GlassHouse Research

09/19/17

NuVasive C-Suite Jumps Ship as NUVA Bares Similar Accounting Concerns to Electronics for Imaging

Who is GlassHouse Research? GlassHouse Research (GHR), a division of GlassHouse, LLC is made up of forensic accountants/analysts who have worked for prominent hedge funds on Wall Street, as well as boutique forensic accounting firms. Our purpose is to expose public companies that have been taking advantage of US GAAP as well as IFRS accounting standards for their benefit. We seek to find companies where GAAP (or even worse, non-GAAP) earnings are deviating from true economic earnings of the target firm.

Overall, we search for evidence of a "culture of fraud" within public companies.

Disclaimer: As of the publication date of this report, GlassHouse, LLC and others that contributed research to this report and others that we have shared our research with (collectively, the "Authors") have short positions in, and own put option positions on, the stock of NuVasive, Inc. (NUVA) and stand to realize gains in the event that the price of the stock decreases. Following publication of the report, the Authors may transact in the securities of the company covered herein. All content in this report represent the opinions of GHR. The Authors have obtained all information herein from sources they believe to be accurate and reliable. However, such information is presented "as is," without warranty of any kind – whether express or implied. The Authors make no representation, express or implied, as to the accuracy, timeliness, or completeness of any such information or with regard to the results obtained from its use. All expressions of opinion are subject to change without notice, and the Authors do not undertake to update or supplement this report or any information contained herein. Please read our full legal disclaimer at the end of the report.

Initiation of NuVasive, Inc. (NUVA) with a Price Target of $24.18

GlassHouse Research wants the reader to understand the magnitude of both the firm's President/COO and CFO leaving abruptly at a time when there is a profusion of accounting red flags at NUVA. Our analysts do not believe in coincidences at this scale and based on our own expertise, we believe this will turn out badly for all involved at NuVasive, Inc. In a previous report on EFII, the firm missed earnings in the three periods after we exposed accounting issues at the company with it finally reporting a material weakness sending the stock down 40% in one day. We believe the accounting issues here at NUVA are worse and believe the firm will miss badly to the downside in the upcoming one to three quarters.

- **NUVA organic revenue starts to trend negative, which puts its growth by acquisition strategy at risk:** While the firm is touting its $1 billion revenue goal this year, it looks like its acquire-at-all-cost strategy to get there will burn them in the end. Based on our own calculations, we believe that the core business is suffering greatly at NUVA and is being masked by recent acquisitions.

- **The following accounting irregularities will act as material headwinds in future periods leading to substantial negative earnings surprises:**
    - Inventory diagnostics provide evidence of channel stuffing at NUVA with inventories standing at a five-year seasonal high relative to sales.
    - Management blames its recent AR/DSO spike on a transitory item in its NCS division, however our analysts believe this rather stems from the pulling forward of future revenue.
    - In our view, NUVA has been delaying normalized expenses based on its accrued expenses, especially in light of the recent plummet relative to total sales. We calculate this under-expense benefited the firm by 22.0% of non-GAAP earnings over the TTM.

- **Sell-side analysts are fooled by deceiving non-GAAP exclusions that GHR will expose as neither non-recurring nor non-cash expenses:** NUVA has borrowed from the Valeant playbook and has employed an "acquire at all cost" model that has helped them to artificially inflate true earnings. TTM non-GAAP income ($1.77) now stands 185.5% above GAAP income of $0.62, representing the highest difference in NUVA's history. Persistent material exclusions of intangible amortization expenses and business transaction costs obfuscate NUVA's true sustainable earnings.

- **Management appears to be jumping ship adding a time-catalyst to our thesis:** High ranking executives Quentin Blackford (former CFO) and Jason Hannon (former COO) have abruptly packed their bags and left the company within the last three months.

Key Similarities Between EFI and NuVasive

Key Characteristic	Electronics for Imaging	NuVasive Inc.
Business Strategy	CEO leads race to $1 billion goal in revenue to appear "more attractive" to investors	Race to the goal of $1 billion in sales; whether organic or acquired
Corporate Culture	Managers in key positions lacked proper accounting experience	Prior CEO ousted for violations, recent COO&CFO jumping ship, and a suspicious transaction related to sales milestones
Reported Organic Revenue Figures	Does not disclose organic revenue growth figures to obfuscate real growth	The firm reports sporadic core / pro-forma / segment growth figures without any consistency
Depressed Spending on R&D Expenses	Miniscule amount of money spent on R&D and excluded amortization expenses	Uses an acquire R&D strategy that aesthetically makes margins look better
Questionable Use of Non-GAAP Exclusions	Non-GAAP earnings significantly diverged from GAAP earnings	Non-GAAP earnings significantly diverged from GAAP earnings for 5 of the past 6 years
Highly Negative Adjusted Free-Cash-Flow (FCF) Figures	FCF while reported positive, stood at –$52.6 million at the end of Q2 2016 with acquisitions	FCF while reported positive, stood at –$426.7 million at the end of FY2016 with acquisitions
Accounting Concerns	Concerns with acquisition accounting, spring-loading, channel-stuffing, misclassifying AR, and adequacy of warranties	Spikes in DSI/DSO metrics coupled with plummeting accrued expenses spawn balance sheet concerns
End Result	The firm's stock price fell over 40% in one day as the company faces accounting errors from revenue recognition	????????

Company Background

NuVasive, Inc., (NUVA) is a medical device company that designs and markets minimally-disruptive surgical products and procedurally-integrated solutions for spine surgery. Its products focus on applications for spine fusion surgery, including biologics used for spinal fusion process. The company's principal product is Maximum Access Surgery (AKA MAS), a minimally-disruptive surgical platform, which includes its software-driven nerve detection and avoidance systems, NVM5, and intraoperative monitoring (IOM) services and support; MaXcess, an integrated split-blade retractor system; and various specialized implants and biologics.

Its spine surgery product line offerings comprise products for the thoracolumbar and the cervical spine, which are primarily used to enable surgeons to have access to the spine and to perform restorative and fusion procedures in a minimally-disruptive fashion. Its biologics products include Osteocel Plus and Pro, a cellular bone matrix; Formagraft, a collagen-based synthetic bone substitute; AttraX, a synthetic bone graft material; and Propel DBM, a moldable demineralized bone matrix putty, which are used for spinal fusion or bone healing process. The company's IOM services are used for onsite and remote monitoring of the neurological systems of patients undergoing spinal and brain-related surgeries. It also provides implants; and fixation products, including pedicle screws, rods, and plates. In addition, the company offers Integrated Global Alignment platform for assessing, preserving, and restoring spinal alignment; MAGEC-early onset scoliosis, a spinal bracing and distraction system; and PRECICE, a limb lengthening system.

NuVasive, Inc. sells its products to hospitals, surgeons, and other customers through independent sales agents, directly-employed sales personnel, and distributors in the United States and internationally. The company was founded in 1997 and is headquartered in San Diego, California.

NUVA's Growth by Acquisition Strategy Could be its Downfall

With a change of the guard in mid-2015 when newly appointed CEO Greg Lucier took over from the previously ousted CEO Alex Lukianov (more on this later), NuVasive turned into a high growth by acquisition firm with its sights set on a $1 billion revenue goal. Both the ousted CEO and new CEO have mentioned this goal over 30 times throughout the years on earnings/analyst calls dating back to 2012. The only difference is that it appears Mr. Lucier plans to get there with a growth by acquisition strategy instead of organically. To illustrate this, we find the following as a newly added excerpt in NUVA's 10-K filing, "We expect to continue to pursue business and technology acquisition targets and strategic partnerships."

> *Restructuring is a company's way of ridding itself of certain unprofitable subsidiaries it should never have acquired in the first place. The earlier buying of these ill-fated subsidiaries, also warmly applauded [by Wall Street] is called diversification. I call it di-worseification.*
>
> *-Peter Lynch*

So we would like to point out step by step why we believe NuVasive's management is infatuated with buying companies left and right and how it impacts the firm overall:

1) The acquiring of new companies inorganically boosts NUVA's sales in order to hit their arbitrary $1 billion revenue goal set back in 2012.

2) Management has an added incentive to increase sales and non-GAAP operating earnings, as discussed later, to hit performance goals and thus added bonuses.

3) The use of purchasing assets through acquisitions allows management to tout a reported adjusted EBITDA figure that does not take into account cash spent on acquisitions and that can be gamed.

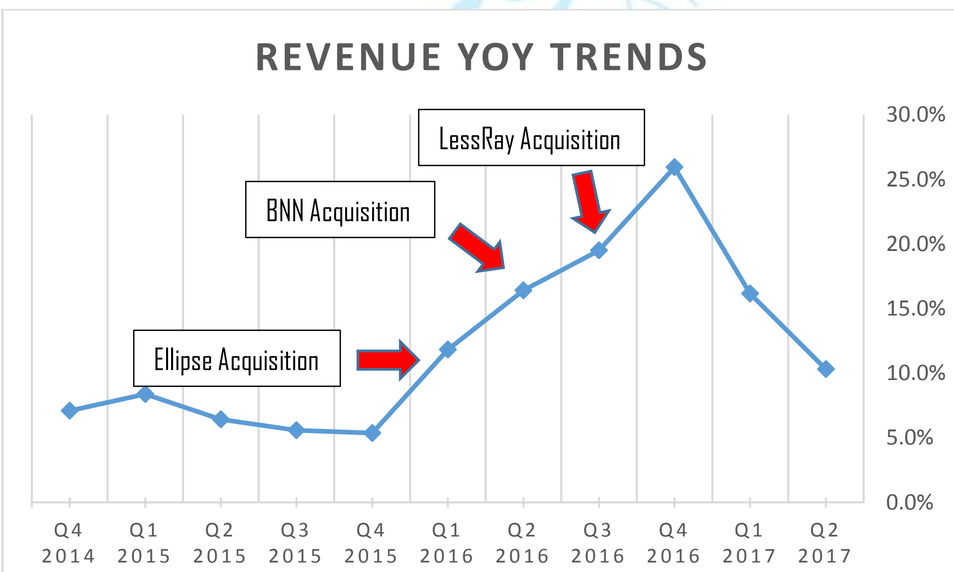
4) This allows management to exclude amortization expenses (where real cash was spent during the acquisition) from non-GAAP earnings because they are incorrectly deemed as “non-cash”.

5) Management is then able to exclude unquestionably recurring “business transition costs” from non-GAAP earnings because management considers them to be “non-recurring” in nature, even though they have been used in 18 consecutive periods.

6) This allows management to hide actual normal operating expenses into the “business transition charges” on the income statement, where NUVA’s footnotes corroborate this very thesis. Hiding in plain sight!

7) Management’s convoluted disclosures regarding organic revenue appears to be a way to obfuscate true consolidated organic growth figures. For instance, organic growth is not reported in its earnings press release similar to other companies, rather it is given sporadically throughout different earnings calls.

Overall, who cares if management can hit an arbitrary revenue goal of $1 billion if all they had to do is acquire at will to get there. Did they accomplish anything? What appears to have been a decelerating revenue company back in 2015 has now surged back to life of the backs of a new CEO on a spending spree. But are these numbers sustainable?



