.

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Valuation Drivers

Revenue Growth

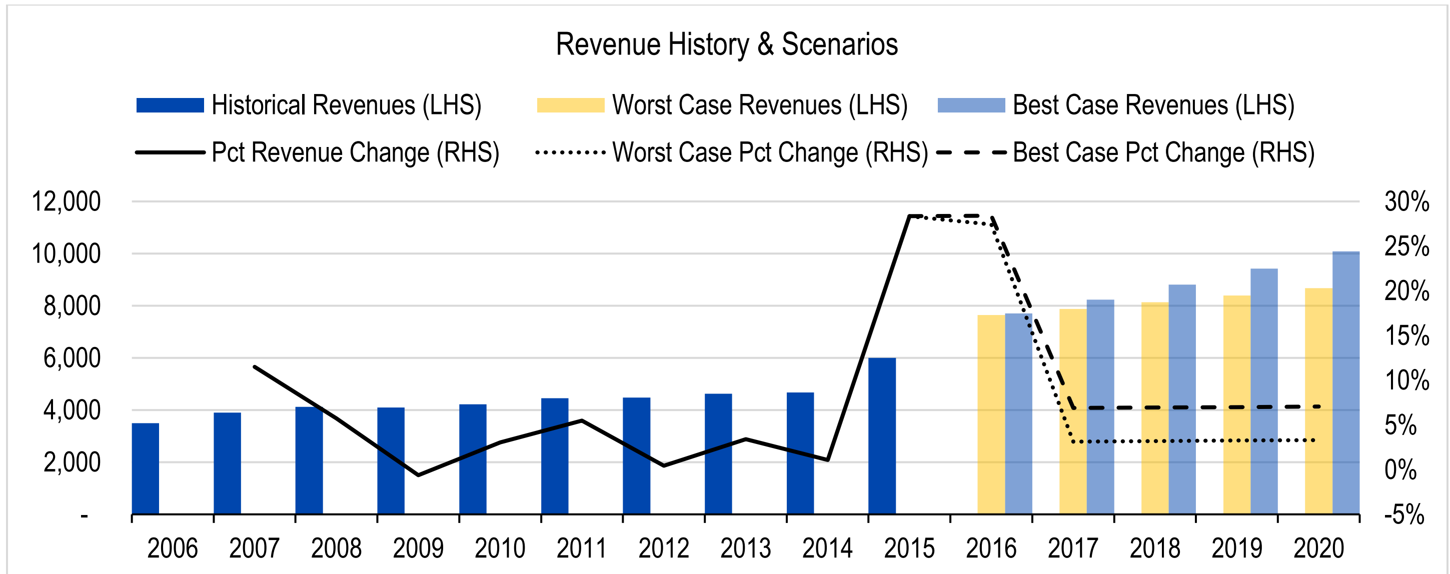

Figure 3. Source: Company Statements, IOI Analysis

Zimmer acquired Biomet in June, 2015, so half of Biomet's sales hit Zimmer's financials in 2015 and half are hitting this year. For notes regarding what assumptions lie behind our best- and worst-case revenue forecasts, please read the commentary following the regional Revenue Growth Decomposition graphs below.

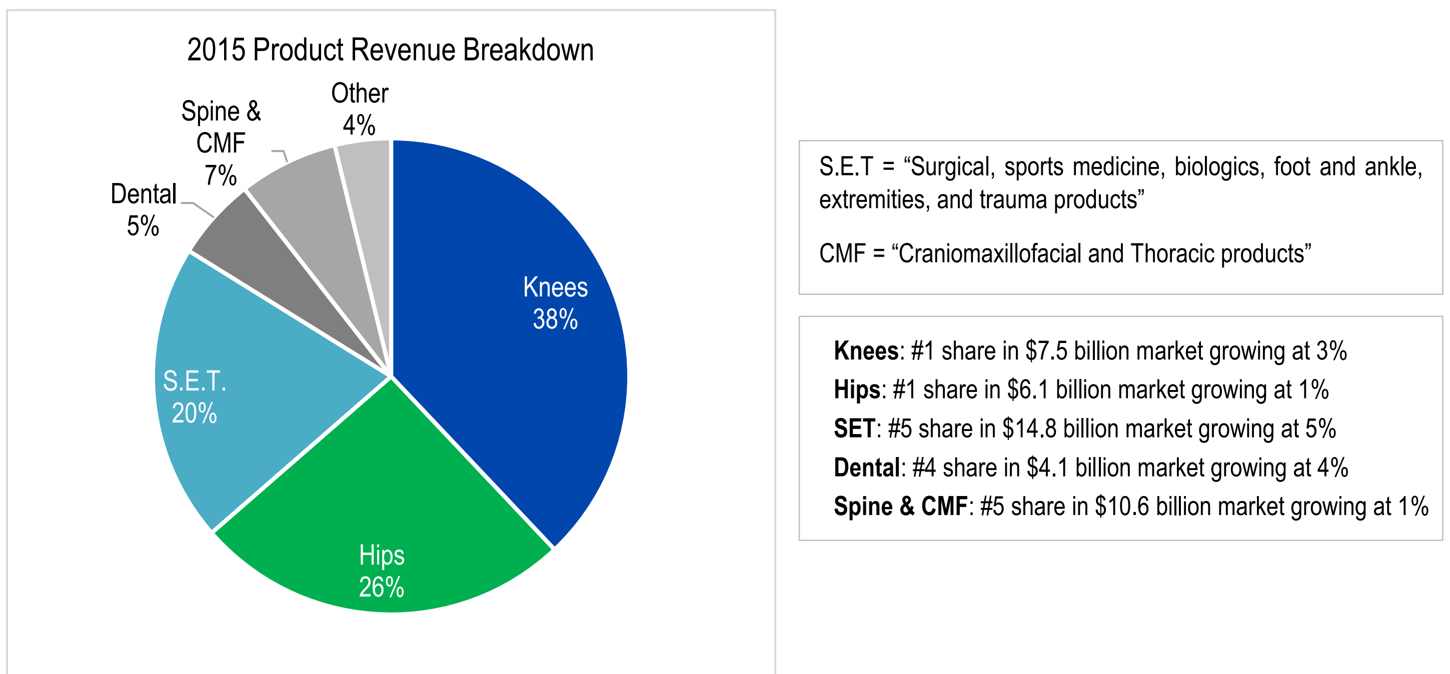

Figure 4. Source: Company Statements, IOI Analysis

Zimmer has always been strong in its Knee and Hip reconstruction products. These two product categories grew by 20% and 16%, respectively in 2015 with the acquisition of Biomet. S.E.T. grew by 41% in the acquisition, so Biomet's product portfolio appreciably boosted Zimmer's business in that segment. The biggest boost on a percentage basis was the Spine & CMF segment, which grew by 95% due to the acquisition. Dental grew at 38%, and Other – which consists of bone cement and bone healing products – grew at 65%.