Ellipse Acquisition Not Going as Planned Despite Management Reports

- When the acquisition of Ellipse was announced on 01/05/16, CEO Greg Lucier praised the purchase based on their strong revenue trends. Verbatim, he stated, "Ellipse ended 2015 strong with approximately $44 million in revenue or nearly 70% YOY growth. This team remains committed to delivering approximately $60 million on pro forma basis revenue in 2016 (representing 36% YOY growth)."

- On the Q4 Earnings Call, former CFO Quentin Blackford discussed Ellipse (AKA NSO) with the following, "While the type of purchase order we saw in Q4 may not repeat in the future, the underlying revenue performance for NSO, excluding this transaction, was in line with our expectations. The business continues to grow in excess of 30% and will continue to contribute to the accelerated growth profile of the overall company for years to come."

- The purchase order at question described above comes from a $4.8 million purchase for MAGEC rods (within the NSO division) that came in from a "charitable donation" as described on the earnings call. However, this transaction leads to being borderline not arms-length, as it was made by certain former stockholders of Ellipse Technologies with the intent to donate them. So why would they do this? Out of the goodness of their heart? Doubtful, apparently the $30 million revenue milestone payment to Ellipse shareholders was not going to be reached unless a magical $4.8 million sale came out of nowhere, and it did.

- So if the acquisition was going as planned, why would the division need an injection of $4.8 million in sales in order to hit a milestone revenue goal that was expected to hit? And assuming a run-rate of $60 million estimate for the year, this amount is highly substantial as it equates to over 33% of the division sales for the quarter. Based on our organic revenue section detailed below, we believe Ellipse/NSO's growth has mostly stagnated at approximately $15 million in sales per quarter.

- To add injury to insult, we believe this division's total goodwill amount may be at risk for impairment. Especially in light of a new CFO coming in that appears to be highly conservative. From the acquisition, NUVA brought on $241.9 million in goodwill on the balance sheet, or 63.7% of the total consideration paid. Looking at NUVA's closest peers, we find that the average goodwill spent equaled 44.2% relative to total consideration paid.[1] Moreover the 63.7% goodwill-to-paid ratio was the highest of all peers acquisitions in 2016. Because of the lofty price paid for Ellipse well over what peers were paying, we see a more likely than not chance of material impairments in the future.

Organic Growth Figures on the Decline

- After analyzing NUVA's proforma and self-calculated organic revenue figures, we believe that not only is the firm's highly touted Ellipse acquisition suffering, but the core business is faltering as well.

- Let us start by diving into NUVA's terrible disclosure practices that either point to negligence or tomfoolery as their disclosure regarding organic revenue are nowhere near consistent as GAAP accounting would imply. Here is everything that is wrong with NUVA's disclosure practices that appear to try and obfuscate organic revenue trends:

    1) The firm does not clearly state organic revenue growth percentages or absolute numbers front and center in its earnings release as many other reputable companies do. Especially, for the highly material Ellipse acquisition, revenue from this division (NSO) should have been broken out each quarter.

    2) On the earnings calls, management does provide "core" growth figures that exclude NSO and BNN, but not other "not material" acquisitions, for only three periods in FY2016. They stop disclosing this figure starting in Q1 2017 on the earnings call, even though BNN has not annualized until 07/01/17.

    3) NUVA does break out revenue growth from acquisitions in its quarterly filings, however the consistency is lacking here as well. First, they only break out the acquisition growth by segment (Spinal Hardware and Surgical Support) instead of just stating which division (NSO/BNN) produced $X amount of growth or revenue. Then they decide to stop giving quarterly figures and instead switch to full-year and 6M figures, without disclosing the 3M figures as they previously did.

[1] Acquisitions used in our calculations were JNJ (Vouge), MDT (HeartWare, Smith&Nephew), SYK (Sage, Physio), GMED (Alphatec), ZBH (Bioment, LDR).

4) With the $98 million acquisition of Biotronic Neuronetwork (BNN) on 07/01/16, the firm provided no disclosures what-so-ever regarding revenue/earnings estimates or balance sheet/goodwill data. The reason being is that they consider this acquisition to be not material to the firm's financials. However, in the same press release, NUVA states, "NuVasive expects the transaction to be immediately accretive to NuVasive's EPS in 2016 and significantly accretive in 2017 and beyond." Unbelievable.

5) Even in the firm's filings we see that the firm is engaged in acquiring more and more companies, but yet we as analysts/investors continue to receive no disclosures on them due to their management imposed materiality threshold. According to the filings, management states:

> *The Company has completed other acquisitions that were not considered material to the overall Consolidated Financial Statements during the year ended December 31, 2016. These acquisitions have been included in the Consolidated Financial Statements from the respective dates of acquisition. The Company does not believe that collectively the acquisitions made during the year, excluding NSO, are material to the overall financial statements."*

6) Recently as of 09/07/17, we find that NuVasive purchased yet another company, Vertera Spine, with literally no financial information given what-so-ever, not even a purchase price.

- Where we are going with this is that we believe many of these smaller not disclosed acquisitions are actually driving most of NuVasive's revenue growth in recent periods. Now that Ellipse has annualized, we believe that most the growth is coming from BNN and other smaller acquisitions, while the core business is suffering. And of course, management provides no details regarding BNN or LessRay and how accretive they will be to sales/earnings.

- In the three quarters management disclosed its "core" growth numbers (although they describe this as only excluding Ellipse on BNN revenue, not the other acquisitions), they disclosed figures of 9.0%, 5.0%, and 9.0% in Q2, Q3, and Q4 2016, respectively. Based on these figures and our own calculations, we believe that BNN and other acquisitions are actually driving most of the total revenue growth while NSO has stagnated revenue of approximately $15 million per period.

- With NSO fully annualizing in Q2 2017, we would expect a bump up in "core" growth as this is supposed to be NUVA's high flyer as it was in the past. However, we calculate our own core growth at 5.1% for the H1 2017 (due to the aforementioned limited disclosures we could not calculate quarterly figures). And as stated earlier management has not provided core growth figures, even though BNN has not yet annualized from its acquisition date.

- Based off this data that shows decelerating revenue trends in both the consolidated business and core numbers, we believe that management will continue to try and acquire its growth even at the detriment of the core business.

Margin Divergence from Peers Suggest Earnings Management

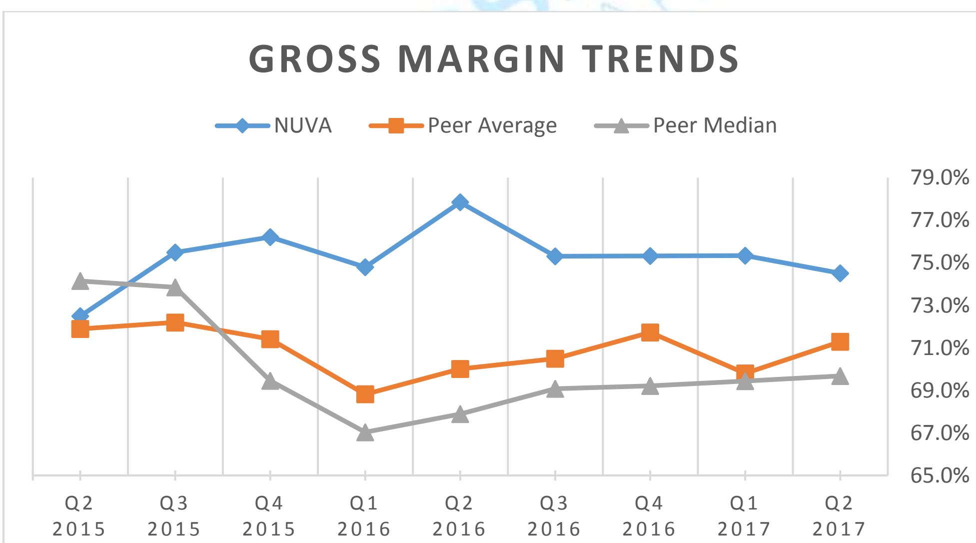
When analyzing NuVasive's income statement and margins, we note large divergences from the peer median[2] that we believe could be attributable to accounting shenanigans. To illustrate these nefarious trends, we will go through each of the following expense line-items one by one: Gross margin, R&D margin, and SG&A margin.

Gross margin bifurcation over the past two years could suggest relaxed inventory accounting:

- Reviewing the firm's gross margin trends, we find that dating back to 2015 we find the NUVA and its peers reported a similar gross margin at 72.5% and 71.9%, respectively as of Q2 2015. Since this timespan, we find that these numbers deviated in that NUVA's percentage continued to increase while the peer group decreased.

- Later in our report, the reader will come to find that we believe NUVA's bloated inventory balance is a result of 1) under-accruing its markdowns of its highly technological changing products and/or 2) defending its ASP of its products at the cost of decelerating sales.

- While we believe management can boost gross margins cosmetically for a short period of time, overall we believe that NUVA's margins will end up in-line with the peer group average and in fact it will reverse to a much lower value in future periods.



[2] Peer group consists of JNJ, MDT, GMED, ZBH, KTWO, SYK, and OFIX.

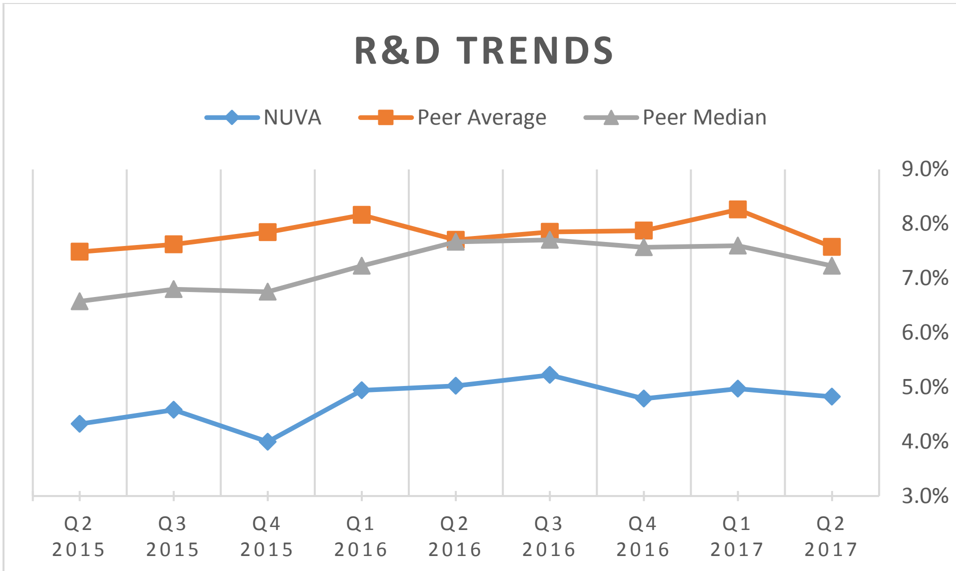
Research and Development costs plummet after NUVA goes on a spending spree acquiring:

> *The mistake the bulls continue to make here is they add back the amortization of companies like Valeant and Endo and others who have bought drugs and not developed them. And if Merck and Pfizer and others were able to not count their R&D expense, right, capitalize it, they too would look cheap. It's just a simple matter of accounting.*
>
> *– notable short-seller Jim Chanos*

- Moving on to what we believe is one of the most nefarious items on NUVA's income statement stem from the firm's (or lack thereof) R&D expenses. Dating back to 2010, we find that NUVA spent a total amount on R&D that was in-line with its peer group average near 10% margin. However, as NUVA became more and more acquisitive and basically "purchased" its R&D, this percentage went into freefall. ***Here is where at first this type of R&D strategy appeared harmless at Valeant, however it ended up being one of their main downfalls once acquiring companies ceased due to investor pressure.***

- As the sell-side analysts were blind to Valeant's inflated margins, we believe here that NUVA has figured out the same gameplan by buying its R&D. As the firm, continued to buy more companies, its R&D fell to a near five-year low recently at 4.8% of total sales. This contrasts greatly with its peer group average of 7.6% reported last period.

- Overall, this "accounting gimmick", which allows management to circumvent heightened R&D expenses, nefariously motivates management to go on a spending spree acquiring companies whether they will be good acquisitions or not. To add insult to injury, managers have figured out to exclude the amortization expense from non-GAAP earnings with sell-side analysts none-the-wiser (as we will discuss later).



<u>SG&A margins do not correspond with management statements about expanding workforce:</u>

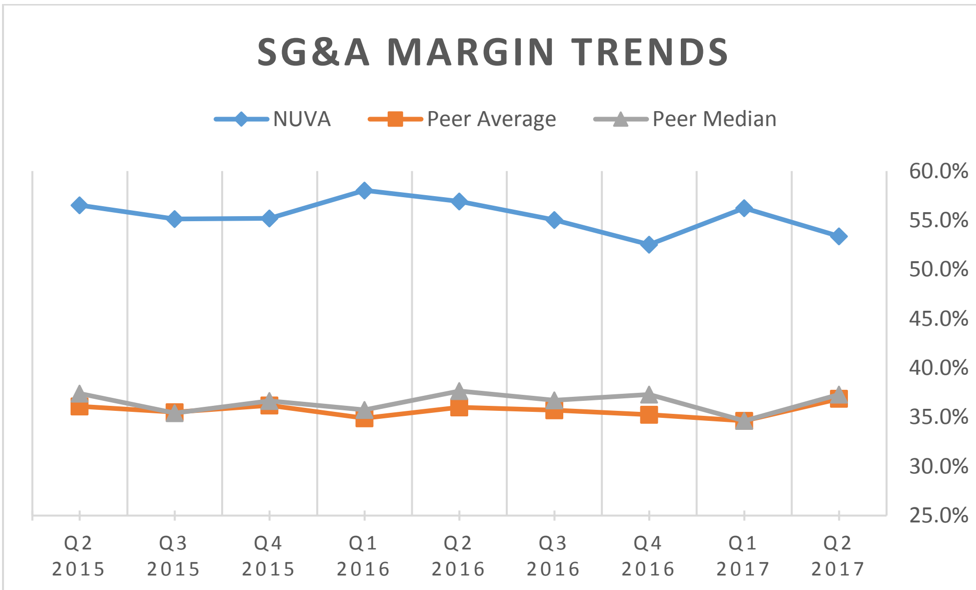
- Focusing in on the firm's selling, general and administrative expenses, GHR observes that NUVA spends an extreme amount on its SG&A costs; well above its competitors in the space. Illustrating this trend, we find that NUVA's SG&A margin currently stands at 53.4% in the latest quarter. This was the highest among its peer group where the peer group average SG&A margin was only 36.9%; representing a 1,609 bps difference.

- The higher amount being spend on its workforce appears to contrast from management's recent statements in its 10-K under its strategy excerpt:

  Expand the Reach of Our Exclusive Sales Force. We believe having a sales force dedicated to selling only our products is critical to achieving continued growth across our various product lines, driving greater market penetration and increasing our revenues.

- Additionally, we found in the most recent 10-K that the company now has a majority of directly-employed sales representatives rather than an approximately 50/50 split with independent sales agents as in previous years. This can be found under the "Sales and Marketing" excerpt under the "Strategy" section.

- Overall, we believe that NUVA management is overspending on its sales force in order to supplement revenue growth in the recent years. We view this type of revenue growth strategy as unsustainable in the long-term, especially when judged against its peers.



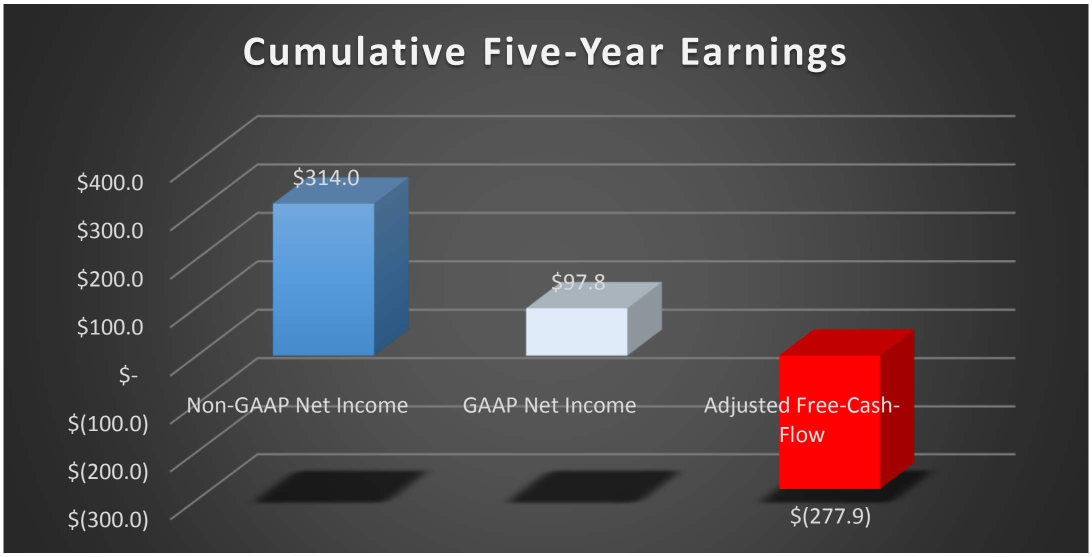
Cash Flow Metrics Plunge, Pushing Accruals to New Highs

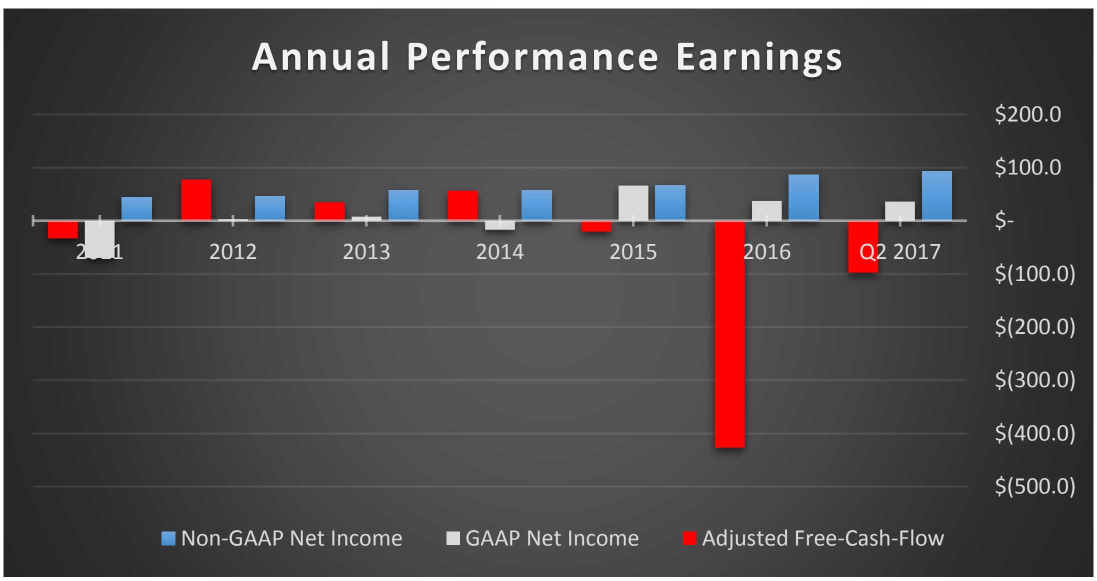
Not surprisingly, when viewing NUVA's performance figures based on non-GAAP, GAAP and free-cash-flow figures, we come to find wildly different figures that suggest the firm is not as profitable as it would like you to believe. In fact, we calculate that over the last five years, the cumulative amount of free-cash-flow (including acquisitions) comes to an astonishing *loss of* $277.9 million (see Chart on the next page). This contrasts greatly with management's touted non-GAAP earnings profit figure of $314.0 million. Even when excluding NUVA's largest acquisition of Ellipse Technologies in 2016 where the firm paid $380 million in total consideration, the firm's adjusted free-cash-flow figure still remained negative in FY2016 at –$20.5 million.

But just focusing in on GAAP and adjusted FCF figures, we at GlassHouse like to quantify the divergence between income and cash flow metrics by looking at total and operating accruals figures.[3] Any percentage that totals above 10% lead us to believe there is a heightened chance management may be taking liberties with its accounting. For NUVA, at the end of FY2016, we calculate their total and operating accruals to stand at 31.9% and 8.3%, respectively; both extremely heightened figures relative to historical norms. In the, end these metrics portend heightened reported earnings for NUVA, but not much cash (in this case *negative* adjusted FCF) to back it up. Our dedicated readers will come to find in the rest of our report what the primary drivers are behind this bifurcation between earnings and cash flow metrics.

Back before Valeant's crash in 2015, many analysts proclaimed that the company was doing great based on their cash-from-operating-activities and free-cash-flow figures. ***However, as investors would soon find out, this was all a farce as the firm circumvented these figures by using acquisitions at an alarming rate. We see that same situation, if not worse, brewing at NUVA.***

[3] Total accruals defined as net income – adjusted free-cash-flow (then divided by total assets). Operating accruals defined as EBITDAS – CFOA (then divided by current assets).


Cumulative Five-Year Earnings
$400.0
$300.0
$200.0
$100.0
$-
$(100.0)
$(200.0)
$(300.0)
$314.0
$97.8
$(277.9)
Non-GAAP Net Income
GAAP Net Income
Adjusted Free-Cash-Flow


Annual Performance Earnings
$200.0
$100.0
$-
$(100.0)
$(200.0)
$(300.0)
$(400.0)
$(500.0)
2011
2012
2013
2014
2015
2016
Q2 2017
Non-GAAP Net Income
GAAP Net Income
Adjusted Free-Cash-Flow

<u>**Evidence of Channel Stuffing at NUVA**</u>

A material portion of NUVA's salient accruals is driven by their bloated inventory balance which is gathering dust on the balance sheet. Overall, our analysts here at GHR have found several earnings quality figures that point to NUVA reps stuffing its doctor clients with unwanted inventory to boost its sales. Similar to the case with EFII, where we accurately called its errors in revenue recognition policy, here we believe that NUVA has been actively trying to ram down its inventory onto its client base in order to artificially increase sales. GHR is able to come to this conclusion by analyzing certain inventory diagnostics of NUVA. This combined with a salient rise in accounts receivable (discussed next) leaves our analysts no doubt that channel stuffing has occurred based on our long-tenured experience searching for accounting fraud.