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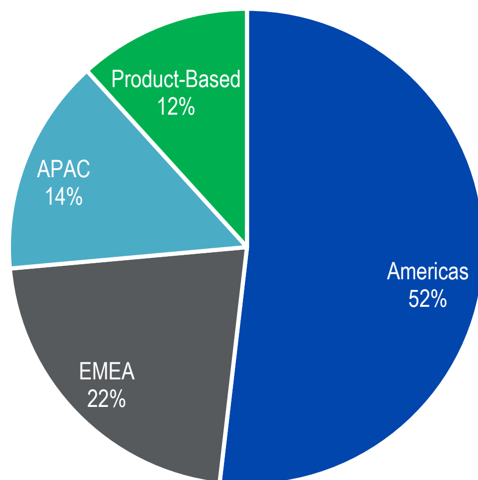

Figure 5. Source: Company Statements, IOI Analysis

Zimmer Biomet breaks its business into geographical segments. The "Product-Based" segment looks to be a segment containing most of the Biomet business. In the 2014 financial statements – the year prior to the acquisition – only geographical segments were listed.

We found the geographical segments easiest to analyze and model in our valuation. One of the biggest payors for Zimmer's products are government health systems, and we found the regions highlighted differences in revenue growth rates and profitability in a helpful way.

The Americas represent the majority of Zimmer's sales and out of that, over 90% is revenue generated in the US. Because most of its Knee and Hip clients are in their late 60s, the fate of Medicare will be an important driver of the company's future demand.

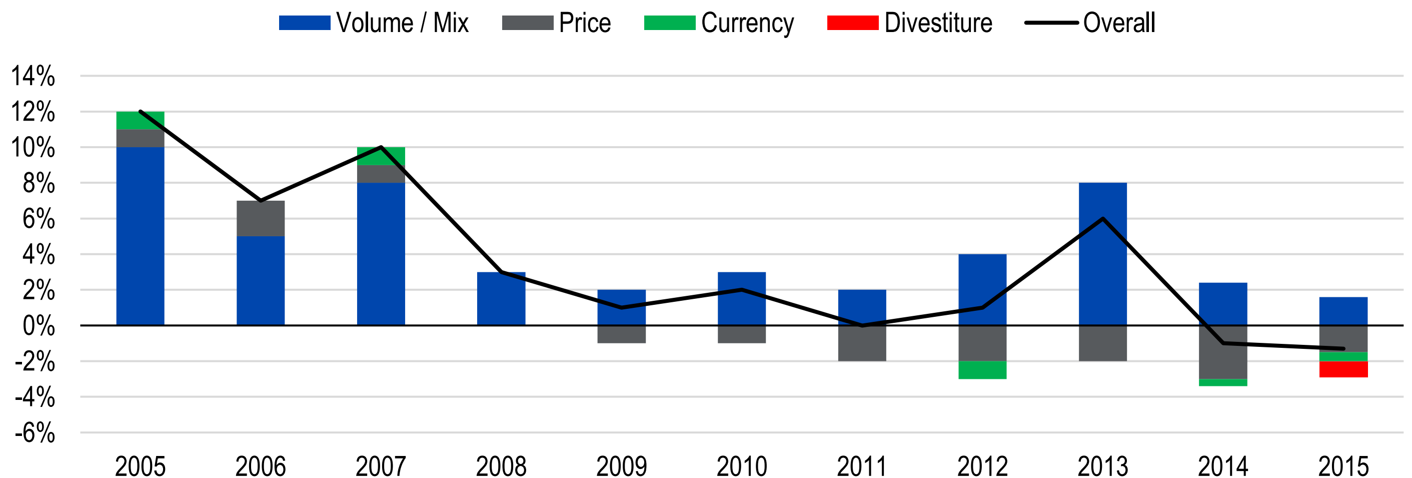

Figure 6. Source: Company Statements, IOI Analysis

The big volume increase in 2013 – represented by the dark blue bar – represents release of a new brand of artificial knee. Note that the 2005-2007 period showed robust revenue growth, aided by both volume and price (gray bar) increases. While it seems like a business that would be largely immune to economic cycles, sales of replacement joints are tied to the availability of insurance and general economic confidence – especially in younger patients who are still working. Zimmer had to divest some of its business interests upon the acquisition of Biomet – hence the red bar in 2015.

Note that since 2009, the company has been forced to discount to maintain its market position.