As our analysts have come to find out, channel stuffing and bloated inventory on the balance sheet can only be a farce for so long. As NUVA's highly depreciating inventory is forced off the balance sheet, the company is left with two bleak options <u>1) rapid markdowns of its products, which will significantly impact margins and/or 2) the firm will need to write-off its obsolete inventory at a total loss.</u> And based on our experience and the ballooned level of inventory on hand and in the channel, we believe this puts a time catalyst within one-to-three quarters of a substantial share price decline for NUVA.

Let's take a look how NUVA describes its own inventory in terms of obsolescence in its 2016 Annual Report:

> *Excess and Obsolete Inventory*
>
> We provide an inventory reserve for estimated obsolescence and excess inventory based upon historical turnover and assumptions about future demand for our products and market conditions. ***Our allograft products have shelf lives ranging from two to five years and are subject to demand fluctuations based on the availability and demand for alternative products. Our inventory, which consists primarily of disposables and specialized implants, is at risk of obsolescence following the introduction and development of new or enhanced products***. Our estimates and assumptions for excess and obsolete inventory are reviewed and updated on a quarterly basis. The estimates we use for demand are also used for near-term capacity planning and inventory purchasing and are consistent with our revenue forecasts. Increases in the reserve for excess and obsolete inventory result in a corresponding charge to cost of goods sold. Historically our reserves have been adequate to cover losses.
>
> ***A stated goal of our business is to focus on continual product innovation and to obsolete our own products.*** While we believe this provides a competitive edge, it also results in the risk that our products and related capital instruments will become obsolete prior to sale or to the end of their anticipated useful lives. [emphasis added]

As the reader can see, NUVA does not apologize for the rapid rate that it obsoletes its own products in order to stay above the technological curve. And with the rapid rise of the inventory on the balance sheet, management may not have been as cavalier with write-offs of its products in recent periods. The numbers don't lie.

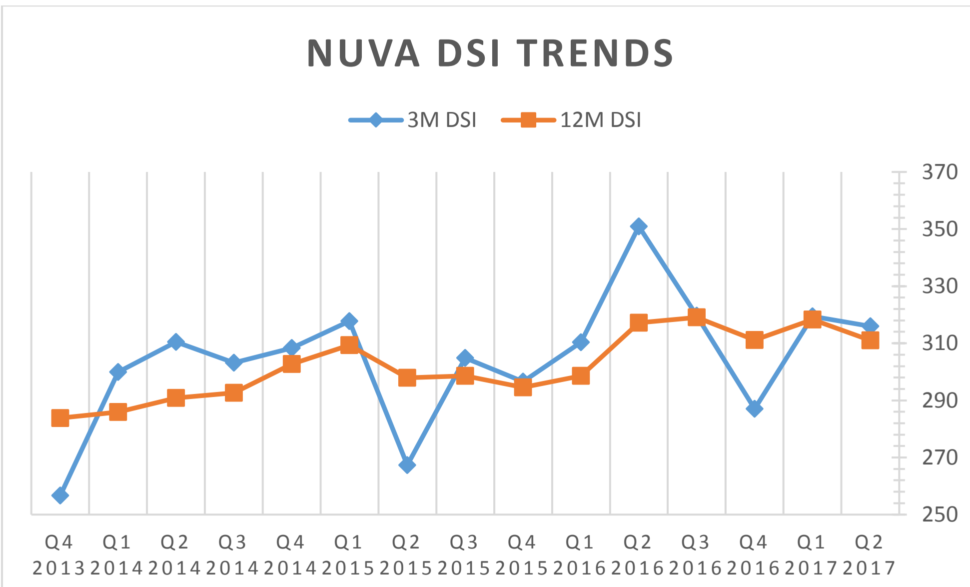
- Below we can see that NUVA's DSI values have been on a consistent rise dating back to FY2013. At that time, 12M DSI stood at 284 days and has continued to rise in a stair-step fashion to the 311 day balance it stands at currently. And while the overall balance was slightly greater in in FY2016, we note that the Ellipse Technologies acquisition did bring on $22.5 million in extra inventory as of 02/11/16. Thus, even as NUVA has had time to work through this added inventory over the last year and a half with Ellipse now fully integrated, its overall DSI values remain highly elevated.

- Looking at inventory relative to sales, we find that the current value of 90.9% has risen 542 bps YOY and stands at a five-year seasonal high. The 90.9% percentage is a value not seen since dating back to Q2 2009!

- Further corroborating our hypothesis, our analysts looked at NUVA's inventory relative to forward sales in order to guard against heightened future demand. Here we calculated that inventory was 91.6% and 42.5% of 3M and 6M forward sales, respectively. These figures are at their respective five-year high for NUVA. In laymen's terms, if the dominator (future sales) was expected to be much larger, then this ratio would be more in-line with historical norms for the company. However, this is not the case, in fact, it's the opposite meaning there is no heightened future demand for NUVA's products.

- Finally, another "tell" that points to management's comments being disingenuous is the accounts payable-to-inventory ratio being at a five-year low for Q2s at 35.0%. This tells us that management has been actually *decreasing* its inventory purchases over the last year, but inventory continues to build due to decreased sales. Again, these accounting metrics point to GHR's own channel-stuffing hypothesis rather than management's explanations as discussed below.

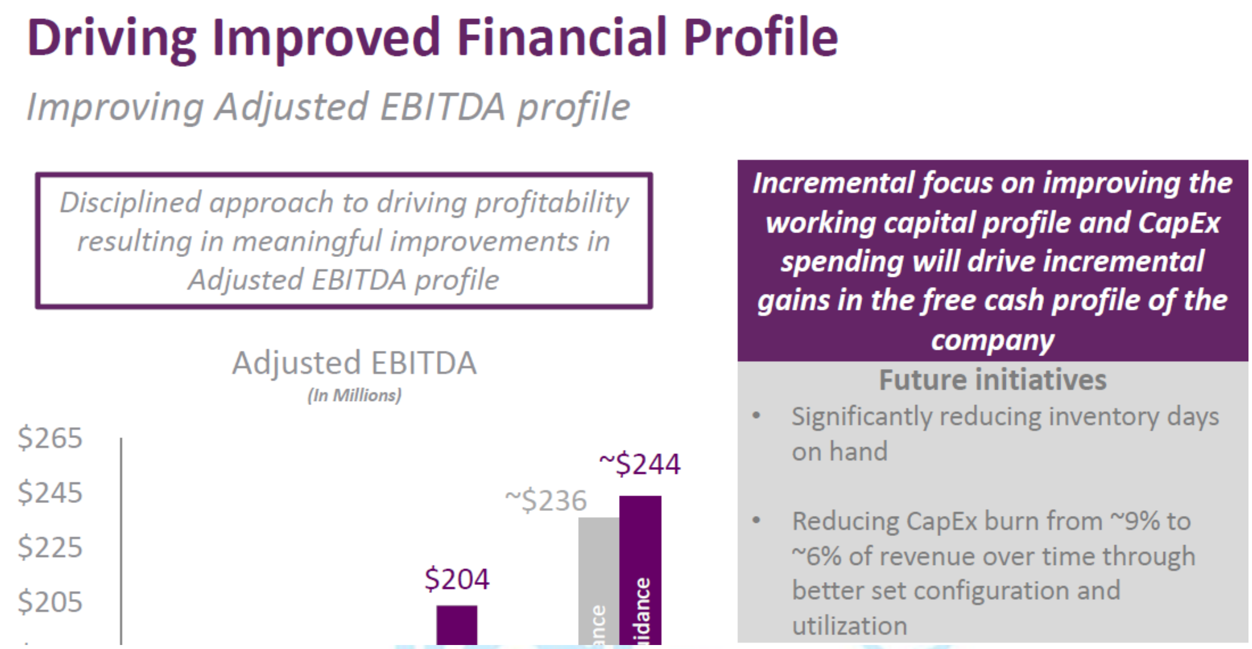
- Lastly, one of the biggest tells we have found is that out of nowhere NUVA decided to remove its inventory reserve disclosure in its 10-K filing as of FY2016. A reserve as highly material as this makes no sense as to why it was removed unless NuVasive has something to hide. This reserve has been disclosed going back over 10 years for NUVA and suddenly it was removed. The balance of this reserve at the end of FY2015 was $28.5 million, a value that comprised up of 16.9% of total inventory; *highly material, a* *material girl in a material world*. <u>What we do find at the end of FY2015 is the firm's write-downs and additions increasing rapidly over the past five years, something our analysts have not seen to this magnitude in very many other companies</u>. There is a very good chance that this reserve has grown even higher in FY2016, but the fact is the lack of – or actual removal of – this disclosure is very telling.



- So what's happening with NUVA's inventory? What does management have to say about this growing problem? Well, dating back to FY2015 10K, we find that inventory is briefly discussed in the COGS section as the following:

> This decrease in cost of goods sold as a percentage of revenue, which resulted in higher gross margin, was primarily due to an approximate 2% decrease in cost or reserve requirements due to inventory efficiencies and margin improvements gained from the acquisition of the spine implant manufacturer ANC, LLC in May 2013 (now named "NuVasive Manufacturing Limited") and overall operational efficiencies realized during 2014 including increased medical billing collections and volume in monitoring services.

- However, since that time (FY2015), management has been fairly radio silent with regard to its consistent rise. The company did however add this bullet point into its Earnings Presentation on 07/26/16:



- The excerpt of the "significantly reducing inventory days on hand" was disclosed at a time when 12M DSI stood at 317 days. As discussed above, the current balance of 311 days is still significantly outside NUVA's historical norms, however management decided to remove this excerpt as of its last accounting period!

- The inefficiencies regarding NUVA's inventory balance was finally discussed on the latest Q2 Earnings Call with the former CFO Quentin Blackford stating the following:

> Non-GAAP gross margin for the second quarter was 74.5%, down 330 basis points from the prior year. *The lower gross margin profile of the Biotronic business that we acquired in July of last year had a 280-basis-point impact to our year-over-year decline. Within that 280-basis-point headwind was roughly 50 basis points of pressure created by the temporary billing and collections backlog mentioned before.* *There was also a 30-basis-point headwind related to inventory inefficiencies as we transfer production from our Fairborn facility into West Carrollton.*
>
> As we continue to work through that transition, we anticipate that these

headwinds will turn to tailwinds in the third and fourth quarters. Pricing pressure continues to be consistent from past quarters, remaining in the low-single digits at negative 1.9%.