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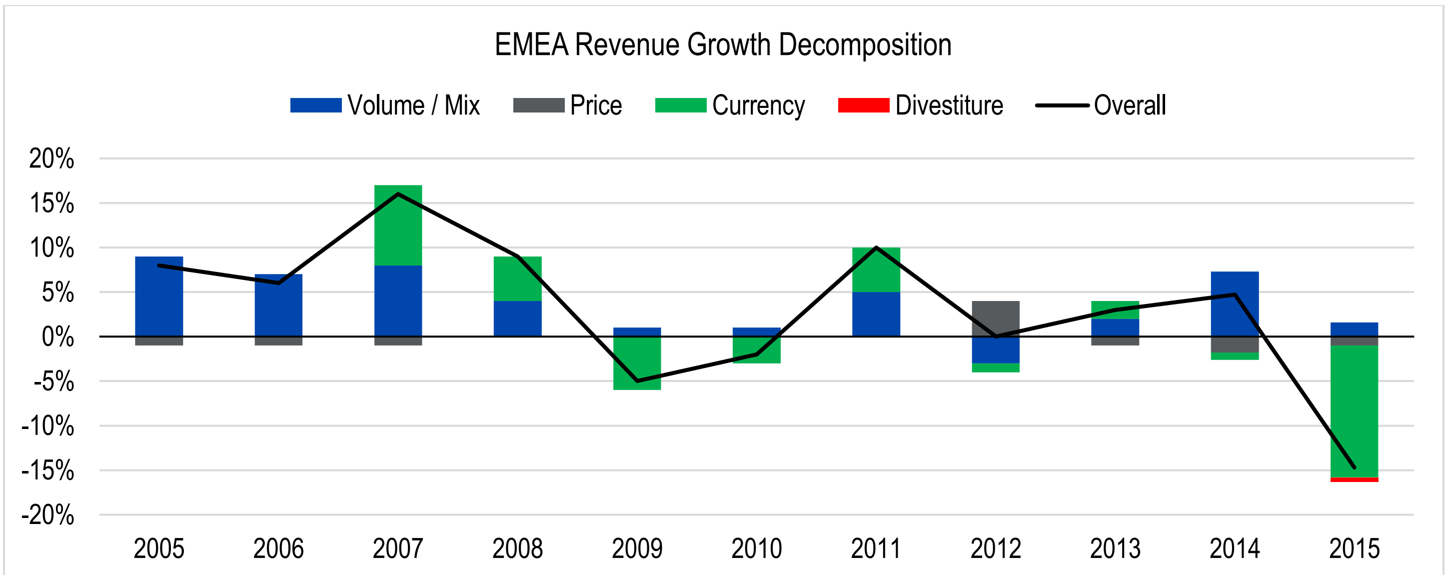

Figure 7. Source: Company Statements, IOI Analysis

Again, the effects of tight governmental budgets during the global financial crisis (peaking in 2009-2010 in Europe) are evident in the revenue growth trends. Biomet had a small presence in Europe that had to be divested in 2015.

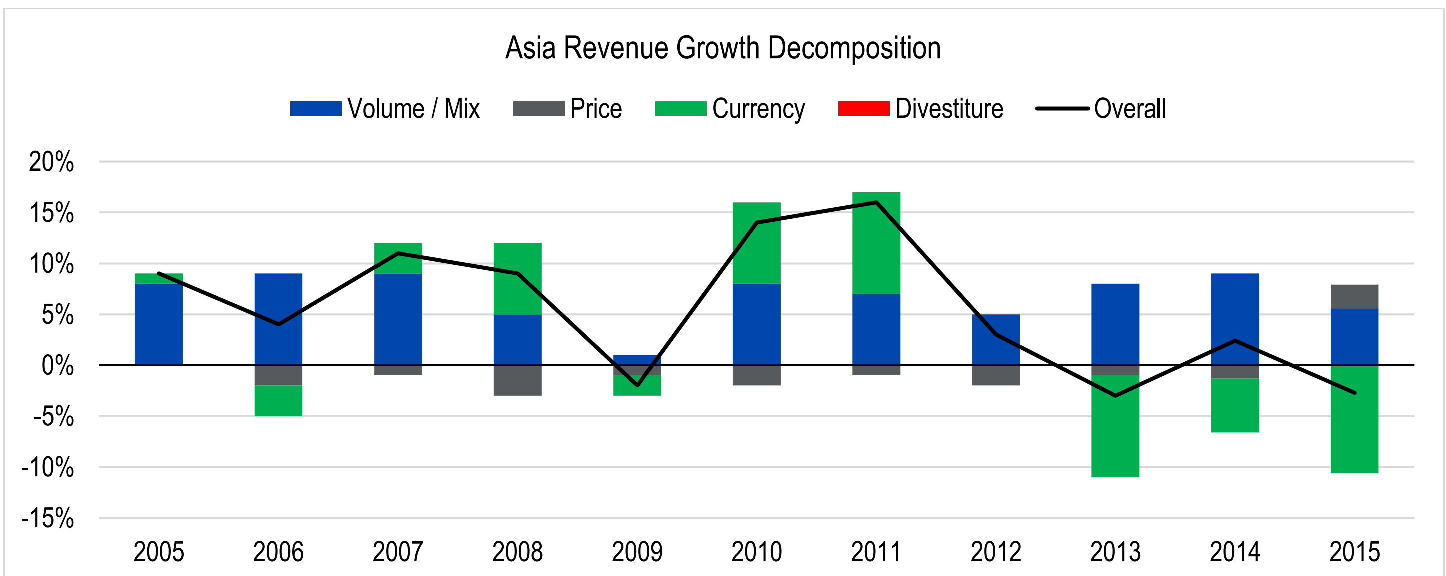

Figure 8. Source: Company Statements, IOI Analysis

Currency effects have pulled Asian revenue growth negative in the past two years, but ignoring those effects, the demand for Zimmer's products in this region are strong.

In modeling our revenue forecasts, we looked at the historical demand in each of the three regions (and at the limited data we have for Zimmer's "Product-Based" segment) excluding currency effects, and projected our Explicit Period forecasts based on that. Here are our assumptions:

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Table 1. Source: IOI Assumptions. Note that 2016 values contain acquisition effects

	2016	2017	2018	2019	2020	5-year RGR
Americas						
Best	28.4	6.0	6.0	6.0	6.0	9.3
Worst	27.4	1.5	1.5	1.5	1.5	5.6
EMEA						
Best	28.4	5.0	5.0	5.0	5.0	7.8
Worst	27.4	2.0	2.0	2.0	2.0	5.2
Asia						
Best	28.4	8.0	8.0	8.0	8.0	10.2
Worst	27.4	6.0	6.0	6.0	6.0	8.5
Product						
Best	28.4	12.0	12.0	12.0	12.0	16.7
Worst	27.4	8.0	8.0	8.0	8.0	13.4

The Product-Based segment is the hardest to understand given the data available to us and this may be the area in which we make the most revisions. Best-case revenue growth in the Americas is consistent with a boom environment; the worst-case revenue assumptions do not entertain the possibility of a Medicare repeal.

Profitability

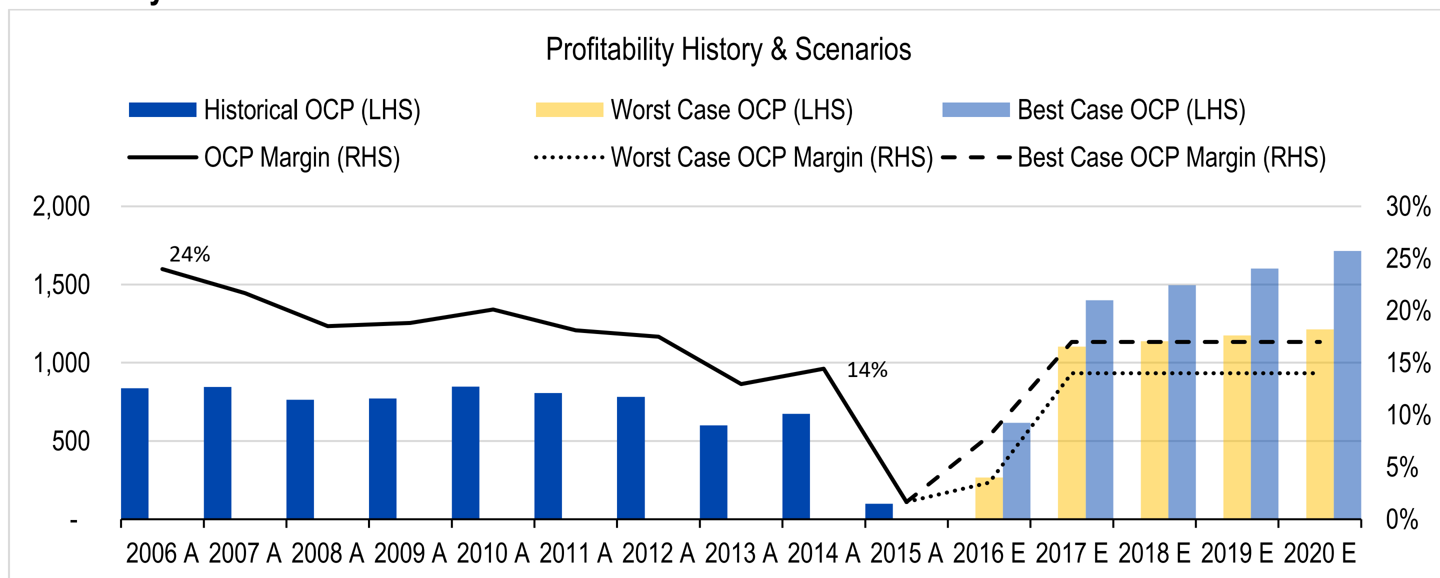

Figure 9. Source: Company Statements, IOI Analysis

Profitability, as measured by Owners Cash Profit (OCP) margin, has been on a fairly consistent decline over the last 10 years. Recently, this decrease has been related to increased amortization of intangible assets, but early slippage was due to increased input costs and increased sales and marketing expense (which might be related to additional competitive pressure). Intangible asset amortization is an element of OCP that we analyze carefully to assess whether it represents a real economic cost to owners or if it is merely an accounting convention related to acquisitions. In the case of Zimmer, a breakdown of the intangible assets being amortized was not provided, but the description of the types of assets suggest that amortization is a good estimate of an economic cost and we are treating it as such.

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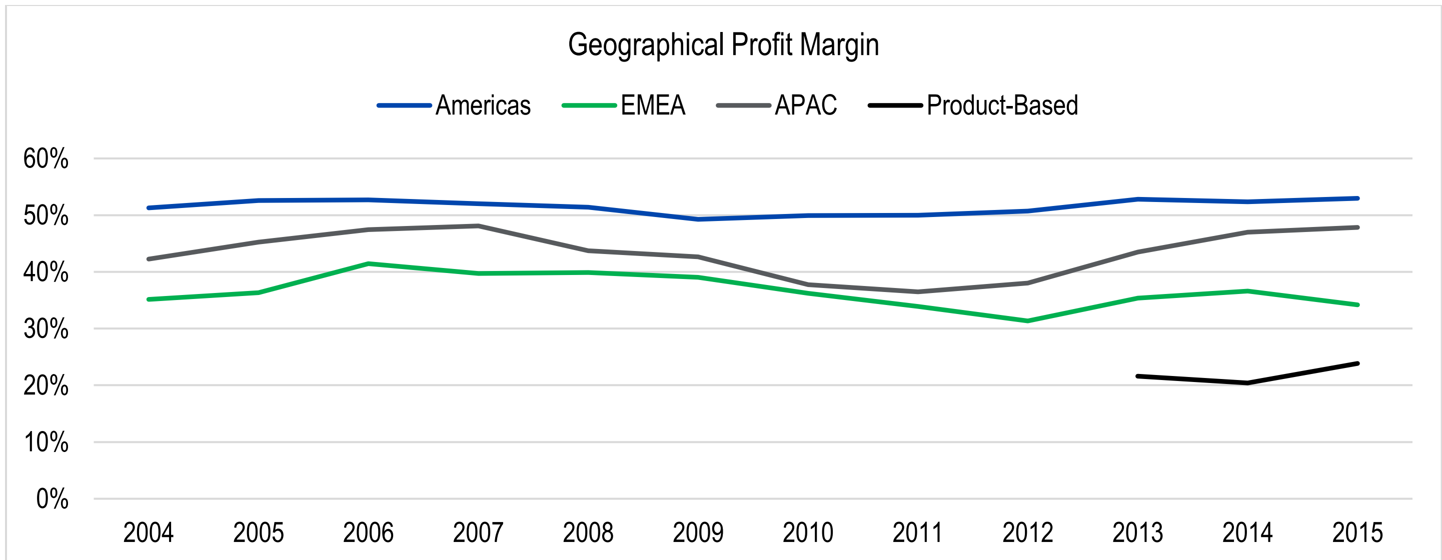

Figure 10. Source: Company Statements, IOI Analysis

The figure above shows the stark difference in the profitability of a medical devices supplier operating in a relatively uncontrolled market (Americas) versus a more tightly controlled one. An article we turned up during our research suggests a very low degree of price transparency for devices in the US market that we believes enables consistent, strong profitability in this region. One quote from the article struck us in particular:

> *[B]uyers may lack comparative information (on prices or product performance) and (most importantly) face high switching costs because of sticky relationships with specific manufacturers, generally the result of the preferences of physicians who use the products. Such relationships retard the ability of group-purchasing organizations to standardize and channel hospital device purchases to specific manufacturers, thereby upholding sellers' market power.*

In addition to the information regarding a lack of price transparency, from the quote above, we can see that clearly, relationships with individual doctors is an important element of Zimmer's sales and profit strategy. Large swings in market share are probably pretty rare – doctors get accustomed to the individual characteristics of the products of a certain maker and are generally unwilling to move to another brand. To that extent, Zimmer has a network effect of sorts that is especially powerful in Knee and Hip replacement operations.