- **While management appears to be blaming its "inventory inefficiencies" on its transfer production to its West Carrollton facility, we believe this may be a red herring where slow-moving and obsolete inventory is the real obstruction for the firm based on our prior calculations.**

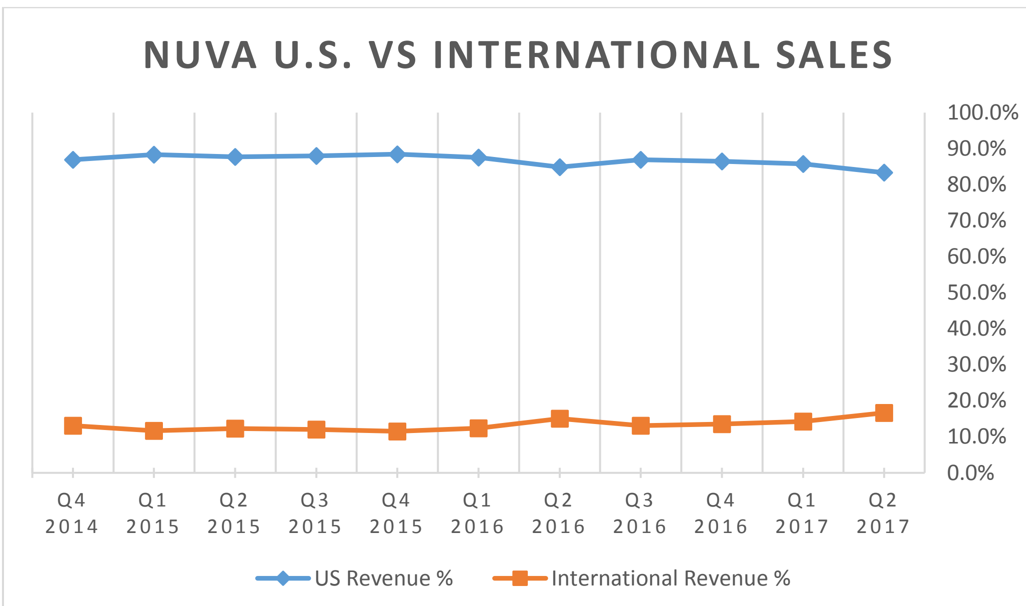
Receivables Spike on the Balance Sheet as Management Curiously Points to "Delayed Billing"

One of the most telling red flags our analysts find at GHR relate to anomalous trends not only inventory balances, but accounts receivable as well. Another well-known trick managers play on analysts when DSOs are rising is to point to ERP implementation (or worse in NUVA's case) to its "NuVasive Clinical Services billing and collections backlog." While this may very well be the case, more times than not, when we find companies with a plethora of earnings quality concerns such as NUVA, we need to be highly skeptical as we were with a previous report for a company that ended up with accounting issues: Electronics for Imaging.

Unfortunately, NUVA management has been fairly tight-lipped when discussing accounts receivable (AR) and the deriving days-sales-outstanding (DSO) trends. Prior to the current quarter, management did not discuss DSOs on its conference calls dating back to the Q4 2014 call. On this call, former CFO Quentin Blackford discussed the normalized level of DSOs at that time:

> With regard to AR, what you're seeing play through there is, in total, we've got a DSO of about 52 days on average. *However, as the mix of the business continues to migrate towards international and that becomes a bigger component of our overall business, the payment terms in that international business are much longer.* So you're going to naturally see AR probably growing a bit faster than what you do the revenue dollars. And that's just the nature of us continuing to expand into a global company that we are.

While we are in 100% agreement with the former CFO about the rising DSO values subsequent to 2014, one thing our analyst do not agree on is that it is fully attributable to the rise in international sales relative to total sales. In fact, when we review the mix of domestic and international sales since this statement was made, we find the mix to be highly similar to the prior years (see Chart below). Specifically, international sales stood at 13.1% relative to total sales in Q4 2014 when this statement was made. And as of the current period international sales was only up slightly to 16.7%; representing only a 360 bps change over a 10 period (2.5 years) timeframe. So yes, while a small percentage of the recent DSO value increase may be attributable to international sales, we believe something more nefarious may be driving this metric higher as discussed below.



- Turning to the specific outsized AR metrics at hand, we note that NUVA's DSO levels have reached new five-year highs at 63 days and 59 days, respectively.[4] The increase of these metrics have been on a persistent rise going back to Q4 2013, and then with a major spike occurring in the LTM (see Chart below on Page 24).

[4] Our lower DSO values differ from management's stated 66 days DSO value due to our analysts using the average AR balance instead of ending.

- **Further diagnostics show that AR-to-3M-sales increased by 1,290 bps YOY to 73.0%; representing a five-year high. This metric also stands well above the five-year seasonal average of 61.6%.**

- **As discussed earlier, management foreshadowed the rise being attributable to the expected rise in international sales, which we believe may not be entirely true. And even if NUVA believed that international sales would lead to longer collection times, GHR points out that this could also lead to amplified write-offs from riskier clients.**

- **Finally in the latest quarter, management discussed the recent spike in DSO metrics with former CFO Quentin Blackford stating:**

  However, we also realized the impact of some integration challenges in the quarter as we relocated our billing and collection functions from Ann Arbor to Baltimore over the course of the first half of the year. As a result of the transition, we've seen our timeliness of billing and collections be pushed by roughly 1 month, which we anticipate impacted revenues by approximately $1 million in the quarter. These challenges are entirely within our control and are being managed appropriately with increased attention and resources to work through the processing backlog as a result of the transition.

  The delayed billing has also increased our DSO, which was at 66 days for the quarter. The increase in DSO over the prior quarter of approximately 4 days is almost entirely attributable to the NCS billing and collections backlog. In addition, the strength of our International business, which has a longer collection cycle on average, has created mix pressure on our DSOs and has been partially mitigated by solid collections on the U.S. hardware side.

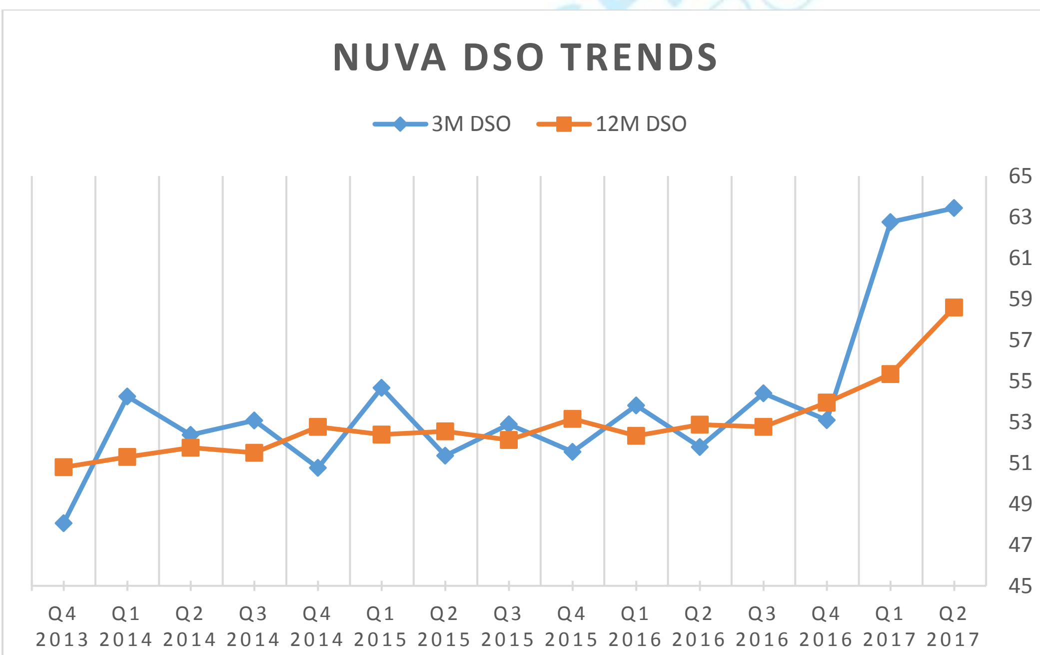
- **While Mr. Blackford again doubled-down on his international sales statement, we find the rationale that the DSO increase stemmed from "relocating billing and collection" from one city to another and also based on its NuVasive Clinical Services (NCS) billing is implausible.**

- **Background on the NCS division: this was created in July 2016, when BNN Holdings Corp. (owns and operates Biotronic NeuroNetwork) was acquired. Following the acquisition NUVA combined the service offerings of the BNN with its existing Impulse Monitoring business under the newly created division NuVasive Clinical Services, or NCS.**

- In the BNN acquisition press release, we find that BNN previously reported approximately $50 million in sales in 2015. Also, that this acquisition would "double NuVasive's service footprint." Therefore, estimating that the NCS division had approximately $100 million in sales in 2015 and adjusting for the recent total revenue growth, we can approximate that NCS revenue was near $120 million in the latest TTM. Overall, this only accounts for 11.8% of consolidated TTM sales, which we believe is not enough to move the needle with the recent spike of DSO metrics.

- So what do we believe is actually going on here? Concurrent with the recent spike in inventory metrics, we believe that NUVA is currently stuffing its channel with products and therefore getting pushback from its clients on payment. As we have seen time and time again, we believe management has pulled revenue from future periods in order to hit short-term performance goals as discussed in the section later on.

- Based on our overall assessment of NUVA, we believe at a time of decelerating organic sales that management is turning to every accounting gimmick possible to boost sales figures. So whether the rise in AR/DSOs is either attributable to 1) the pulling of revenue forward from future quarters and/or 2) collection issues, we see NUVA having a rude awakening in future periods as these highly unfavorable accounting trends uncoil.



Accrued Liabilities Fall to Abnormally Low Levels; Warranty Reserve not Disclosed

Further leading NUVA down into the Balance Sheet abyss, GHR analyzed the firm's "Accounts payable and accrued liabilities" line item and its current unfavorable trends. Why do we care about "accrued liabilities"? Well, the almost always overlooked balance sheet item can be used by savvy CFOs to defer a material amount of expenses on the income statement. Specifically, one tactic a manager can use is to lower its warranty expense relative to historical norms and thereby aesthetically enhance margins for the time being. Although managers can use this accounting gimmick to enhance earnings for a short period of time, this trend must always reverse in future periods.

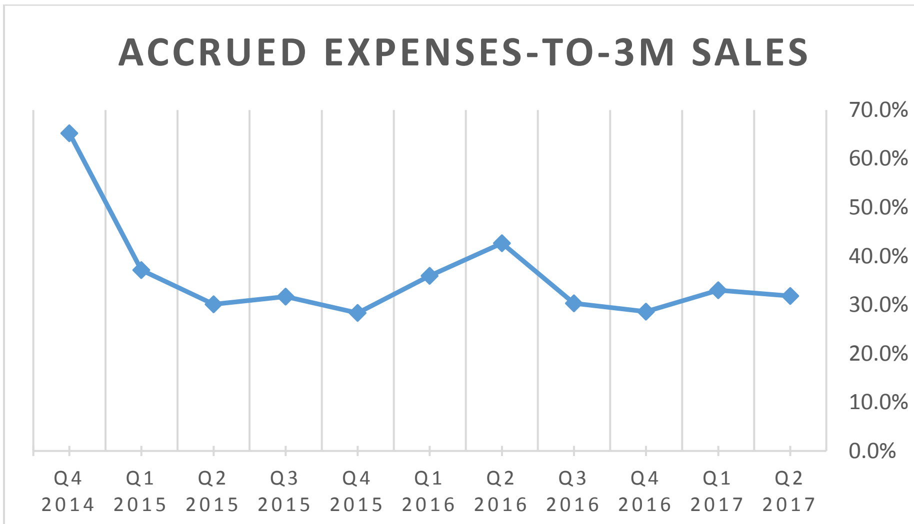
Digging into NUVA's 2016 10-K footnotes, we find the following sub-line items:

	December 31, 2016	December 31, 2015
Accrued expenses	$ 42,355	$ 31,187
Accounts payable	9,121	6,792
Distributor commissions payable	8,836	8,502
Other taxes payable	7,789	6,386
Royalties payable	4,877	4,454
Others	4,607	3,665
Accounts payable and accrued liabilities	$ 77,585	$ 60,986

- While we are mostly concerned with the "accrued expenses" and "others" sub-line items, unfortunately we cannot strip these balances out of the quarterly figures as they are not disclosed. Therefore, our calculations will include the total balance of $77.6 million as of 12/31/16.