The Biomet acquisition has made the financials from both 2015 and 2016 relatively noisy, so we have relatively less confidence in our profit forecast. The first three quarters of Zimmer results has generated a low OCP margin in the 3.5% range, but we are well aware that a change in working capital accounts about which we have no information to forecast, might boost profitability in the last quarter of the year and pull up full-year results. It is unusual for us to have such a wide spread between best- and worst-case profitability for a firm so late in the year, but acquisitions do make any analysis related to working capital accounts (which we implicitly do by using Cash from Operations as a starting point for our calculation of OCP) difficult.

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Investment Level

Expansionary Cash Flow is IOI's measure of investment spending net of asset sales and divestments.

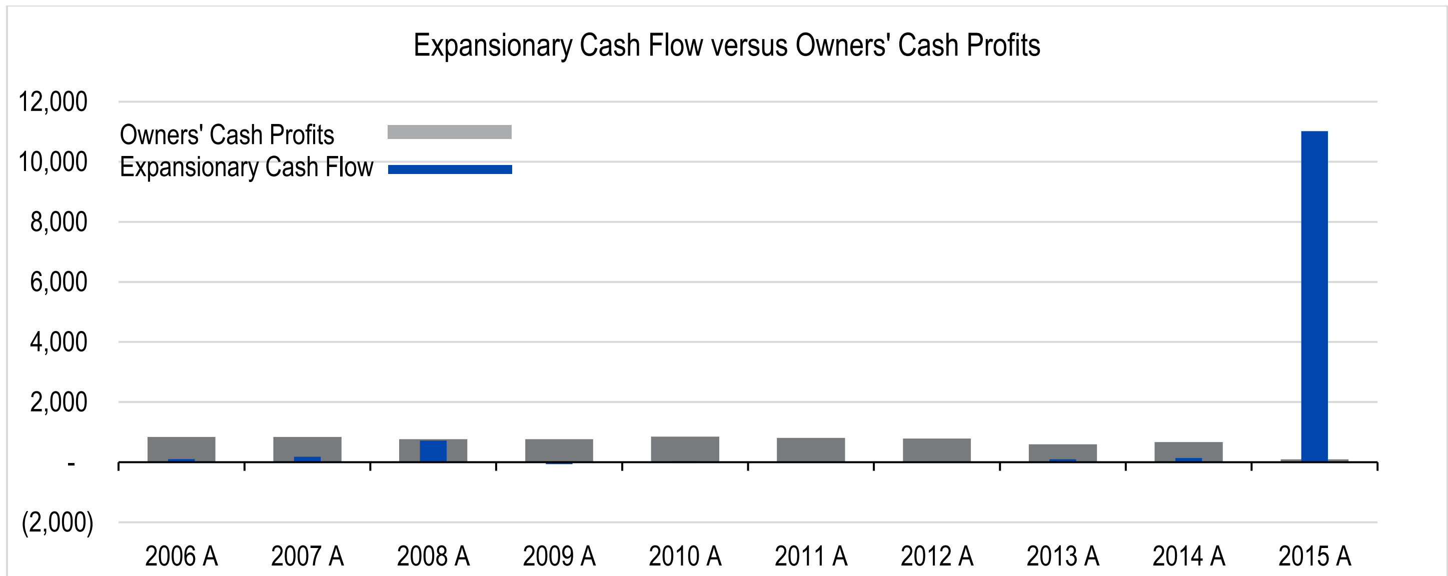

Figure 11. Source: Company Statements, IOI Analysis

Excluding the huge expenditure for Biomet in 2015, Zimmer has spent an average of 20% of its profits on investments. Total net investment spending in 2015 was $11,020 million, which works out to 14.3 years' worth of the 2006-2014 Owners' Cash Profits. In 2016, the company has made an acquisition of a company called LDR and has also acquired other smaller firms for a total of $1,443 million, or about 7 times larger than the OCP the firm has generated so far this year.