- Currently NUVA's accrued liabilities stand at an absolute value of $82.9 million. Relative to total 3M sales, this value only stands at 31.8%, representing a 1,084 bps YOY decline. The current value of 31.8% also stands 927 bps below the five-year seasonal average of 41.1%. What this tells us is that NUVA is not expensing its usual amount on the income statement when using sales as a baseline. On a 12M basis, this ratio stands only at 8.1%, representing a 350 bps YOY decline from the prior year.

- Quantifying this impact on earnings, we used last year's 11.6% ratio as our baseline (also near the five-year average) in calculating the expected Accrued and Other Liabilities line-item. Here, our analysts calculate that we would expect this account to have a normalized balance of $118.7 million as of 06/30/17, not the reported $82.9 million. ***This difference nets an after-tax difference of $19.8 million, or in EPS terms, a 39 cent cosmetic benefit to the bottom line. This simple account that no sell-side analysts look at or understand has benefited EPS (non-GAAP EPS) by an astonishing 62.9% (22.0%) over the TTM!***



- **Finally, we question why management would not disclose any of its warranty reserve balances similar to peers in the space. We see within the Risk Factors section of the 10K that NUVA deems this account to be material. NUVA uses the following disclosure in its Annual Report:**

> We bear the risk of express and implied warranty claims on products we supply, including equipment and component parts manufactured by third parties. We may not be successful in claiming recovery under any warranty or indemnity provided to us by our suppliers or vendors in the event of a successful warranty claim against us by a customer or that any recovery from such vendor or supplier would be adequate. In addition, warranty claims brought by our customers related to third-party components may arise after our ability to bring corresponding warranty claims against such suppliers expire, which could result in additional costs to us. *There is a risk that warranty claims made against us will exceed our warranty reserve and our business, financial condition and results of operations could be harmed.*

- Relating to the aforementioned point about delaying current expenses, our analysts would like to review the balance of this account relative to historical norms. Without this disclosure, this is impossible to analyze and find it peculiar that it is not disclosed in NUVA's 10-K like so many of its peers.

Amortization of Capitalized Software Deviates from Norm

- According to NUVA's 10-K, the firm capitalizes internal-use software costs that include direct costs associated with the actual development or acquisition of computer software for internal use, including costs associated with the design, coding, installation, and testing of the system.

- As shown the table below, the firm's balance of capitalized software has spiked up 37.5% in 2016. However, we note that the amortization expense associated with these capitalized assets have not followed suit. In fact, the amount of amortization expense reported in the year was fairly flat only increasing 1.4%.

- We would expect overall that the expense should follow the amount of associated assets on the balance sheet. The divergence of these two items could suggest that management is not expensing enough of these assets and thus these capitalized expenses are now built into the balance sheet. Using a baseline ratio from the prior year, we estimate that the proper amount of amortization expense should have been closer to $10.0 million as opposed to the reported $7.4 million figure in 2016.

Fiscal Year **#s in millions**	**2016**	**2015**	**2014**
Capitalized Software	$24.2	$17.6	$17.3
Associated Amortization	$7.4	$7.3	$7.7
Amortization / Software	30.6%	41.5%	44.5%
YOY			
Capitalized Software (%)	37.5%	1.7%	-12.2%
Associated Amortization (%)	1.4%	-5.2%	40.0%
Amortization / Software (bps)	-1,090	-303	1,659

Non-GAAP Exclusions Obfuscate NuVasive's True Economic Earnings

> *Non-GAAP earnings will without a doubt play a part in the next financial crisis. Sell-side analysts take in the management reported numbers as gospel without question. On a macro level, we erroneously judge the overall valuation of the market on non-GAAP earnings, but at the end of the day, you can't pay your bills with non-GAAP earnings.*

As evident by reviewing our previous Annual Earnings Chart (page 16), we believe that NUVA has a significant cash flow problem that will continue to hinder the firm as they acquire more companies (recently acquiring a new company, Vertera Inc., as of 09/07/17). Our readers can see below how former CFO Quentin Blackford will try and steer analysts to their suggested cash flow metric of "Adjusted EBITDA margin".

> Second quarter adjusted EBITDA margin, which excludes the impact of noncash stock-based compensation, was 26.2%, a meaningful increase of 90 basis points compared to 25.3% in the same period last year, reflecting the continued focus on improving the cash earnings profile of the business.

Again, we point out to our savvy readers how easy it is to game the "adjusted EBITDA" metric, especially at a time when a firm is as acquisitive as NUVA has been. All the firm's R&D can just be spent on acquiring new companies which circumvents this metric (which we have alluded to previously). And the "adjusted" part give the subjectivity of management to exclude any expenses that they deem to be too averse to margins/earnings.

NUVASIVE, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	2016
Operating activities:	
Consolidated net income (loss)	$ 35,426
Adjustments to reconcile net income (loss) to net cash provided by operating activities:	
Depreciation and amortization	102,713
Deferred income tax expense (benefit)	26,265
Loss on repurchases of convertible notes	19,085
Amortization of non-cash interest	22,721
Stock-based compensation	26,924
Impairment of intangible assets	—
Reserves on current assets	11,408
Other non-cash adjustments	16,928
Changes in operating assets and liabilities, net of effects from acquisitions:	
Accounts receivable	(33,250)
Inventory	(22,636)
Prepaid expenses and other current assets	(5,665)
Accounts payable and accrued liabilities	11,854
Accrued royalties	471
Accrued payroll and related expenses	8,849
Litigation liability	(88,450)
Income taxes	23,652
Net cash provided by operating activities	156,295
Investing activities:	
Acquisition of Ellipse Technologies, net of cash acquired	(380,080)
Other acquisitions and investments	(108,591)
Purchases of intangible assets	(5,918)
Proceeds from sales of property and equipment	—
Purchases of property and equipment	(88,372)

Come see this one LIFE-HACK that CFO's use to circumvent normal cash-flow metrics and make cash look amazing!

Sell-side analysts HATE him!

When analyzing a firm's Consolidated Statement of Cash Flows, we as investors *need* to play close attention to the acquisition cash line items shown above. When we analyze a firm as acquisitive as NUVA is, normal financial cash flow metrics such as cash from operating activities, free-cash-flow, and EBITDA are absolutely meaningless as they are all circumvented!

Let's go through one-by-one and debunk every reason why NUVA's current non-GAAP exclusions have no business being excluded from income. Below is an excerpt that shows

NUVA's non-GAAP exclusions for Q2 2017 and what do you know? Magically, $0.44 of EPS is translated to $0.84 of EPS, nearly doubling our earnings instantly!

Reconciliation of Year To Date 2017 Results
GAAP Net Income per Share to Non-GAAP Earnings per Share

(in thousands, except per share data)		Adjustments		Diluted Earnings Per Share
GAAP net income	$	25,429	$	0.44
Business transition costs [1]		1,424		
Non-cash interest expense on convertible notes		9,264		
Amortization of intangible assets [2]		22,766		
Tax effect of adjustments [3]		(14,784)		
Adjustments to GAAP net income		18,670		
Non-GAAP earnings	$	44,099	$	0.84
GAAP weighted shares outstanding - diluted				58,059
Non-GAAP weighted shares outstanding - diluted [4]				52,713

[1] *Costs related to acquisition, integration and business transition activities which include severance, relocation, consulting, leasehold exit costs, third party merger and acquisitions costs and other costs directly associated with such activities.*

[2] *Excludes the amortization associated with non-controlling interest.*

[3] *The impact on results from taxes include tax effecting the adjustments above at the statutory rate as well as taking into account discrete items and including those discrete items in the annual effective tax rate calculation. The Company also includes those adjustments that would have benefited the tax rate in lieu of the above adjustments as part of the Company's tax filings. The impact of the changes to the tax rate results in an annual estimated rate of ~35% on a non-GAAP basis.*

[4] *Excludes the impact of dilutive convertible notes and warrants for which the Company is economically hedged through its anti-dilutive bond hedge arrangements.*

Exacerbating and obfuscating true economic income at NUVA, let's throw out more meaningless earnings metrics from management with our favorite "adjusted EBITDA" metric! As if just plain old EBITDA wasn't enough, now we can remove more expenses that we feel would make our earnings look far worse than we would like. The crazy thing here is that, with regards to the "business transition costs" and stock-based compensation excluded below, both these numbers are entirely up to the discretion of management as to the total amount. Want to hit earnings this quarter? Well, instead of paying cash out, let's give more in SBC and just exclude it from non-GAAP! Normal expenses too high? Let's just move some down into "business transition costs" as a one-time item! Voila!

Reconciliation of Second Quarter and Six Months 2017 Results
GAAP net income to Adjusted EBITDA

(in thousands, except per share data)	Three months ended June 30, 2017		Six months ended June 30, 2017	
GAAP net income	$	12,661	$	25,429
Interest expense/(income), net		9,944		19,606
Provision for income taxes		7,079		8,569
Depreciation and amortization [1]		28,856		58,014
EBITDA	$	58,540	$	111,618
Business transition costs [2]		1,369		1,424
Non-cash stock based compensation		8,394		15,411
Adjusted EBITDA	$	68,303	$	128,453
As a percentage of revenue		26.2%		25.2%

1 *Excludes the amortization associated with non-controlling interest.*

2 *Costs related to acquisition, integration and business transition activities which includes severance, relocation, consulting, leasehold exit costs, third party merger and acquisitions costs and other costs directly associated with such activities.*

I think that, every time you see the word EBITDA, you should substitute the word 'bullshit' earnings.

-Charlie Munger

GAAP vs. non-GAAP Earnings Surprises:

What we find quite concerning when analyzing NUVA's recent earnings surprises (below) are twofold. First, when looking at the firm's recent positive non-GAAP earnings surprises, we observed that NUVA was only beating their estimate by small percentages, particularly only 2.9% for each quarter over the TTM. With the amount of subjectivity involved with non-GAAP exclusions, as discussed below, we at GHR believe it would be quite easy for management to either pay out more in SBC or report heightened "business transition costs" to just beat out non-GAAP estimates every period.

Furthermore, where NUVA was able to either meet or beat in 11 consecutive periods pertaining to non-GAAP earnings dating back to Q4 2014, meanwhile the firm has missed GAAP earnings estimates in 6 of the last 11 periods. We at GHR do not believe this is a coincidence. Again, where the company was able to beat non-GAAP figures by an average of only 2.9% every period in the LTM, the firm pitifully missed GAAP earnings by an average of 20.5% every quarter.