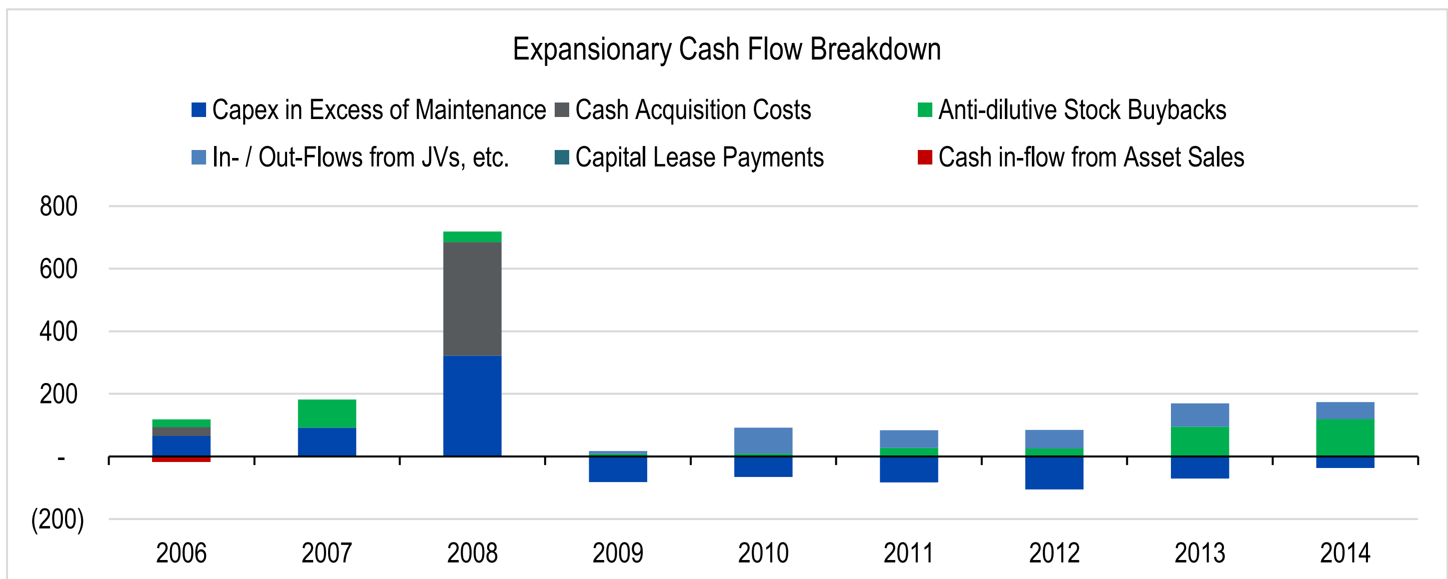

Figure 12. Source: Company Statements, IOI Analysis

This diagram only shows expenditures prior to the Biomet acquisition. We note that Anti-dilutive stock buybacks increased in 2007 (before its acquisition of Abbot Spine) and again in 2013-2014 (before it's Biomet acquisition) but was otherwise quite a small proportion of its investment spend.

This could be happenstance, but it is worrying to us as a potential corporate governance issue, if the management was issuing themselves compensation in advance of the public announcement that they were going to make an acquisition. The Abbot acquisition was a cash purchase, but the Biomet acquisition used shares for part of the purchase. We think it may be possible that management was attempting to reduce the effects of dilution on themselves personally from an upcoming stock issuance to buy a company. At any rate, whatever measure the Board is using to decide how much compensation to award executives, judging by Investment Efficacy (see section below) it must not be something that IOI would consider a good measure.

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For 2015's acquisition, investment spending breakdowns were as shown in the following graph.

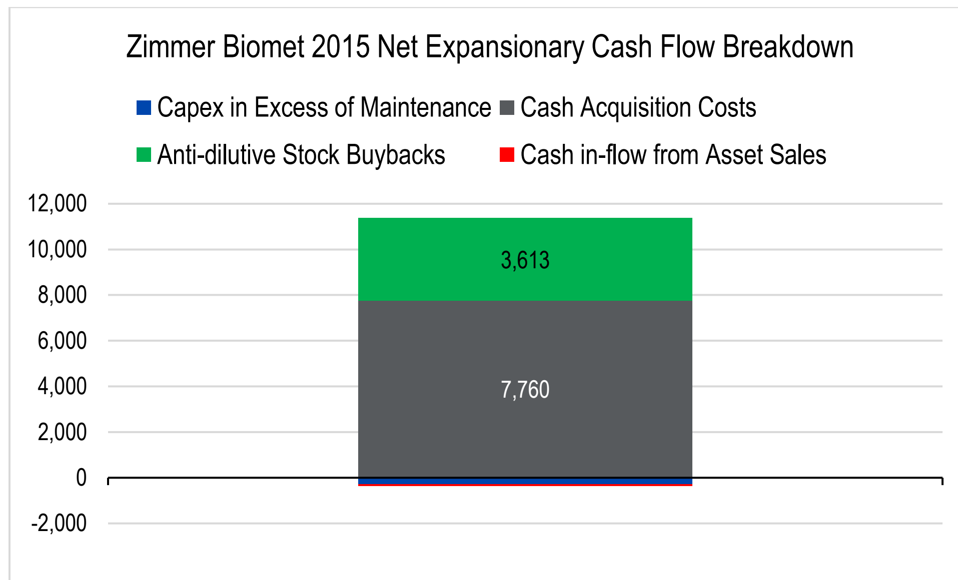

Figure 13. Source: Company Statements, IOI Analysis

Capex in Excess of Maintenance is shown as negative because the firm spent less on new equipment than our model's estimate of Maintenance Capital Expenses. The numbers on the bars show the relative split between cash (gray) and stock (green) used in the Biomet acquisition.

Free Cash Flow to Owners

Free Cash Flow to Owners (FCFO) is the metric IOI uses to value companies. It equals Owners' Cash Profits less Net Expansionary Cash Flow.