NasdaqGS:NUVA (USD)	FQ1 2016 - Mar 2016	FQ2 2016 - Jun 2016	FQ3 2016 - Sep 2016	FQ4 2016 - Dec 2016	FQ1 2017 - Mar 2017	FQ2 2017 - Jun 2017	FQ3 2017 - Sep 2017
EPS Normalized	0.31 A	0.40 A	0.40 A	0.53 A	0.38 A	0.46 A	0.49 E
Final Est.	0.27 E	0.36 E	0.40 E	0.50 E	0.38 E	0.44 E	-
Median	0.26 E	0.36 E	0.40 E	0.50 E	0.37 E	0.44 E	0.50 E
High	0.31 E	0.39 E	0.45 E	0.52 E	0.39 E	0.45 E	0.54 E
Low	0.25 E	0.28 E	0.38 E	0.49 E	0.37 E	0.44 E	0.44 E
Std. Dev.	0.02	0.02	0.02	0.01	0.01	0.00	0.03
No. of Estimates	19/20	17/17	17/17	17/17	18/18	15/18	18/18
Guidance	-	-	-	-	-	0.44 G	-
Acctg. Standard	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP
EPS (GAAP)	(0.18 A)	0.57 A	0.07 A	0.11 A	0.22 A	0.22 A	0.27 E
Final Est.	0.15 E	0.13 E	0.17 E	0.22 E	0.16 E	0.23 E	-
Median	0.16 E	0.11 E	0.16 E	0.20 E	0.17 E	0.22 E	0.27 E
High	0.20 E	0.20 E	0.20 E	0.27 E	0.24 E	0.30 E	0.34 E
Low	0.06 E	0.08 E	0.13 E	0.17 E	0.07 E	0.20 E	0.16 E
Std. Dev.	0.04	0.04	0.03	0.04	0.04	0.04	0.05
No. of Estimates	9/11	7/9	5/8	5/7	7/8	5/8	7/8

Amortization of Intangible Assets Surges as Acquisitions Heat up:

As discussed at length is one of GHR's previous reports, why does a company exclude these material expenses from income? GHR has looked at enough 10-Ks and Qs to understand the answer. Basically, management's thinking is that this is a "non-cash" expense for the period so that it "doesn't count." Also, another baseless answer management would utter — if pressed on this — would be that "all our peers in the industry do this as well." The crazy part is the exclusions of amortization expenses are highly material to earnings and the sell-side is fine with just ignoring them. Amortization expenses in a medical device company is extremely material and should not be overlooked. Take a look a future estimated amortization expenses NUVA disclosed in its FY2015 10-K:

Total future amortization expense related to intangible assets subject to amortization at December 31, 2015 is set forth in the table below *(in thousands):*

2016	$	17,589
2017		14,392
2018		13,882
2019		12,528
2020		12,117
Thereafter through 2026		14,568
Total future amortization expense	$	85,076

Now let's view this same table, but in the next year after the firm's Ellipse Techonolgies Inc. acquisition:

Total future amortization expense related to intangible assets subject to amortization at December 31, 2016 is set forth in the table below *(in thousands):*

2017	$	48,751
2018		46,658
2019		44,973
2020		44,517
2021		42,598
Thereafter through 2026		63,646
Total future amortization expense	$	291,143

It is obvious to us here at GHR why management would love you to discard these expenses as non-cash. In fact, it is astonishing to point out that these expected expenses for 2017 equate to over 45% of total non-GAAP net income! And we are just suppose to act like they never happened!

Amortization is without a doubt a cash item, it just shifts when the cash is paid out. Specifically, if you refer back to the Cash Flow Statement of NUVA on Page 29, on the two line items under "Investing Activities", that is exactly where NUVA pays out in CASH for those intangible assets. Does the company remove that expense on the income statement at that time because it's a cash item? No, but GHR indicates that the company cannot have it both ways, (a) cry that something is a "non-cash" item when it amortizes, and (b) state that doesn't matter when you pay for the acquisition in cash.

Business Transition Costs Go Back 18 Quarters and Counting:

Based on the consistency of the excluded charges of "business transition costs", management clearly has no plans to cease taking these charges in the near future. Specifically from the firm's 10-K these costs are defined as:

> We incur certain costs related to acquisition, integration and business transition activities which include severance, relocation, consulting, leasehold exit costs, third party merger and acquisitions costs and other costs directly associated with such activities.
>
> The Company has reclassified historically presented product line revenue to conform to the current period presentation. ***The Company has also reclassified certain operating expenses into business transition costs.*** Both reclassifications have no impact on previously reported results of operations or financial position.

The fact the company is able to reclassify what was previous normal operating expenses into the non-GAAP excluded "business transition costs" is scary for all investors of this company. Giving management this much subjectivity over non-GAAP earnings is careless and negligent. It is obvious to every person that understands the purpose of non-GAAP earnings and one-time items that any company taking 18 quarters in a row worth of expenses that it is a normal part of the firm's business. Not a one-time item.

High Ranking Executives Quentin Blackford and Jason Hannon Jump Ship

As a general rule our analysts follow, when a high executive announces to step down with no successor in place or not at retirement age, it is a red flag that problems were brewing in the C-suite. Contrary to this statement, management gave the standard, "Mr. Blackford is leaving to pursue other interests" on 07/27/17. Corroborating this theme on the conference call Mr. Blackford stated:

> Finally, I'd like to touch on my decision to leave the company to pursue another opportunity. It's important for everybody to understand that in no way was this decision connected to any conflict or disagreements with Greg, our Audit Committee or our board.

Nothing to see here right? Maybe in itself this would not be so concerning… but with his former colleague and President Jason Hannon leaving at the same time including the multitude of earnings quality concerns discussed herein, we find this to be highly peculiar. Mr. Blackford has been with NUVA since 2009 where he started as a corporate controller. Working his way up through the corporate ladder, positions in Investor Relations before finally landing both the CFO and chief accounting officer position in August 2014. First off, we question why these two positions (CFO/CAO) are held by the same person as this surely violates separation of duties regarding internal controls. Also, while we find that Mr. Blackford did obtain his CPA license, it has since been deemed inactive at this time. The lack of public accounting experience also adds to our concern when detailing all the accounting red flags of NUVA.

Since his departure, Mr. Blackford has now taken a new position as CFO at Dexcom, a similar size company, although his new salary has not been disclosed in their proxy statement yet. Additionally, Rajesh Asaporta has been appointed to CFO at NUVA as of 08/15/17.

In an even more perplexing move, COO/President Jason Hannon abruptly left NUVA on 07/27/17 as well. He held the position for less than one year as he was appointed to that role on 09/12/16. He previously worked at the company for 11 years in a variety of roles. But the most peculiar thing about his leaving was where he ended up. Although Mr. Blackford at least ended up at another similarly sized company (and assuming salary), Mr. Hannon left to end up at MainStay Medical, a company with a market capitalization of only $100 million. This is compared to NuVasive which currently has an approximate market capitalization of $3 billion at the time of publication. Mr. Hannon also left a total compensation package of near $3 million per year based on the firm's latest proxy. It is highly doubtful that he can pull this time of total compensation at a much smaller medical device company. Mr. Hannon also received an enormous package of fringe benefits (nearly $1 million) that included personal benefits of group life insurance, benefits associated with expatriate assignments, benefits in connection with NUVA's sales incentive award trip and finally spousal attendance at certain events and functions.

We cannot stress enough the red flags that two high ranking executives leaving a company at a time when the CEO is touting the company's $1 billion revenue goal left and right, and what that means in the nefarious sense. Especially when both the stepping down of positions was not due to retirement reasons. Combined with the aforementioned accounting headwinds discussed in this report, our analysts believe that restatements and delayed filings lie ahead based on our experience (similar to what we foretold with EFII).

NUVA has also had previous conflicts with its C-Suite as recently as 2015 when its previous Chairman and CEO, Alex Lukianov resigned over violations of the firm's personnel and expense reimbursement policies. In a tale where the present mimics the past, the then COO Keith Valentine also unexpectedly quit NUVA ending his 14 year tenure with the company.

An independent investigation overseen by NUVA's board revealed that Alex had not complied with certain of the Company's expense reimbursement and personnel policies. There was no indication in the NUVA statement what specific violations of corporate personnel or expense reimbursement policies might have occurred.

Furthermore in mid-2013, NUVA disclosed in its financial results that it had received a federal administrative subpoena from the OIG "in connection with an investigation into possible false or otherwise improper claims referred to Medicare and Medicaid."

The OIG inquiry corresponded with a "special fraud alert" the same OIG had issued several months prior, which raised concerns over incentive payments to physician-owned groups that order certain implantable medical devices for use on patients. The OIG fraud alert did not identify any specific medical devices, firms, or procedures.

But the statement renewed OIG's ongoing concerns about revenue-sharing arrangements between device producers and so-called "physician-owned distributors," and noted that an "anti-kickback statute" is intended to protect patients from inappropriate referrals or recommendations by doctors who are unduly influenced by financial incentives.

But altogether, this company appears to have a history where internal controls are highly lacking with not much oversight.

Easily Manipulated Short-Term Performance Incentives Drive Motivation to Manage Earnings:

- After analyzing the firm's Proxy Statements and Summary Compensation Table & Performance Goals, we find that NUVA uses revenue and non-GAAP operating margin performance goals. This is where we believe drives a high motivation to manage earnings to the upside. Especially, when the bonuses are based on easily manipulated non-GAAP margins.

- Below is NUVA's annual incentive except from its 2016 Proxy:

> **2016 Executive Compensation Highlights.** NuVasive's executive compensation program emphasizes pay-for-performance. For our NEOs [Named Executive Officers], the Committee sets a significant portion of target total annual direct compensation in the form of variable incentives that are designed to motivate our NEOs to achieve overall Company goals, specific business goals and individual performance goals. Below is a summary of the compensation decisions made in 2016.

- Below we detail the revenue/non-GAAP operating margin performance goals and payouts for 2016 and 2015. Here we can see that management came in exactly at both its revenue and non-GAAP operating goals with only a 0.1% and 0.7% deviation, respectively in 2016.

2016:

The table below sets forth the Revenue and non-GAAP Operating Margin performance goals and funding guidelines at the threshold, target, and maximum funding levels for 2016, as well as the actual results.

				Performance Goals (1)			Funding Guideline (1)			
Metric ($ in millions)	Weighting	Target Goal	Actual Result	Threshold	Maximum	Actual	Threshold	Maximum	Actual	Weighted Result
Revenue	50%	$930.0	$929.4	91.6%	108.1%	99.9%	50%	200%	99.6%	103%
Non-GAAP Operating Margin	50%	15.9%	16.01%	89.5%	107.9%	100.7%	50%	200%	106.9%	

(1) Achievements between threshold and maximum are based on a linear interpolation between points along the funding curve.