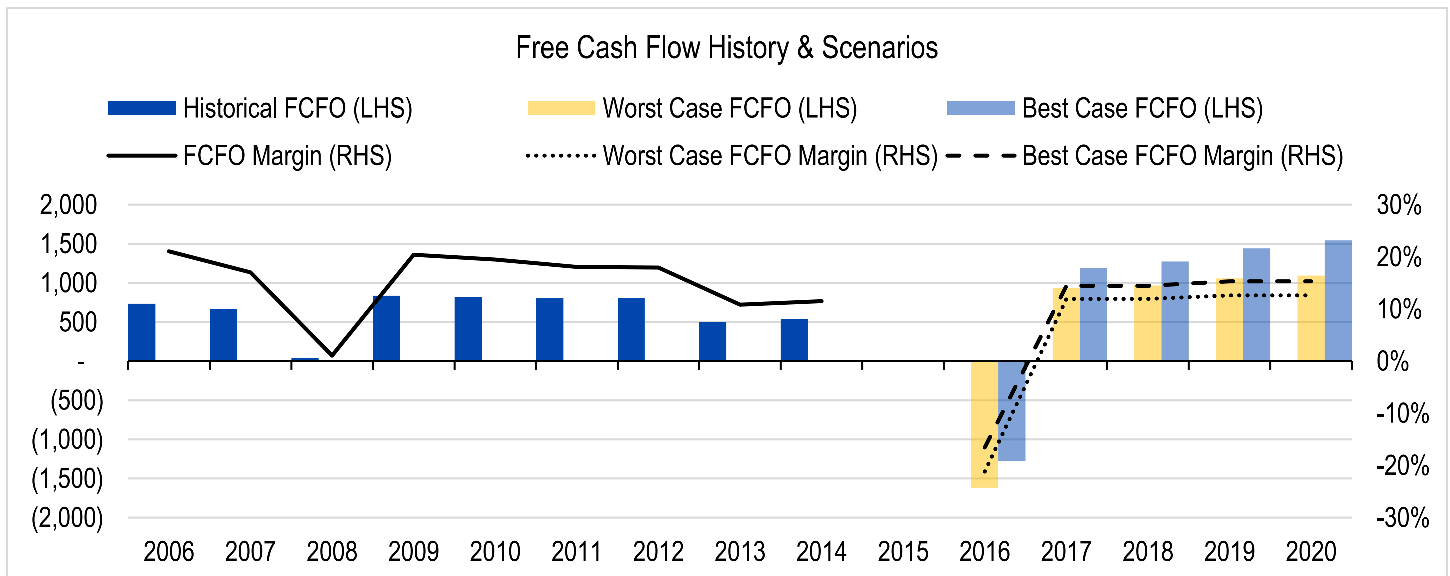

Figure 14. Source: Company Statements, IOI Analysis

Note that we have removed 2015 data in the interest of graph legibility. Our assumptions for future levels of investment spending are pegged at 15% of OCP for 2017-2018 and 10% of OCP after that. We believe that Zimmer may not be done with its acquisition streak, so are assuming an average spend higher than most years in its historical series. The average investment expenditure as a percentage of OCP for the nine years from 2006-2014 was 20%, but this was strongly influenced by the Abbot Spine acquisition. Many years, Zimmer's investment spend was in the single-digit percentage of OCP range.

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Investment Efficacy

Corporate investments lead to profit growth. IOI measures profit growth versus the standard yardstick of nominal GDP growth to assess the efficacy of the company's past investments.

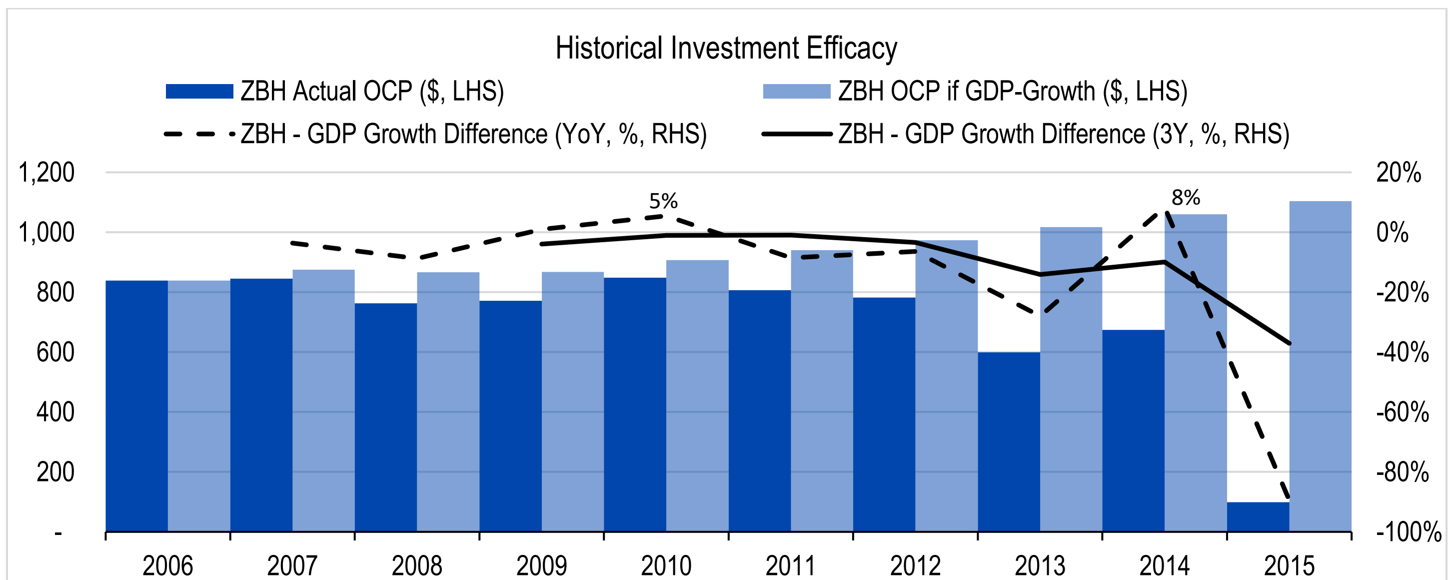

Figure 15. Source: Company Statements, Bureau of Economic Analysis, IOI Analysis

Zimmer's profit growth has been poor over the last 10 years. The acquisition of Abbot Spine in 2008 may have contributed to a modest 5% growth in 2010, but to us, it looks as though the company is losing steam as time goes on. The drop in 2015 is an artifact from the Biomet acquisition (there will also be an effect on 2016 numbers), so we are discounting the big drop at the end of the graph. Still, the weak performance before that suggests that management has not done a good job of investing its owners profits.