Page 44 NUVASIVE

Name, Position	2016 Annual Base Salary (1)	2016 Target Cash Bonus (% of Base Salary)	2016 Target Cash Bonus Amount	2016 Actual Cash Bonus Amount	2016 Award (% of Target)
Gregory T. Lucier, *Chairman and CEO*	$800,000	130%	$1,040,000	$1,100,000	106%
Jason M. Hannon, *President and COO*	$575,000	100%	$ 575,000	$ 575,000	100%
Quentin S. Blackford, *EVP and CFO, Head of Strategy and Corporate Integrity*	$454,500	90%	$ 409,050	$ 435,000	106%
Matthew W. Link, *President, U.S. Commercial*	$454,616	90%	$ 409,154	$ 470,000	115%
Edmund J. Roschak, *CEO, NuVasive Specialized Orthopedics*	$450,000	70%	$ 315,000	$ 315,000	100%
Patrick S. Miles, *former President and COO* (2)	$400,137	100%	$ 400,137	$ 412,000	103%

2015:

The table below sets forth the Revenue and non-GAAP Operating Margin performance goals and funding guidelines at the threshold, target, and maximum funding levels for 2015, as well as the actual results.

				Performance Goals (1)			Funding Guideline (1)			
Metric	Weighting	Target Goal	Actual Result	Threshold	Maximum	Actual	Threshold	Maximum	Actual	Weighted Payout
Revenue *(constant currency)*	50%	$827.0M	$815.0M	92.1%	111.7%	98.5%	50%	200%	91%	109%
Non-GAAP *Operating Margin*	50%	14.6%	15.3%	87.5%	117.1%	104.8%	50%	200%	126%	

(1) Achievements between threshold and maximum are based on a linear interpolation between points along the funding curve.

Name, Position	2015 Base Salary	2015 Target Cash Bonus (% of Base Salary)	2015 Target Cash Bonus Amount	2015 Actual Cash Bonus Amount	2015 Award (% of Target)
Gregory T. Lucier, *Chairman and CEO*	$800,000	115%	$ 920,000	$1,058,000	115%
Patrick S. Miles, *President and COO*	$575,000	90%	$ 517,500	$ 569,250	110%
Quentin S. Blackford, *EVP and CFO*	$448,200	70%	$ 313,700	$ 363,250	115.8%
Jason D. Hanson, *EVP, Strategy, Corporate Development and General Counsel*	$485,000	90%	$ 36,375(1)	$ 50,000	137.5%
Peter M. Leddy, Ph.D., *EVP, Corporate Integrity and Global Human Resources*	$450,000	70%	$ 315,000	$ 362,250	115%
Alexis V. Lukianov, *former Chairman and CEO*	$900,000	100%	$ 900,000	—	—

(1) Mr. Hanson's 2015 Annual Bonus Target was prorated from his start date. Additionally, Mr. Hanson was provided a one-time cash bonus of $500,000 to help offset the bonus he forfeited from his prior company.

- We can observe here that the firm's bonuses paid out to its NEOs are a highly substantial amount of their cash base salary. In fact, we see that the bonuses equate to over 100% for each NEO listed above.

- We have already discussed ad nauseam how easy it can be to manipulate the firm's non-GAAP figures. In 2016, we see that NUVA had a non-GAAP operating margin goal of 15.9% and that the "actual" figure came in at 16.01%, and 11 bps difference. <u>How easy could it have been for management to add on to its "business transition costs" and therefore hit this just reached milestone?</u>

- Furthermore, while most novice analysts believe that revenue cannot be manipulated, we have discussed time and time again how NUVA channel stuffing its clients and pulling forward of revenue could have easily accounted for reaching this short-term goal. We believe that the fact that the company offers such short-term performance goals leads to the cutting of many corners and is counter-intuitive to the long-term health of the firm based on our experience.

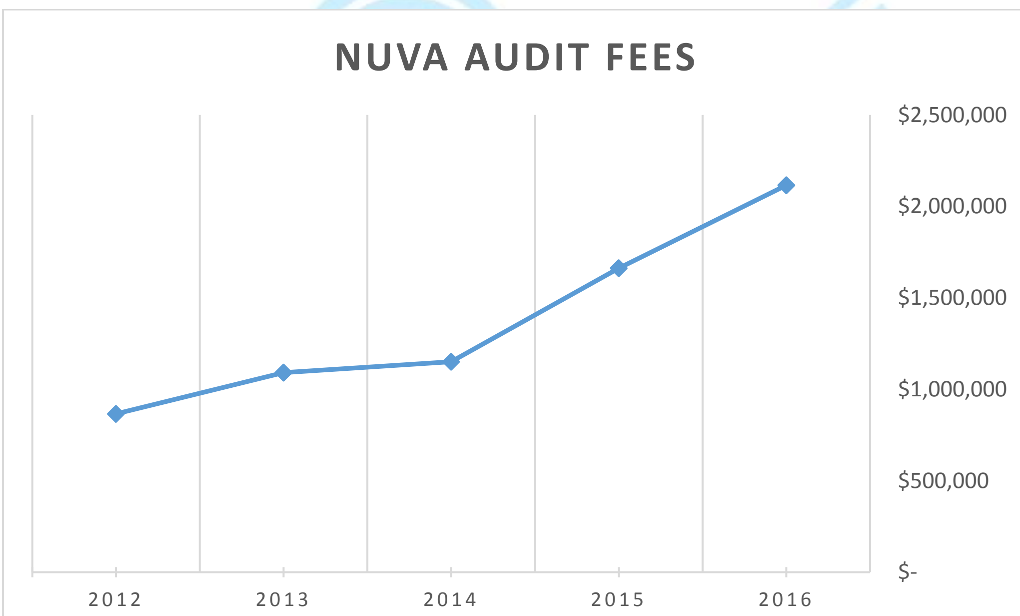
<u>As Accounting Complexity Grows for NUVA, so does their Audit Fees:</u>

- Focusing in on NUVA's audit fees that it has paid to Ernst & Young, we find that these figures have grown drastically over the past five years as NUVA has continued to growth through a series of acquisitions adding to the accounting complexity of the overall company.

- But more importantly, as these companies grow, auditors now begin to rake in millions upon millions of dollars that relate to the growing firm. This leaves us with two hypothesis that could be gathered from increased audit fees to the auditor: 1) If higher audit fees are associated with greater auditor effort or a fee premium for auditor specialization, it could be expected that the quality of the audit would be higher; or 2) contrarily, relatively larger audit fees might lead the auditor to become economically dependent on the client, thereby eroding independence.

- According to a recent study "The Relationship Between Audit Fees and Earnings Quality of Financial Institutions", there was a correlation found results that supported the hypothesis that higher audit fees are associated with companies reporting higher discretionary accruals. Thus, the results are consistent with auditors providing greater latitude in reporting earnings for clients that are charged relatively higher audit fees.

- In NUVA's case, we can see that the amount of auditor fees have skyrocketed in recent years spiking by 144.3% to $2.12 million versus only $865,855 million only five years ago. On the Chart below, the reader can see how material these audit fees have ballooned over the past several years. Overall, we believe that because of these heightened fees, this gives NUVA's managers the ability and leeway to manage earnings through its complexity and acquisition accounting.



EFI's Share Price Premium is Based on Unsustainable Earnings

While the sell-side community continues to value NUVA by the company's given measure of non-GAAP earnings and "adjusted EBITDA," we at GHR believes the company's true economic earnings can be better estimated using more rational metrics such as GAAP earnings and/or free-cash-flow, including acquisitions. If analysts ***do not*** adjust for the obviously recurring and true expenses such as amortization and "business transition costs", it is irrational that the market is valuing this company with a GAAP P/E multiple of over 90x.

Exacerbating the issue, several of the accounting irregularities detailed throughout this report makes NUVA's current multiples appear to be even more outrageous. In order to come to a true sustainable earnings amount for NUVA, we need to back out all figures that we believe are transitory in nature. Regarding inventory, AR, accrued expenses, and capitalized software, we normalized these figures based on historical estimates and therefore calculated the impact to EPS impact. Basing our valuation on our sustainable forward EPS of $1.25, we believe a fair share-price for the firm stands currently at $24.18, which represents a 58.2% downside to the share-price. This uses an industry multiple of 19.4x as shown below.

	TTM P/E	NTM P/E	EV / EBITDA	P / CFOA	P / FCF
JNJ	22.91	18.12	14.19	17.55	19.83
MDT	27.74	18.12	14.19	18.40	22.94
GMED	27.12	17.10	14.43	16.81	22.89
ZBH	33.12	22.73	12.49	13.87	20.45
SYK	32.26	13.84	12.03	29.10	40.74
OFIX	117.16	21.48	17.55	26.93	46.39
Median	29.71	19.35	14.05	17.65	22.98
NUVA	91.00	25.62	15.36	23.83	156.96
% Diff w/NUVA	203.3%	29.39%	7.32%	32.6%	584.9%

light of our concerns regarding the abrupt departure of key executives, corporate culture, lackluster free-cash-flow generation, channel-stuffing concerns, bloated AR on the balance sheet and depleted accrued expense balance, GHR finds the current stock price to be highly egregious. Furthermore, we see added risk regarding the company's limited disclosure regarding its organic revenue growth and fundamental headwinds in its competitive space. Accordingly, we are initiating coverage on NuVasive Inc., with a target price of $24.18.

Full Legal Disclaimer: As of the publication date of this report, GlassHouse, LLC and others that contributed research to this report and others that we have shared our research with (collectively, the "Authors") have short positions in, and own put option positions on, the stock of NuVasive (NUVA), and stand to realize gains in the event that the price of the stock decreases. Following publication of the report, the Authors may transact in the securities of the company covered herein. All content in this report represent the opinions of GlassHouse. The Authors have obtained all information herein from sources they believe to be accurate and reliable. However, such information is presented "as is," without warranty of any kind – whether express or implied. The Authors make no representation, express or implied, as to the accuracy, timeliness, or completeness of any such information or with regard to the results obtained from its use. All expressions of opinion are subject to change without notice, and the Authors do not undertake to update or supplement this report or any information contained herein. This document is for informational purposes only and it is not intended as an official confirmation of any transaction. All market prices, data and other information are not warranted as to completeness or accuracy and are subject to change without notice. The information included in this document is based upon selected public market data and reflects prevailing conditions and the Authors' views as of this date, all of which are accordingly subject to change.

This is not investment advice nor should it be construed as such. Use of GlassHouse LLC's research is at your own risk. You should do your own research and due diligence before making any investment decision with respect to securities covered herein. Following publication of any report or letter, we intend to continue transacting in the securities covered therein, and we may be long, short, or neutral at any time hereafter regardless of our initial recommendation. This is not an offer to sell or a solicitation of an offer to buy any security, nor shall any security be offered or sold to any person, in any jurisdiction in which such offer would be unlawful under the securities laws of such jurisdiction. GlassHouse LLC is not registered as an investment advisor. To the best of our knowledge, information and belief, as of the date hereof, (a) all information contained herein is accurate and reliable and does not omit to state material facts necessary to make the statements herein not misleading, and all information has been obtained from public sources we believe to be accurate and reliable, and (b) who are not insiders or connected persons of the stock covered herein or who may otherwise owe any fiduciary duty or duty of confidentiality to the issuer, or to any other person or entity whose fiduciary duty was breached by the transmission of information to GlassHouse LLC. However, GlassHouse LLC recognizes that there may be non-public information in the possession NUVA that has not been publicly disclosed by the company. Therefore, such information contained herein is presented "as is," without warranty of any kind – whether express or implied. GlassHouse LLC makes no other representations, express or implied, as to the accuracy, timeliness, or completeness of any such information or with regard to the results to be obtained from its use.