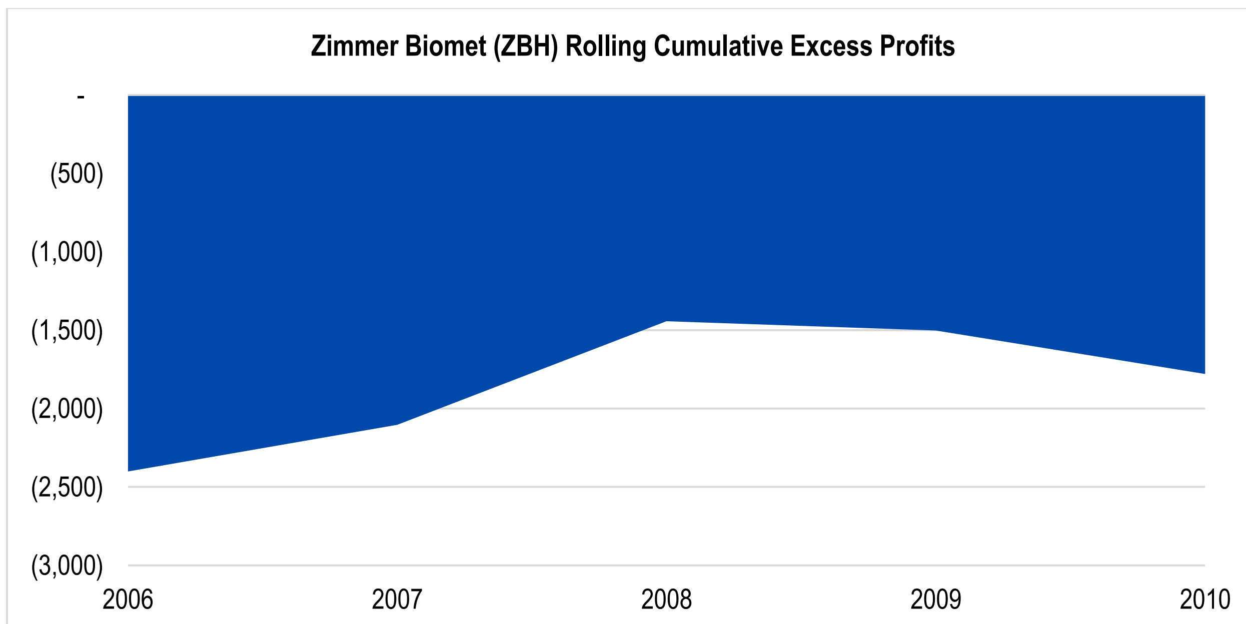

Figure 16. Source: Company Statements, IOI Analysis

This diagram requires a bit of explanation which may be found in this article on the IOI website. Even without reading through the full details of the calculation method, the story told by this graph's negative values for all years is clear: the company has done a poor job of investing its owners' profits over the last 10 years and has destroyed value.

That said, the figures above represent measurements of the past, and we must consider the possibility that despite historical evidence, Zimmer's future investing efficacy may be higher. There has been a great deal of consolidation in this industry over the past decade and Zimmer has acquired its way into a strong second place from being in a contentious third place position.

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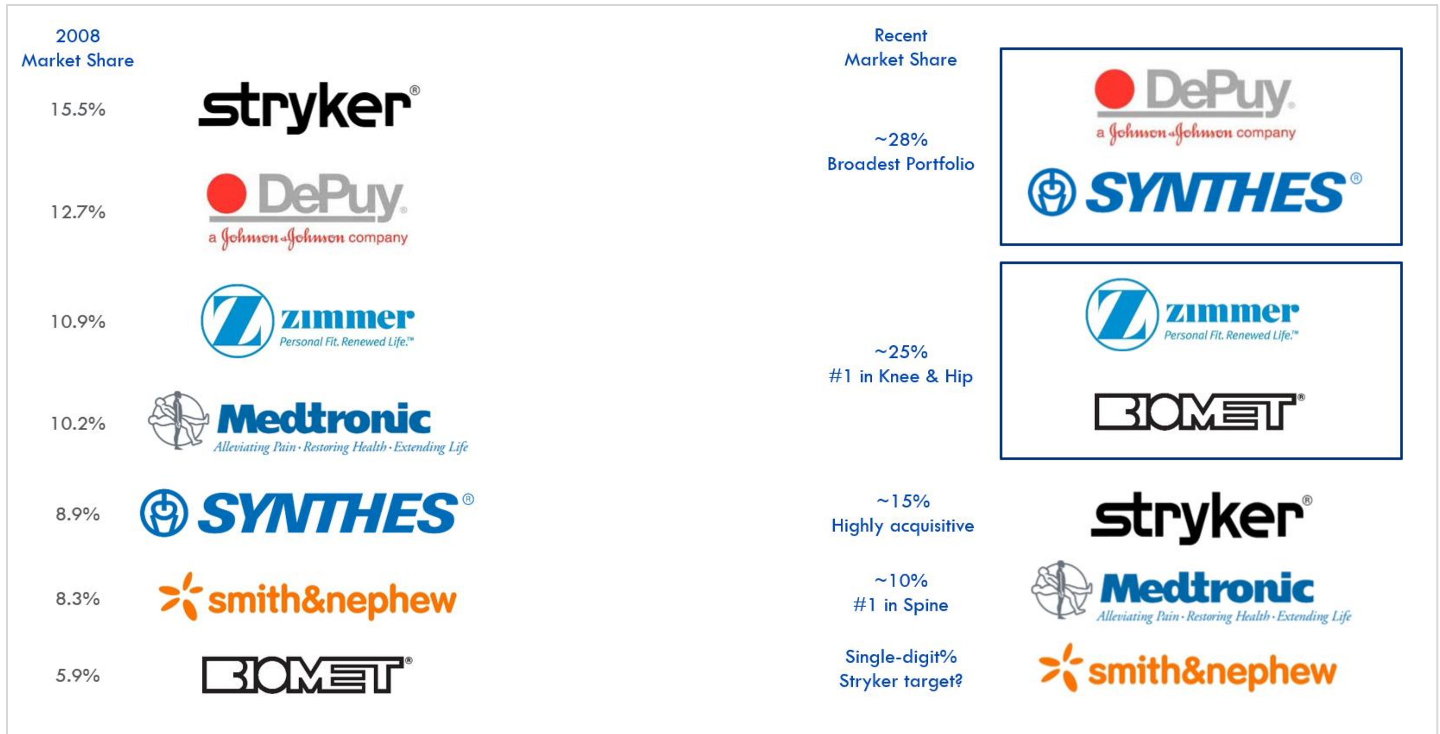

Figure 17. Source: Company Statements, press releases, IOI Analysis

This consolidation may lead Zimmer Biomet to have greater pricing power and enjoy a more stable oligopolistic market which is more conducive to increasing profit. In addition, Zimmer's greatest product line strength – replacement Knees – have the dual demographic tailwind associated with more Baby Boomers hitting the typical joint replacement age and obesity rates for Baby Boomers increasing. Considering these factors, we think there is a relatively good chance for medium-term profits and cash flows to grow at a brisk rate.

We wonder if Zimmer might attempt to acquire a stronger position in S.E.T., a line that has a good growth rate and other characteristics (such as greater frequency of product purchases) that make it attractive. Its largest acquisition in 2016 has been that of LDR Holding (LDRH), a company that competes in the spine treatment device market.

One significant unknown to this is the political fate of Medicare, the elderly care health insurance of the US. Present Speaker of the House, Paul Ryan, has suggested that the repeal of the Affordable Care Act might be a good time to re-legislate the rules underlying Medicare. In our opinion, this would likely represent a negative shock to Zimmer's business as a fewer number of seniors will likely be able to afford insurance coverage that will allow for orthopedic replacement surgery.

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